1.2.2 Number of Add on /Certificate programs offered during the year

1.2.3 Number of students enrolled in Certificate/ Add-on programs as against the total number of students during the year

Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the year	Duration of course	Number of students enrolled in the	Number of Students completing the
Certification On Data Science And Machine Learning		2023-2024	1	30hrs	116	116
Certification on PC Hardware and Networking		2023-2024	1	30hrs	63	63
Android App Development		2023-2024	1	30hrs	62	62
Certification On Python		2023-2024	1	30hrs	60	60
Certification On IOT		2023-2024	1	30hrs	56	56
Certiifcation On Java		2023-2024	1	30hrs	64	64
Certification on Robotics & Automation		2023-2024	1	30hrs	58	58
Object Oriented Programming	CST 281	2023-2024	1	45hrs	32	12
Number Theory	CST 292	2023-2024	1	45hrs	5	2
Program Methodologies	CST 282	2023-2024	1	45hrs	12	
Number Theory(HONOR)(S4)	CST292	2023-2024	1	45hrs	5	2
Auto Cadd (2d)	-	2023-2024	1	60 hrs	31	31
3ds Max	-	2023-2024	1	60 hrs	31	31
Rivet	-	2023-2024	1	60 hrs	30	30
Primevera	-	2023-2024	1	60 hrs	38	38
Staad Pro	-	2023-2024	1	60 hrs	31	31
Matlab	-	2023-2024	1	60 hrs	33	33
Bim	-	2023-2024	1	60 hrs	34	34

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Eco-friendly Transpoprtation Systems (Minor)	CET283	2023-2024	1	42 hrs	2	2
Geotechnical Investigation & Ground Improvement Techniques (Minor)	CET284	2023-2024	1	42 hrs	2	2
Transportation Systems Management (Honours)	CET395	2023-2024	1	42 hrs	4	4
Earth Dams And Earth Retaining Structures (Honours)	CET396	2023-2024	1	42 hrs	4	4
Pavement Construction And Management (Honours)	CET294	2023-2024	1	42 hrs	1	1
Asic Design		2023-2024	1	30hrs	36	36
Computer Hardware and Networking(MSME)		2023-2024	1	96hrs	24	24
Circuit simulation		2023-2024	1	30hrs	36	36
Embedded System Design		2023-2024	1	30hrs	41	41
RAT282-Introduction To Industrial Automation(S4 Minor)	RAT 382	2023-2024	1	42hrs	47	15
Electronic Design Automation (S6 Honour)	ECT 394	2023-2024	1	22hrs	1	1
FPGA Based System Design(S5 Honour)	ECT 393	2023-2024	1	34hrs	1	1
Basics of Robotics (S3 minor)	RAT 281	2023-2024	1	42hrs	93	38
Nano Electronics(S4 Honour)	ECT 219	2023-2024	1	37hrs	6	3
LaTex for Beginners		2023-2024	1	30 hrs	21	21
Proteus PCB Designing		2023-2024	1	30 hrs	24	24
Energy Management		2023-2024	1	30 hrs	24	24
Solar Power Plant Designing		2023-2024	1	30 hrs	24	24
Research paper writing		2023-2024	1	30 hrs	21	21
Creo-mechanical	-	2023-2024	2	96 hrs	60	60
Auto Cad Mechanical	-	2023-2024	2	96 hrs	25	25
3d Printing Technology	-	2023-2024	1	30 hrs	75	75
Fmc	-	2023-2024	1	30 hrs	60	60
Industrial Engineering (Minor)	MET 386	2023-2024	1	42 hrs	2	2
Manufacturing Technology (Minor)	MET 286	2023-2024	1	42 hrs	2	2
Materials In Manufacturing (Honour)	MET 296	2023-2024	1	42 hrs	5	5
Material Science And Technology (Minor)	MET 285	2023-2024	1	42 hrs	2	2
Machine Tools Engineering	MET 385	2023-2024	1	42 hrs	2	2

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Python for data science		2023-2024	1	45 hours	30	30
Introduction to MATLAB		2023-2024	1	30 hours	30	30
Python for machine learning	CST 283	2023-2024	1	45 hours	15	15
Mathematics for ML	CST 284	2023-2024	1	45 hours	15	15
Chemical Engineering Fundamentals		2023-2024	1	30hrs	19	19
Introduction to Heat Transfer Engineering		2023-2024	1	30hrs	27	27
Fundamentals of Fluid Mechanics for Chemical Engineers		2023-2024	1	30hrs	27	27
Introduction to Water Management		2023-2024	1	30hrs	19	19
Business Etiquette		2023-2024	1	30 Hours	102	102
MS Excel		2023-2024	1	30 Hours	60	60
Payroll		2023-2024	1	30 Hours	22	22
Digital Marketing		2023-2024	1	30 Hours	38	38
Mastering Arduino for IOT		2023-2024	1	30hrs	43	43
Block chain technology		2023-2024	1	40hrs	43	43
Mathematical Reasoning	-	2023-2024	1	30 hours	25	23
Graph Theory	-	2023-2024	1	30 hours	25	24
Applications Of Partial Differential Equations	-	2023-2024	1	30 hours	25	23
Student Professional Development Program	-	2023-2024	1	30 hours	30	29
Multiplexing	-	2023-2024	1	30 hours	25	21
Art Of Public Speaking	-	2023-2024	1	30 hours	30	29
Chemical Parameters Of Water	-	2023-2024	1	30 hours	30	29
Financial Markets, Trading Strategies In Emerging Markets	-	2023-2024	1	30 hours	25	23

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CERTIFICATE COURSE ON FINANCIAL MARKETS, TRADING STRATEGIES IN EMEERGING MARKETS.

Course Content

- ✓ Introduction
- ✓ Financial Market
- ✓ Functions
- ✓ Capital Market & Components
- ✓ Money Market
- ✓ Instruments of Money Market
- ✓ Trading Strategies in Emerging markets

Date: 07.10.2023 to 27.01.2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Mr. Akhil Mathew Moses / BSH

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30 Hours Course (Certificate)

"An open way to know about financial market situation"

Time 9: 00 AM to 4 PM

(5 Days)

MANGALAM COLLEGE OF ENGINEERING
Mangalam Hills, Vettimukal P O
Ettumanoor, Kottayam
686631

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Date: 22//09/2023

Circular

The faculty members along with IQAC Coordinator are requested to assemble for a meeting at 10:00 am on 25/09/2023 in HOD Cabin.

Agenda:

1. Review of KTU university Curriculum and Syllabus
2. Review of gaps identified
3. Suggestions for Certificate course during academic Year 2023-2024
4. Suggestions

Copy to:

1. Principal
2. BSH Department faculty members
3. IQAC Coordinator

HOD / BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Date: 25/09/2023

Minutes of Meeting

All the faculty members of BSH and IQAC coordinator were present in the meeting conducted on 25/09/2023 at BSH HOD Cabin to finalize the Certificate course.

After analyzing the feedback received from various stakeholders like students, faculty, Alumni and Employers, the gap in the Curriculum prescribed by KTU is identified. Further the discussion is held on selection of the Certificate course and identification of Guest lectures on par with the Standards of premier institutes and Industry expectations. Finalized the following Certificate course and guest lecturers for the Academic Year 2023-2024.

Details of Certificate course:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Date of Commencement	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	07/10/2023	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	07/10/2023	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	16/03/2024	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	16/03/2024	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	07/10/2023	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	07/10/2023	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	07/10/2023	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	07/10/2023	Mr. Akhil Mathew Moses

The faculty members will be initiated at the earliest to design the curriculum for the specified Certificate course after getting approval from the Principal.

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

From,

Head of the Department,
Basic Science And Humanities,
Mangalam College of Engineering,
Ettumanoor.

To,

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members for Certificate Course
Reg.

The department meeting is convened on 25/09/2023 for finalizing the Certificate Courses for the academic year 2023-2024. We along with IQAC coordinator and framed the following Certificate Courses:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	Mr. Akhil Mathew Moses

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned Certificate Courses.

Thanking You,
Yours faithfully,

HOD-BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Circular

Ref: MLM/ BSH/ Certificate Course / Circular / 2023-2024/ 25.09.2023

The Department of Basic Science and Humanities is planned to conduct a certificate course for the students. So it is informed to the students to enroll their names for the course which will held on this year. Students are asked to enroll their names to their respective class advisor on or before 29.09.2023. The course syllabus is attached.

Name of the Course	: Financial Markets, Trading strategies in emerging markets
Course Duration	: 07/10/2023 to 27/01/2024 **(Saturdays)(5 days)**
Time Duration	: 09.00 AM to 04.00 PM(6 hours per day)
Subject Handling Faculty	:Mr. Akhil Mathew Moses / BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

1.	Academic Year	2023-2024
2.	Title of the Course	Financial Markets, Trading strategies in emerging markets
3.	Objective of the Course	Students need to get a proper idea about the financial market and need to get systematic knowledge about the trading strategies in emerging markets.
4.	Prerequisite	Nil
5.	Requirement	Offline theory classes
6.	Beneficiary	S5 Students
7.	Date and Duration of the Course	07/10/2023 to 27/01/2024 (30 Hours)
8.	Proposed Timing	09.00 AM to 04.00 PM **(6 hours per every Saturday)**
9.	No of Hours Required	30 Hours
10.	Internal Resources	Mr. Akhil Mathew Moses / BSH
11.	Course Registration Fees	Nil
12.	Contents of Courses	Enclosed Separately
13.	Credits and Certification	Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	M 402

COURSE COORDINATOR **HOD/BSH** **PRINCIPAL**

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE

Financial Markets, Trading strategies in emerging markets

Course Objective:

- Evaluate empirical evidence of market performance, and contrast it with theories of market performance.
- Research and analyze specific problems or issues related to financial markets and institutions.
- Exploring the international integration of international financial markets and analyzes the implications for financial managers.
- Develop an idea about trading market situations.

Course Outcomes:

Sl.NO.	CONTENT	INSTRUCTIONAL HOURS
1	Introduction	1
2	An Overview of Indian Financial System	3
3	Role and Functions of Participants in the Financial Markets	3
4	Capital Market, Evolution and development of Capital Market,	3
5	Future Trends, Components of Capital Markets,	3
6	Money Market, Importance, Composition and Constituents, Instruments of Money Markets	3
7	Instruments of Money Markets	2
8	Role of SEBI, RBI, Ministry of Finance and IRDA.	2
10	Overview of Global Financial Institutions	3
11	Role of NBFCs in economic development, Types of NBFCs , Regulatory framework of NBFCs	2
12	Emerging market situation	2
13	Trading Strategies in emerging market	3
	Total Hours	30

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

List of Students Enrolled for Certificate course: Financial Market, Trading strategies in emerging markets

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/V Semester

Sl.No	Roll No.	Name of the students
1.	MLM21EE008	CHRISTO JOSEPH
2.	MLM21EE010	GANESH KUMAR KS
3.	MLM21EE011	GAUTHAM KRISHNA
4.	MLM21EE012	GEO SUNNY GEORGE
5.	MLM21EE013	HARIKRISHNAN KR
6.	MLM21EE014	JOHNALBIN LIJAN
7.	MLM21EE015	JOYAL JOMON
8.	MLM21EE017	KANNAN BABU
9.	MLM21EE019	MUHAMMED IRFAN
10.	MLM21EE020	NELSON E S
11.	MLM21EE021	SACHU BINU
12.	MLM21EE022	SANDRA SATHEESH
13.	MLM21EE023	SANJAY K.S
14.	LMLM21EE025	AKHIL RAJ
15.	LMLM21CH033	ROHITH RAJEEV
16.	LMLM21CH034	SHAHIN KABEER
17.	MLM21CH001	ABHIRAMI M A
18.	MLM21CH002	AKASH R
19.	MLM21CH003	AMAL KRISHNAN S
20.	MLM21CH004	ANJALY B
21.	MLM21CH005	ANJALY S
22.	MLM21CH006	ANUSREE C
23.	LMLM21EC042	DILSILA N
24.	LMLM21EC043	JITHIN JOY
25.	LMLM21EC044	TEJI JOSEPH

Course Coordinator

HOD/BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Attendance of Certificate course – Financial Market, Trading strategies in emerging markets

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/V Semester

Sl.No	Roll No.	Name of the students	07/10/2023	4/11/2023	18/11/2023	2/11/2023	16/11/2023	Total Attendance
1.	MLM21EE008	CHRISTO JOSEPH	P	P	P	P	P	100
2.	MLM21EE010	GANESH KUMAR KS	P	P	P	A	P	80
3.	MLM21EE011	GAUTHAM KRISHNA	P	A	P	P	P	80
4.	MLM21EE012	GEO SUNNY GEORGE	P	P	P	A	A	60
5.	MLM21EE013	HARIKRISHNAN KR	P	P	P	P	P	100
6.	MLM21EE014	JOHNALBIN LIJAN	P	P	P	P	P	100
7.	MLM21EE015	JOYAL JOMON	P	P	P	P	P	100
8.	MLM21EE017	KANNAN BABU	P	P	P	P	P	100
9.	MLM21EE019	MUHAMMED IRFAN	P	P	P	P	P	100
10.	MLM21EE020	NELSON E S	P	P	P	P	P	100
11.	MLM21EE021	SACHU BINU	P	A	P	P	P	80
12.	MLM21EE022	SANDRA SATHEESH	P	P	P	P	P	100
13.	MLM21EE023	SANJAY K.S	P	P	P	P	P	100
14.	LMLM21EE025	AKHIL RAJ	P	P	P	P	A	80
15.	LMLM21CH033	ROHITH RAJEEV	P	A	P	P	P	80
16.	LMLM21CH034	SHAHIN KABEER	P	P	P	P	P	100
17.	MLM21CH001	ABHIRAMI M A	A	P	P	P	P	80
18.	MLM21CH002	AKASH R	P	P	P	P	P	100
19.	MLM21CH003	AMAL KRISHNAN S	P	P	P	P	P	100
20.	MLM21CH004	ANJALY B	P	P	P	P	P	100
21.	MLM21CH005	ANJALY S	P	A	A	A	A	20
22.	MLM21CH006	ANUSREE C	P	P	P	P	P	100
23.	LMLM21EC042	DILSILA N	P	P	P	P	P	100
24.	LMLM21EC043	JITHIN JOY	A	P	P	P	P	80
25.	LMLM21EC044	TEJI JOSEPH	P	P	P	P	P	100

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE – Financial Market, Trading strategies in emerging markets

Date:
Class: III YEAR

Time: 30 Minutes
Max. Marks: 10

PART – A

Answer all the questions (10 * 1 = 10 Marks)

1. Which of the following considered the most volatile investment?
   (a) FDI (b) FPI
   (c) ECB (d) All the above

2. Which of the following is not a part of the money market?
   (a) Commercial papers (b) T-Bills
   (c) Derivatives (d) Certificate of Deposits

3. Which instrument is used by foreign entities not registered with SEBI to invest in Indian markets via registered brokers?
   (a) Participatory notes (b) GDR
   (c) IDR (d) both 2 & 3

4. Roles and responsibilities of forwarding market commission duties are transferred to.
   (a) SEBI (b) RBI
   (c) SBI (d) NSE

5. Which of the following apps is launched by SEBI?
   (a) SaaRthi (b) YONO
   (c) BHIM (d) UMANG

6. Which of the following stock exchange has its Index named as SENSEX?
   (a) BSE (b) NSE
   (b) ICE (d) CSE

7. Which Indian stock exchange is planning to launch its own Initial Public Offering.
   (a) SKSE (b) NSE
   (c) CoSE (d) BSE

8. Which of these is not part of capital receipt?
   (a) Recovery of loans (b) Disinvestment
   (c) Borrowing (d) Tax

9. The word Bulls and Bears are associated with.
   (a) Import and Export (b) Banking
   (c) Marketing (d) Speculator

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10. Which of the following is the first Regional Rural Bank of India,
    (a) AP Grameena Vikas Bank
    (b) Chaitanya Godavari
    (c) Andhra Pragathi
    (d) Prathama Bank

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE – Financial Market, Trading strategies in emerging markets

Answers:

1	B
2	C
3	A
4	A
5	A
6	A
7	B
8	D
9	D
10	D

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course – Financial Market, Trading strategies in emerging markets

Mark Sheet

Academic Year: 2023-2024 **Batch: 2021-2025**

Year: III/V Semester

Sl.No	Reg. No.	Name of the students	Marks (10)	Out of 100
1.	MLM21EE008	CHRISTO JOSEPH	8	80
2.	MLM21EE010	GANESH KUMAR KS	8	80
3.	MLM21EE011	GAUTHAM KRISHNA	7	70
4.	MLM21EE012	GEO SUNNY GEORGE	6	60
5.	MLM21EE013	HARIKRISHNAN KR	7	70
6.	MLM21EE014	JOHNALBIN LIJAN	9	90
7.	MLM21EE015	JOYAL JOMON	7	70
8.	MLM21EE017	KANNAN BABU	8	80
9.	MLM21EE019	MUHAMMED IRFAN	10	100
10.	MLM21EE020	NELSON E S	9	90
11.	MLM21EE021	SACHU BINU	7	70
12.	MLM21EE022	SANDRA SATHEESH	9	90
13.	MLM21EE023	SANJAY K.S	8	80
14.	LMLM21EE025	AKHIL RAJ	9	90
15.	LMLM21CH033	ROHITH RAJEEV	7	70
16.	LMLM21CH034	SHAHIN KABEER	8	80
17.	MLM21CH001	ABHIRAMI M A	7	70
18.	MLM21CH002	AKASH R	9	90
19.	MLM21CH003	AMAL KRISHNAN S	10	100
20.	MLM21CH004	ANJALY B	7	70
21.	MLM21CH005	ANJALY S	5	50
22.	MLM21CH006	ANUSREE C	8	80
23.	LMLM21EC042	DILSILA N	9	90
24.	LMLM21EC043	JITHIN JOY	10	100
25.	LMLM21EC044	TEJI JOSEPH	7	70

Course Coordinator **HOD/BSH**

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Consolidated Report for the Certificate Course - Financial Market, Trading strategies in emerging markets

Academic Year: 2023-2024

Batch: 2021-2025

Year: III/V Semester

Name of the Activity	Certificate Course
Title of the Activity	Financial Market, Trading strategies in emerging markets
Staff In charge	Mr. Akhil Mathew Moses / BSH
Place of the Activity	M 402
No. of Participants	25
No. of Qualified	23
Name & Designation of Expert	Mr. Akhil Mathew Moses / BSH
Objective of the Activity	Evaluate empirical evidence of market performance, and contrast it with theories of market performance. Research and analyze specific problems or issues related to financial markets and institutions. Exploring the international integration of international financial markets and analyzes the implications for financial managers.
Outcome of the Activity	

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course - Students Feedback

Course Name: Financial Market, Trading strategies in emerging markets

Academic Year: 2023-2024

Course/Branch: B.Tech

Year/Semester: III / V

Student Name:

Reg. No:

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course helps to know about the financial market situation?

1	2	3	4

2. Does the course improve your technical skills?

1	2	3	4

3. Have you learnt any modern tools related with financial market through this course?

1	2	3	4

4. Is the syllabus covered financial market details and new trading strategies in emerging markets?

1	2	3	4

5. Did the courses enable to build your future career?

1	2	3	4

6. Rate the depth of knowledge about the courses.

1	2	3	4

7. Are the courses providing good balance between theory and application?

1	2	3	4

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course - Students Feedback Analysis

S. No	Parameters	Average
1.	Does this course helps to know about the financial market situation?	3.5
2.	Does the course improve your technical skills?	3.2
3.	Have you learnt any modern tools related with financial market through this course?	3.6
4.	Did the courses enable to build your future career?	3.5
5.	Did the courses enable to build your future career?	3.7
6.	Rate the depth of knowledge about the courses.	3.9
7.	Are the courses providing good balance between theory and application?	3.7

Course Coordinator **HOD/BSH** **Principal**

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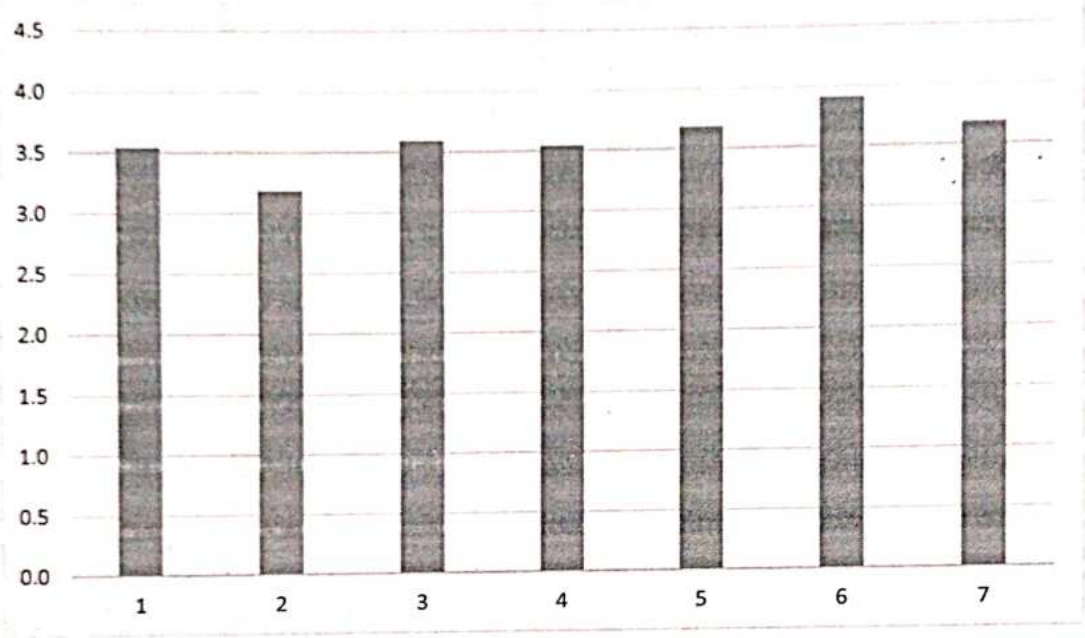
Certificate course - Students Feedback Analysis

Financial Market, Trading strategies in emerging markets



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Certificate of Completion

This is to certify that ***Mr. AMAL KRISHNAN S*** *(MLM21CH003) of third year B.Tech CHE has successfully completed the certificate course on* ***"Financial Market, Trading strategies in emerging markets"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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Certificate of Completion

This is to certify that ***Ms. SANDRA SATHEESH*** *(MLM21EE022) of third year B.Tech EEE has successfully completed the certificate course on* ***"Financial Market, Trading strategies in emerging markets"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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Certificate of Completion

This is to certify that ***Mr. NELSON E S*** *(MLM21EE020) of third year B.Tech EEE has successfully completed the certificate course on* ***"Financial Market, Trading strategies in emerging markets"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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Water Quality Parameters

Critical Parameters

- Dissolved Oxygen
- Temperature
- Ammonia/Nitrite/Nitrate
- pH

Important Parameters

- Alkalinity/Hardness
- Salinity
- Carbon Dioxide
- Solids



CHEMICAL PARAMETERS OF WATER

30 Hour Course

- ✓ To expose the students to the basic concepts of water quality assessment
- ✓ Give various properties water.
- ✓ Study about different types of parameters of water.

Date:07/10/2023 to 27/01/2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Ms. VIDHYA VINAYAN

Asst. Prof/BSH

30 Hours Course (Certificate)

Learn the chemical parameters of water.

MANGALAM COLLEGE OF ENGINEERING

Mangalam Hills, Vettimukal P O Ettumanoor, Kottayam 686631

Time 9: 00 AM to 5 PM (5 Days)

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Date: 22//09/2023

Circular

The faculty members along with IQAC Coordinator are requested to assemble for a meeting at 10:00 am on 25/09/2023 in HOD Cabin.

Agenda:

1. Review of KTU university Curriculum and Syllabus
2. Review of gaps identified
3. Suggestions for Certificate course during academic Year 2023-2024
4. Suggestions

Copy to:

1. Principal
2. BSH Department faculty members
3. IQAC Coordinator

HOD / BSH

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Date: 25/09/2023

Minutes of Meeting

All the faculty members of BSH and IQAC coordinator were present in the meeting conducted on 25/09/2023 at BSH HOD Cabin to finalize the Certificate course.

After analyzing the feedback received from various stakeholders like students, faculty, Alumni and Employers, the gap in the Curriculum prescribed by KTU is identified. Further the discussion is held on selection of the Certificate course and identification of Guest lectures on par with the Standards of premier institutes and Industry expectations. Finalized the following Certificate course and guest lecturers for the Academic Year 2023-2024.

Details of Certificate course:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Date of Commencement	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	07/10/2023	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	07/10/2023	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	16/03/2024	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	16/03/2024	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	07/10/2023	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	07/10/2023	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	07/10/2023	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	07/10/2023	Mr. Akhil Mathew Moses

The faculty members will be initiated at the earliest to design the curriculum for the specified Certificate course after getting approval from the Principal.

HOD-BSH

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

From,

Head of the Department,
Basic Science And Humanities,
Mangalam College of Engineering,
Ettumanoor.

To,

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members for Certificate Course Reg.

The department meeting is convened on 25/09/2023 for finalizing the Certificate Courses for the academic year 2023-2024. We along with IQAC coordinator and framed the following Certificate Courses:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	Mr. Akhil Mathew Moses

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned Certificate Courses.

Thanking You,
Yours faithfully,

HOD-BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Circular

Ref: MLM/ BSH/ Certificate Course / Circular / 2023-2024/ 25/09/2023

The Department of Basic Science and Humanities is planned to conduct a certificate course for first year students. So it is informed to the students to enroll their names for the Composite Materials course which will hold on this year. Students are asked to enroll their names to their respective class advisor on or before 29/09/2023. The course syllabus is attached.

Name of the Course : Chemical parameters of water

Course Duration : 07/10/2023 to 27/01/2024 **(Saturdays)(5 days)**

Time Duration : 09.00 AM to 04.00 PM (6 hours per day)

Subject Handling Faculty Ms. Vidhya Vinayan, AP/BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

1.	Academic Year	: 2023-2024
2.	Tile of the Course	: **Chemical parameters of water**
3.	Objective of the Course	: Understand important parameters for measuring water quality. Know about the methods for the determination of water quality parameters
4.	Prerequisite	: Nil
5.	Requirement	: Offline theory class
6.	Beneficiary	: S1 Students
7.	Date and Duration of the Course	: 07/10/2023 to 27/01/2024 (30 Hours)
8.	Proposed Timing	: 09.00 AM to 04.00 PM **(6 hours per every Saturday)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Ms.Vidhya Vinayan / BSH
11.	Course Registration Fees	: Nil
12.	Contents of Courses	: Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: Chemistry lab

COURSE COORDINATOR **HOD/BSH** **PRINCIPAL**

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MANGALAM COLLEGE OF ENGINEERING
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CERTIFICATE COURSE

CHEMICAL PARAMETERS OF WATER

Course Objective:

At the end of the course the student will be able to:

- Explain the general properties of water and understand water resources and water conservation.
- Understand important parameters for measuring water quality.
- Know about the methods for the determination of water quality parameters

Course Outcomes:

- Student learns the awareness about water quality criteria and standards, and their relation to public health and environment.
- Student learn how to run accurate water quality tests and to determine how the parameters relate to each other.

S.NO.	CONTENT	INSTRUCTIONAL HOURS
1	Introduction and Application	1
2	Chemistry of water, Physical and chemical properties	2
3	Water recourses, water pollution, Important water Quality parameters and methods for their determination - turbidity, color, taste	2
4	pH, acidity, alkalinity, chemical constituents	3
5	Hardness, dissolved oxygen	2
6	Water sampling, standard for drinking water as per BIS specifications, household water treatment and safe storage	2
	PRACTICAL SESSION	
7	Determination of pH of water sample.	2
8	Determination of conductivity.	2
9	Test for acidity and alkalinity.	2
10	Determination of total hardness of water sample.	2
11	Determination of chloride of water sample.	2
12	Determination of calcium of water sample.	2
13	Determination of iron from the water sample.	2
14	Calculation of magnesium content and total solids.	2
15	Determination of DO of water sample.	2
	Total Hours	30

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List of Students Enrolled for Certificate course –: Chemical Parameters of Water

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/II Semester

Sl. No	Reg.No.	Name of the students
1.	MLM23ME001	AADHIL ABBAS
2.	MLM23ME002	A ARAVIND
3.	MLM23ME003	ABHINAND K G
4.	MLM23ME004	ABHINAV J P
5.	MLM23ME005	ABHINAW S K
6.	MLM23ME006	ABHIRAM S P
7.	MLM23ME007	ADHITHYAN K MOHAN
8.	MLM23ME008	ADITH JOSEPH
9.	MLM23ME009	ADITHYAN SAJI
10.	MLM23ME010	ADITHYAN SURESH
11.	MLM23ME011	AKASH S NAIR
12.	MLM23ME012	AKSHAI S NAIR
13.	MLM23ME013	ANANDAKRISHNAN V
14.	MLM23ME014	ANURAG S
15.	MLM23ME015	ARAVINDH A
16.	MLM23ME016	ARAVIND MAHESWARAN
17.	MLM23ME017	ARJUN ASHOK
18.	MLM23ME018	ARUN V J
19.	MLM23ME019	BIPIN K J
20.	MLM23ME020	DEVADETHAN D
21.	MLM23ME021	DEVKRISHNAN P
22.	MLM23ME022	DIUS BINOL
23.	MLM23ME023	DOMINIC JOHN
24.	MLM23ME024	DON MATHEW
25.	MLM23ME025	G S ARJUN
26.	MLM23ME026	HARIKRISHNAN B

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27.	MLM23ME027	HARISH SURESH
28.	MLM23ME028	HENRY JOSEPH JENU
29.	MLM23ME029	IRFAN MUHAMMED
30.	MLM23ME030	JAYAKRISHNAN J

Course Coordinator

HOD/BSH

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Attendance of Certificate course – Chemical Parameters of Water

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/II Semester

Sl.No	Roll No.	Name of the students	07/10/23	04/11/23	18/11/23	02/12/23	16/12/23	Total Attendance
1.	MLM23ME001	AADHIL ABBAS	P	P	P	P	P	100
2.	MLM23ME002	A ARAVIND	P	P	P	P	P	100
3.	MLM23ME003	ABHINAND K G	P	P	P	P	P	100
4.	MLM23ME004	ABHINAV J P	P	P	P	P	P	100
5.	MLM23ME005	ABHINAW S K	P	P	P	P	P	100
6.	MLM23ME006	ABHIRAM S P	P	P	P	P	P	100
7.	MLM23ME007	ADHITHYAN K MOHAN	A	P	P	P	P	80
8.	MLM23ME008	ADITH JOSEPH	P	P	P	P	P	100
9.	MLM23ME009	ADITHYAN SAJI	P	P	P	P	P	100
10.	MLM23ME010	ADITHYAN SURESH	P	P	P	P	P	100
11.	MLM23ME011	AKASH S NAIR	P	P	P	P	P	100
12.	MLM23ME012	AKSHAI S NAIR	P	P	P	P	P	100
13.	MLM23ME013	ANANDAKRISHNAN V	P	P	P	P	P	100
14.	MLM23ME014	ANURAG S	P	P	P	P	P	100
15.	MLM23ME015	ARAVINDH A	P	P	P	P	P	100
16.	MLM23ME016	ARAVIND MAHESWARAN	P	P	P	P	P	100
17.	MLM23ME017	ARJUN ASHOK	P	P	P	P	P	100
18.	MLM23ME018	ARUN V J	P	P	A	P	P	80
19.	MLM23ME019	BIPIN K J	P	P	P	A	P	80
20.	MLM23ME020	DEVADETHAN D	P	P	P	P	P	100
21.	MLM23ME021	DEVKRISHNAN P	P	P	P	P	P	100
22.	MLM23ME022	DIUS BINOL	P	P	P	P	P	100
23.	MLM23ME023	DOMINIC JOHN	P	A	P	A	P	60
24.	MLM23ME024	DON MATHEW	P	P	A	P	P	80
25.	MLM23ME025	G S ARJUN	P	P	P	A	P	80

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26.	MLM23ME026	HARIKRISHNAN B	P	P	P	P	P	100
27.	MLM23ME027	HARISH SURESH	P	P	P	P	P	100
28.	MLM23ME028	HENRY JOSEPH JENU	P	P	P	P	P	100
29.	MLM23ME029	IRFAN MUHAMMED	P	P	P	P	P	100
30.	MLM23ME030	JAYAKRISHNAN J	P	P	A	P	P	80

Course Coordinator

HOD/BSH

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CERTIFICATE COURSE – Chemical Parameters of Water

Date: 06/01/2024
Class: I YEAR

Time: 30Minutes
Max. Marks: 10

PART – A

Answer all the questions

(10 * 1 = 10 Marks)

1. Chlorides are estimated by titration with a standard silver nitrate solution by using _____as indicator.
   (a) Potassium manganite (c) Potassium Chloride
   (b) Potassium chromate (d) Potassium dichromate
2. What is the maximum concentration of total solids present in wastewater?
   (a) 350 mg/L (b) 720 mg/L
   (c) 1200 mg/ L(d) 850 mg/L
3. State whether the following statement is true or false.
   Carbonate hardness can be removed by adding lime to water.
   (a) True (b) False
4. The BOD test is carried out for how many days?
   (a) 1 day (b) 2 days
   (c) 5 day (d) 6 days
5. At what temperature the bottles for the BOD test are incubated?
   (a) 25 degree Celsius (b) 35 degree Celsius
   (c) 20 degree Celsius (d) 30 degree Celsius
6. One degree of hardness is equivalent to----------?
   (a) 2 (c) 1
   (b) 10 (d) 100
7. What is the indicator used in EDTA method
   (a) Methylene blue (c) phenolphthalein
   (b) Starch (d) EBT
8. The permissible limit of pH preferred for water is ----------ppm
   (a) 6.5-9 (c) 7-8.5
   (b) 10-14 (d) 0-7
9. Which indicator is used in DO experiment?
   (a) Methylene blue (c) phenolphthalein
   (b) Starch (d) EBT
10. Which of the following statement is wrong regarding permanent hardness?
    (a) It is also called carbonate hardness
    (b) It is due to the presence of sulfates, chlorides and nitrates of calcium and magnesium
    (c) It cannot be removed by boiling
    (d) It requires special methods of water softening to get removed

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CERTIFICATE COURSE – Chemical Parameters of Water

Answers:

1	b
2	a
3	a
4	c
5	c
6	b
7	d
8	c
9	b
10	a

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Certificate course – Chemical Parameters of Water

Mark Sheet

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/II Semester

Sl.No	Reg. No.	Name of the students	Marks (10)	Out of 100
1.	MLM23ME001	AADHIL ABBAS	10	100
2.	MLM23ME002	A ARAVIND	10	100
3.	MLM23ME003	ABHINAND K G	8	80
4.	MLM23ME004	ABHINAV J P	9	90
5.	MLM23ME005	ABHINAW S K	8	80
6.	MLM23ME006	ABHIRAM S P	10	100
7.	MLM23ME007	ADHITHYAN K MOHAN	9	90
8.	MLM23ME008	ADITH JOSEPH	10	100
9.	MLM23ME009	ADITHYAN SAJI	10	100
10.	MLM23ME010	ADITHYAN SURESH	10	100
11.	MLM23ME011	AKASH S NAIR	8	80
12.	MLM23ME012	AKSHAI S NAIR	10	100
13.	MLM23ME013	ANANDAKRISHNAN V	10	100
14.	MLM23ME014	ANURAG S	9	100
15.	MLM23ME015	ARAVINDH A	10	100
16.	MLM23ME016	ARAVIND MAHESWARAN	9	90
17.	MLM23ME017	ARJUN ASHOK	10	100
18.	MLM23ME018	ARUN V J	10	100
19.	MLM23ME019	BIPIN K J	8	80
20.	MLM23ME020	DEVADETHAN D	9	90
21.	MLM23ME021	DEVKRISHNAN P	8	80
22	MLM23ME022	DIUS BINOL	9	90
23	MLM23ME023	DOMINIC JOHN	6	60
24	MLM23ME024	DON MATHEW	10	100
25	MLM23ME025	G S ARJUN	10	100
26	MLM23ME026	HARIKRISHNAN B	8	80
27	MLM23ME027	HARISH SURESH	9	90

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28	MLM23ME028	HENRY JOSEPH JENU	8	80
29	MLM23ME029	IRFAN MUHAMMED	9	90
30	MLM23ME030	JAYAKRISHNAN J	9	90

Course Coordinator

HOD/BSH

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Consolidated Report for the Certificate Course - Chemical Parameters of Water

Academic Year: 2023-2024 **Batch 2023-2027**

Year/ Semester: I/II

Name of the Activity	: Certificate Course
Title of the Activity	: Chemical Parameters of Water
Staff In charge	: Ms. Vidhya Vinayan, AP/BSH
Place of the Activity	: Chemistry lab Mangalam College of Engineering. Ettumanoor
No. of Participants	: 30
No. of Qualified	: 29
Name & Designation of Expert	: Ms. Vidhya Vinayan AP/BSH
Objective of the Activity	Understand important parameters for measuring water quality. Know about the methods for the determination of water quality parameters.
Outcome of the Activity	Students understood how to run accurate water quality tests and to determine how the parameters relate to each other

HOD-BSH

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Certificate course - Students Feedback

Course Name: Chemical Parameters of Water

Academic Year: 2023-2024

Course/Branch: B.Tech/All Branches **Year/Semester:** I/II

Student Name: **Reg. No:**

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course improve your Knowledge about chemical parameters of water?

1	2	3	4

2. Is the course containing relevant information about data transfer through chemical parameters of water?

1	2	3	4

3. Have you learnt any modern tools through this course?

1	2	3	4

4. Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?

1	2	3	4

5. Did the courses enable to build your future career?

1	2	3	4

6. Rate the depth of knowledge about the courses.

1	2	3	4

7. Are the courses providing good balance between theory and application?

1	2	3	4

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Certificate course - Students Feedback Analysis

Parameters	Average
Does this course improve your Knowledge About chemical parameters of water?	3
Is the course containing relevant information about data transfer through chemical parameters of water?	3.5
Have you learnt any modern tools through this course?	3.5
Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?	3.7
Did the courses enable to build your future career?	3.7
Rate the depth of knowledge about the courses.	3.8
Are the courses providing good balance between theory and application?	3.6

Course Coordinator **HOD/BSH** **Principal**

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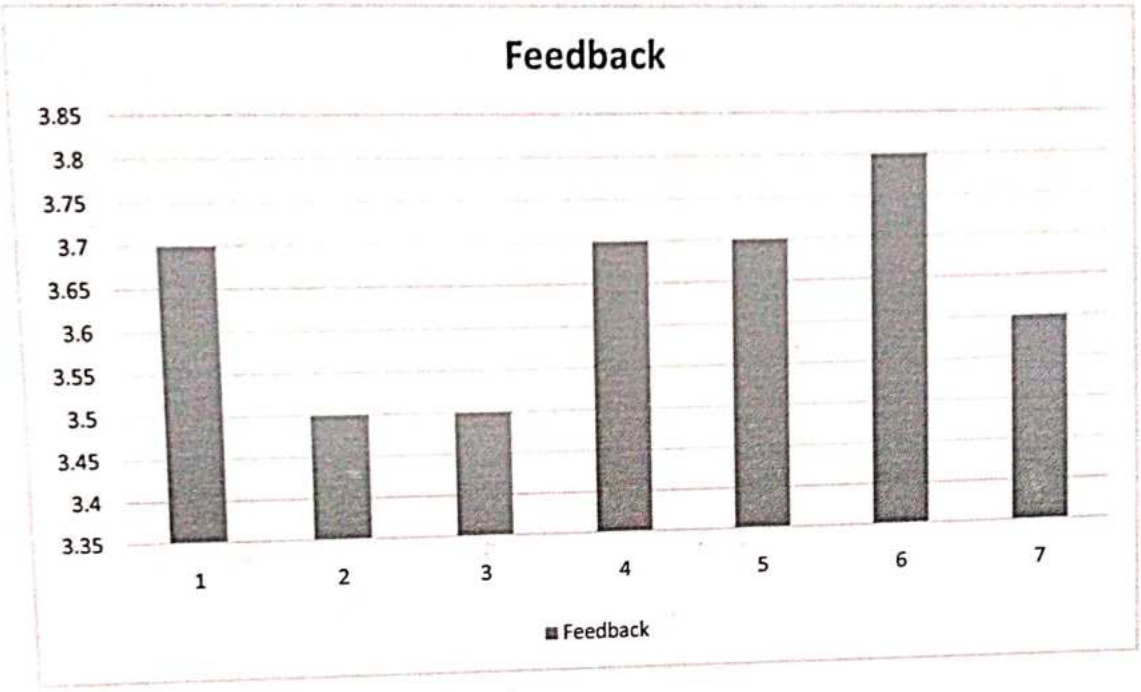
Certificate course - Students Feedback Analysis

Chemical Parameters of Water



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Certificate of Completion

This is to certify that ***Mr. ARUN V J (MLM23ME018)****of first year B.Tech Mechanical Engineering has successfully completed the certificate course on* ***"Chemical Parameters of Water"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

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Certificate of Completion

This is to certify that ***Mr.DON MATHEW (MLM23ME024)*** *of first year B.Tech Mechanical Engineering has successfully completed the certificate course on* ***"Chemical Parameters of Water"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

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विश्वं शास्त्रे प्रतिष्ठितम्।

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Certificate of Completion

This is to certify that ***Mr. ADITH JOSEPH (MLM23ME008)*** *of first year B.Tech Mechanical Engineering has successfully completed the certificate course on* ***"Chemical Parameters of Water"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

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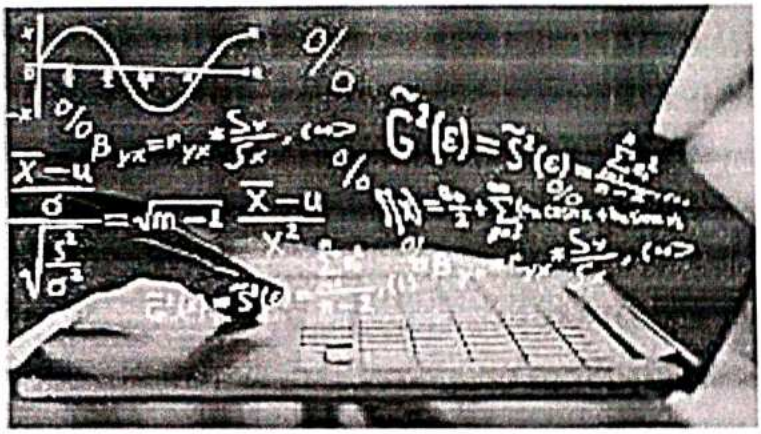

CERTIFICATE COURSE ON

"Applications of partial differential equations"

Course Content

- ✓ Introduction to Partial derivatives
- ✓ Partial differential equations
- ✓ Formation of partial differential equations
- ✓ Solutions of a partial differential equations
- ✓ Boundary value problems
- ✓ One dimensional wave equation
- ✓ One dimensional heat equation

Date: 16.03.2024 to 20.04.2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Ms.Ashu Prakash, AP / BSH

30 Hours Course (Certificate)

"Let's know about the applications of partial differential equations....."

Time 9: 00 AM to 4 PM

(5 Days)

MANGALAM COLLEGE OF ENGINEERING

Mangalam Hills, Vettimukal P O

Ettumanoor, Kottayam 686631

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Date: 22//09/2023

Circular

The faculty members along with IQAC Coordinator are requested to assemble for a meeting at 10:00 am on 25/09/2023 in HOD Cabin.

Agenda:

1. Review of KTU university Curriculum and Syllabus
2. Review of gaps identified
3. Suggestions for Certificate course during academic Year 2023-2024
4. Suggestions

Copy to:

1. Principal
2. BSH Department faculty members
3. IQAC Coordinator

HOD / BSH

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Date: 25/09/2023

Minutes of Meeting

All the faculty members of BSH and IQAC coordinator were present in the meeting conducted on 25/09/2023 at BSH HOD Cabin to finalize the Certificate course.

After analyzing the feedback received from various stakeholders like students, faculty, Alumni and Employers, the gap in the Curriculum prescribed by KTU is identified. Further the discussion is held on selection of the Certificate course and identification of Guest lectures on par with the Standards of premier institutes and Industry expectations. Finalized the following Certificate course and guest lecturers for the Academic Year 2023-2024.

Details of Certificate course:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Date of Commencement	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	07/10/2023	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	07/10/2023	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	16/03/2024	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	16/03/2024	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	07/10/2023	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	07/10/2023	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	07/10/2023	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	07/10/2023	Mr. Akhil Mathew Moses

The faculty members will be initiated at the earliest to design the curriculum for the specified Certificate course after getting approval from the Principal.

HOD-BSH

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

From,

Head of the Department,
Basic Science And Humanities,
Mangalam College of Engineering,
Ettumanoor.

To,

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members for Certificate Course
Reg.

The department meeting is convened on 25/09/2023 for finalizing the Certificate Courses for the academic year 2023-2024. We along with IQAC coordinator and framed the following Certificate Courses:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	Ms. Josna Thomas
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7	CHEMICAL PARAMETERS OF WATER	I/S1	30	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	Mr. Akhil Mathew Moses

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned Certificate Courses.

Thanking You,
Yours faithfully,

HOD-BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Circular

Ref: MLM/ BSH/ Certificate Course / Circular / 2023-2024/ 25/09/2023

The Department of Basic Science and Humanities is planned to conduct a certificate course for first year students. So it is informed to the students to enroll their names for the course which will held on this year. Students are asked to enroll their names to their respective class advisor on or before 04/03/2024. The course syllabus is attached.

Name of the Course	: Applications of partial differential equations
Course Duration	: 16/03/2024 to 20/04/2024 **(Saturdays)(5 days)**
Time Duration	: 09.00 AM to 04.00 PM(6 hours per day)
Subject Handling Faculty	: Ms. Ashu Prakash, AP/BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

1.	Academic Year	2023-2024
2.	Tile of the Course	Applications of partial differential equations
3.	Objective of the Course	This course introduces basic ideas of partial differential equations which are widely used in the modelling and analysis of a wide range of physical phenomena and has got application across all branches of engineering.
4.	Prerequisite	A basic course in partial differentiation
5.	Requirement	Offline theory classes
6.	Beneficiary	S2 Students
7.	Date and Duration of the Course	16/03/2024 to 20/04/2024 (30 Hours)
8.	Proposed Timing	09.00 AM to 04.00 PM **(6 hours per every Saturday)**
9.	No of Hours Required	30 Hours
10.	Internal Resources	Ms. Ashu Prakash, AP/BSH
11.	Course Registration Fees	Nil
12.	Contents of Courses	Enclosed Separately
13.	Credits and Certification	Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	M401

COURSE COORDINATOR **HOD/BSH** **PRINCIPAL**

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE

Applications of partial differential equations

Course Objective:

- Introduces basic ideas of partial differential equations
- It has a wide range of application across all branches of engineering.

Course Outcomes:

- Understand the concept and the solution of partial differential equation.
- Analyse and solve one dimensional wave equation and heat equation.

Sl.NO.	CONTENT	INSTRUCTIONAL HOURS
1	Introduction	1
2	Partial derivatives	3
3	Partial differential equations	3
4	Formation of partial differential equations	4
5	Solutions of a partial differential equations,	4
6	Boundary value problems	3
7	One dimensional wave equation	5
8	One dimensional heat equation	5
9	Problems	2
	Total Hours	30

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

List of Students Enrolled for Certificate course

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/II Semester

Sl.No	Roll No.	Name of the students
1.	MLM23EC027	ARYA S PILLAI
2.	MLM23EC028	ASWIN S
3.	MLM23EC029	AVINASH UNNI
4.	MLM23EC030	BINILSUNNY I C
5.	MLM23EC031	DEEPAK S
6.	MLM23EC032	DEVI NANDHANA
7.	MLM23EC033	DEVI S KUMAR
8.	MLM23EC034	ELVIN JOSE
9.	MLM23EC035	ESWAR ARAVIND
10.	MLM23EC036	GEOFF GEORGE
11.	MLM23EC037	GOVIND S
12.	MLM23EC038	JINSON P JOSE
13.	MLM23EC039	JINS RAJAN
14.	MLM23EC041	JIYON BABU
15.	MLM23EC042	JOSHUA K JOSEPH
16.	MLM23EC043	KRIPA SANTHOSH
17.	MLM23EC044	KRISHNADEV G
18.	MLM23EC045	KRISHNANAND KP
19.	MLM23EC046	MEENAKSHI MOHAN
20.	MLM23EC047	MERIN DOMINIC
21.	MLM23EC049	MUHAMMED SHAIFAL
22.	MLM23EC050	NANDANA SUJESH
23.	MLM23EC051	NANDHANA G
24.	MLM23EC052	RAHAN MIRAS K.S
25.	MLM23EC053	RAJASREE R

Course Coordinator

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HOD/BSH

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Attendance of Certificate course

Academic Year: 2023-2024 **Batch: 2023-2027**

Year: I/II Semester

S.No	Roll No.	Name of the students	16.03.24	23.03.24	30.03.24	06.03.24	20.03.24	Total Attendance
1.	MLM23EC027	ARYA S PILLAI	P	P	P	P	p	100
2.	MLM23EC028	ASWIN S	P	P	P	A	P	80
3.	MLM23EC029	AVINASH UNNI	P	A	P	P	P	80
4.	MLM23EC030	BINILSUNNY I C	P	P	P	A	A	60
5.	MLM23EC031	DEEPAK S	P	P	P	P	P	100
6.	MLM23EC032	DEVI NANDHANA	P	P	P	P	P	100
7.	MLM23EC033	DEVI S KUMAR	P	P	P	P	P	100
8.	MLM23EC034	ELVIN JOSE	P	P	P	P	P	100
9.	MLM23EC035	ESWAR ARAVIND	P	P	P	P	P	100
10.	MLM23EC036	GEOFF GEORGE	P	P	P	P	P	100
11.	MLM23EC037	GOVIND S	P	p	A	P	A	60
12.	MLM23EC038	JINSON P JOSE	P	P	P	P	P	100
13.	MLM23EC039	JINS RAJAN	P	P	P	P	P	100
14.	MLM23EC041	JIYON BABU	P	P	P	P	A	80
15.	MLM23EC042	JOSHUA K JOSEPH	A	A	P	P	A	40
16.	MLM23EC043	KRIPA SANTHOSH	P	P	P	P	P	100
17.	MLM23EC044	KRISHNADEV G	A	P	P	P	P	80
18.	MLM23EC045	KRISHNANAND KP	P	P	P	P	P	100
19.	MLM23EC046	MEENAKSHI MOHAN	P	P	P	P	P	100
20.	MLM23EC047	MERIN DOMINIC	P	P	P	P	P	100
21.	MLM23EC049	MUHAMMED SHAIFAL	P	A	A	A	A	20
22.	MLM23EC050	NANDANA SUJESH	P	P	P	P	P	100
23.	MLM23EC051	NANDHANA G	P	P	P	P	P	100
24.	MLM23EC052	RAHAN MIRAS K.S	P	P	P	P	P	100
25.	MLM23EC053	RAJASREE R	P	P	P	P	P	100

Course Coordinator **HOD/BSH**

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE - Applications of partial differential equations

Date:
Class: I YEAR

Time: 30 Minutes
Max. Marks: 10

PART – A

Answer all the questions(10 * 1 = 10 Marks)

1. If $f(z) = x^3 + 3xy$ find $\frac{\partial f}{\partial x}$

   (a) $3x^2$ (b) $3x^2 + 3y$

   (c) $3x^2 + 3x$ (d) $3y$

2. The symbol used for partial derivatives, ∂, was first used in mathematics by Marquis de Condorcet
   a) True
   b) False

3. What is the order of the equation $\frac{\partial y}{\partial x} + xy = 0$
   a) Third Order
   b) Second Order
   c) First Order
   d) Zero Order

4. Which of the following is an example for first order linear partial differential equation?
   a) Lagrange's Partial Differential Equation
   b) Clairaut's Partial Differential Equation
   c) One-dimensional Wave Equation
   d) One-dimensional Heat Equation

5. What is the nature of Lagrange's linear partial differential equation?
   a) First-order, Third-degree
   b) Second-order, First-degree
   c) First-order, Second-degree
   d) First-order, First-degree

6. A partial differential equation is one in which a dependent variable (say 'y') depends on one or more independent variables (say 'x', 't' etc.)
   a) False
   b) True

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7. What is another name for heat equation?
   a) Induction equation
   b) Condenser equation
   c) Diffusion equation
   d) Solar equation

8. Who discovered the one-dimensional wave equation?
   a) Jean d'Alembert
   b) Joseph Fourier
   c) Robert Boyle
   d) Isaac Newton

9. Which of the following statements is false?
   a) Equations that describe waves as they occur in nature are called wave equations
   b) The problem of having to describe waves arises in fields like acoustics, electromagnetics, and fluid dynamics
   c) Jean d'Alembert discovered the three-dimensional wave equation
   d) Jean d'Alembert discovered the one-dimensional wave equation

10. For a partial differential equation, in a function $\varphi(x, y)$ and two variables x, y, what is the form obtained after separation of variables is applied?
    a) $\Phi(x, y) = X(x)+Y(y)$
    b) $\Phi(x, y) = X(x)-Y(y)$
    c) $\Phi(x, y) = X(x)Y(y)$
    d) $\Phi(x, y) = X(x)/Y(y)$

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE – Applications of partial differential equations

Answers:

1	B
2	A
3	C
4	A
5	D
6	B
7	C
8	A
9	C
10	C

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course – Applications of partial differential equations

Mark Sheet

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/II Semester

Sl.No	Reg. No.	Name of the students	Marks (10)	Out of 100
1.	MLM23EC027	ARYA S PILLAI	8	80
2.	MLM23EC028	ASWIN S	8	80
3.	MLM23EC029	AVINASH UNNI	7	70
4.	MLM23EC030	BINILSUNNY I C	6	60
5.	MLM23EC031	DEEPAK S	7	70
6.	MLM23EC032	DEVI NANDHANA	9	90
7.	MLM23EC033	DEVI S KUMAR	7	70
8.	MLM23EC034	ELVIN JOSE	8	80
9.	MLM23EC035	ESWAR ARAVIND	10	100
10.	MLM23EC036	GEOFF GEORGE	9	90
11.	MLM23EC037	GOVIND S	7	70
12.	MLM23EC038	JINSON P JOSE	9	90
13.	MLM23EC039	JINS RAJAN	8	80
14.	MLM23EC041	JIYON BABU	9	90
15.	MLM23EC042	JOSHUA K JOSEPH	6	60
16.	MLM23EC043	KRIPA SANTHOSH	8	80
17.	MLM23EC044	KRISHNADEV G	7	70
18.	MLM23EC045	KRISHNANAND KP	9	90
19.	MLM23EC046	MEENAKSHI MOHAN	10	100
20.	MLM23EC047	MERIN DOMINIC	7	70
21.	MLM23EC049	MUHAMMED SHAIFAL	5	50
22.	MLM23EC050	NANDANA SUJESH	8	80
23.	MLM23EC051	NANDHANA G	8	80
24.	MLM23EC052	RAHAN MIRAS K.S	8	80
25.	MLM23EC053	RAJASREE R	8	80

Course Coordinator **HOD/BSH**

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Consolidated Report for the Certificate Course

Applications of partial differential equations

Academic Year: 2023-2024 **Batch:2023-2027**

Year: I/II Semester

Name of the Activity	Certificate Course
Title of the Activity	Applications of partial differential equations
Staff In charge	Ms. Ashu Prakash/BSH
Place of the Activity	M401
No. of Participants	25
No. of Qualified	23
Name & Designation of Expert	Ms. Ashu Prakash/BSH
Objective of the Activity	Introduces basic ideas of partial differential equations which has a wide range of application across all branches of engineering
Outcome of the Activity	Understand the concept and the solution of partial differential equation and to analyse and solve one dimensional wave equation and heat equation

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course - Students Feedback

Course Name: Applications of partial differential equations

Academic Year: 2023-2024

Course/Branch: B.Tech/ **Year/Semester:** I/II

Student Name: **Reg. No:**

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course improve the knowledge about partial differential equations?

1	2	3	4

2. Does the course improve your problem solving skills?

1	2	3	4

3. Have you learnt any modern tools through this course?

1	2	3	4

4. Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?

1	2	3	4

5. Did the courses enable to build your future career?

1	2	3	4

6. Rate the depth of knowledge about the courses.

1	2	3	4

7. Are the courses providing good balance between theory and application?

1	2	3	4

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course - Students Feedback Analysis

S. No	Parameters	Average
1.	Does this course improve the knowledge about partial differential equations?	3.5
2.	Does the course improve your problem solving skills?	3.2
3.	Have you learnt any modern tools through this course?	3.6
4.	Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?	3.5
5.	Did the courses enable to build your future career?	3.7
6.	Rate the depth of knowledge about the courses.	3.9
7.	Are the courses providing good balance between theory and application?	3.7

Course Coordinator **HOD/BSH** **Principal**

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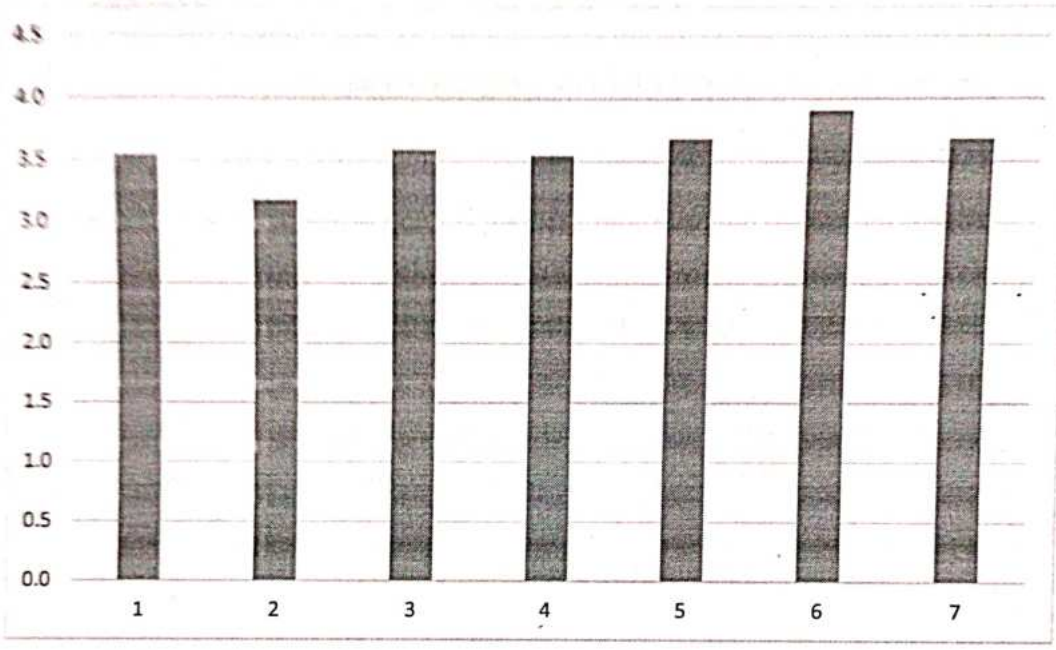
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course - Students Feedback Analysis

Applications of Partial Differential Equations



MANGALAM COLLEGE OF ENGINEERING

Certificate of Completion

This is to certify that ***Mr. GEOFF GEORGE (MLM23EC036)*** *of first year B.Tech ECE has successfully completed the certificate course on* ***"Applications of Partial Differential Equations"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

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MANGALAM COLLEGE OF ENGINEERING

Certificate of Completion

This is to certify that ***Mr. DEEPAK S (MLM23EC031)*** *of first year B.Tech ECE has successfully completed the certificate course on* ***"Applications of Partial Differential Equations"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

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MANGALAM COLLEGE OF ENGINEERING

Certificate of Completion

This is to certify that ***Mr. JOSHUA K JOSEPH (MLM23EC042)*** *of first year B.Tech ECE has successfully completed the certificate course on* ***"Applications of Partial Differential Equations"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

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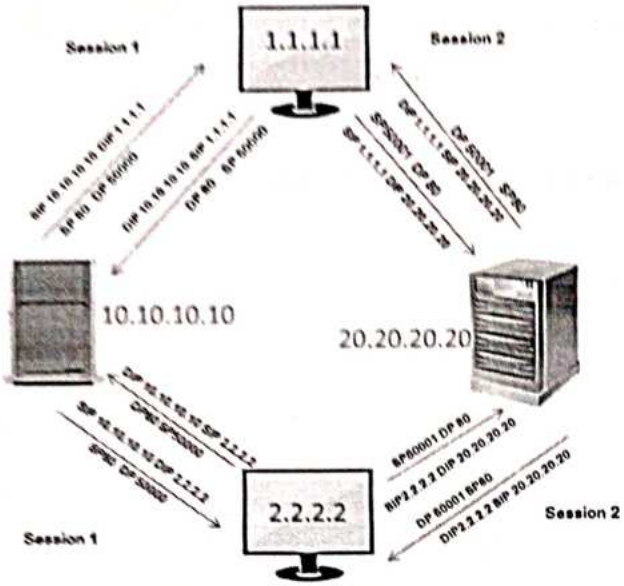

MULTIPLEXING

30 Hour Course

- ✓ To expose the students to the basic concepts of multiplexing
- ✓ Give various signal transmission techniques.
- ✓ Study about different types of multiplexing.

Date: 7-10-2023to 21-1-2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Ms.Chippy Sudevan,AsstProf/BSH

Ms.Chinchu Anna Varkey ,AsstProf/BSH

30 Hours Course (Certificate)

Learn the fundamentals of Multiplexing

MANGALAM COLLEGE OF ENGINEERING
Mangalam Hills, Vettimukal P O
Ettumanoor, Kottayam
686631

Time 9: 00 AM to 5 PM
(5 Days)

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Date: 22//09/2023

Circular

The faculty members along with IQAC Coordinator are requested to assemble for a meeting at 10:00 am on 25/09/2023 in HOD Cabin.

Agenda:

1. Review of KTU university Curriculum and Syllabus
2. Review of gaps identified
3. Suggestions for Certificate course during academic Year 2023-2024
4. Suggestions

Copy to:

1. Principal
2. BSH Department faculty members
3. IQAC Coordinator

HOD / BSH

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Date: 25/09/2023

Minutes of Meeting

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After analyzing the feedback received from various stakeholders like students, faculty, Alumni and Employers, the gap in the Curriculum prescribed by KTU is identified. Further the discussion is held on selection of the Certificate course and identification of Guest lectures on par with the Standards of premier institutes and Industry expectations. Finalized the following Certificate course and guest lecturers for the Academic Year 2023-2024.

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6	ART OF PUBLIC SPEAKING	I/S1	30	07/10/2023	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	07/10/2023	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	07/10/2023	Mr. Akhil Mathew Moses

The faculty members will be initiated at the earliest to design the curriculum for the specified Certificate course after getting approval from the Principal.

HOD-BSH

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

From,

Head of the Department,
Basic Science And Humanities,
Mangalam College of Engineering,
Ettumanoor.

To,

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members for Certificate Course Reg.

The department meeting is convened on 25/09/2023 for finalizing the Certificate Courses for the academic year 2023-2024. We along with IQAC coordinator and framed the following Certificate Courses:

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3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	Mr. Akhil Mathew Moses

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned Certificate Courses.

Thanking You,

Yours faithfully,

HOD-BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Circular

Ref: MLM/ BSH / Certificate Course / Circular / 2023-24/02 **25/09/2023**

The Department of Basic Science and Humanities is planned to conduct a certificate course for first year students. So it is informed to the students to enroll their names for the Composite Materials course which will hold on this year. Students are asked to enroll their names to their respective class advisor on or before 29.09.2023. The course syllabus is attached.

Name of the Course	: Multiplexing
Course Duration	:07/10/2023-27/01/2024**(Saturdays)(5 days)**
Time Duration	: 09.00 AM to 04.00 PM (6 hours per day)
Subject Handling Faculty	:Chippy Sudevan, AP/BSH

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

1.	Academic Year	: 2023-2024
2.	Tile of the Course	:MULTIPLEXING
3.	Objective of the Course	:To create understanding of Multiplexing to enable signals to be transmitted more efficiently over a given communication channel, thereby decreasing transmission cost
4.	Prerequisite	: Nil
5.	Requirement	: offline theory class
6.	Beneficiary	: S1 Students
7.	Date and Duration of the Course	:07/10/2023-27/01/2024 (30 Hours)
8.	Proposed Timing	: 09.00 AM to 03.00 PM **(6 hours per every Saturday excluding second Saturday)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Ms. Chippy Sudevan/ BSH
11.	Course Registration Fees	: Nil
12.	Contents of Courses	: Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	:Physics Lab

COURSE COORDINATOR **HOD/BSH** **PRINCIPAL**

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CERTIFICATE COURSE

MULTIPLEXING

Course Objective:

To expose the students to the basic concepts of multiplexing.

To give idea about various signal transmission techniques.

To study about different types of multiplexing.

Course Outcomes:

S.NO.	CONTENT	INSTRUCTIONAL HOURS
1	Introduction and Application	1
2	Frequency Division Multiplexing	2
3	Analog Carrier Systems	2
4	Wavelength Division Multiplexing	3
5	Time Division Multiplexing-Introduction	1
6	Framing, Pulse stuffing	2
7	TDM of analog & digital sources	2
8	Digital Carrier Systems	2
9	DSI-Mixed data-Multiplexing	2
10	TDM – Carrier Standarding	1
11	SONET/SDH	1
12	SONET Frame Format	1
13	SONET STS -1 Over head octets	1
14	Statistical TDM	2
15	Statistical TDM Frame Formats	2
16	Buffer size and Delay	1
17	Cable modem outline & Cable modem operation	1
18	Cable Modem Scheme &Asymmetrical digital subscription line	1
19	ADSL Design , Channel Configuration	2
	Total Hours	=30

Student learns about the basic concept of multiplexing

Student learns the basic ideas about various multiplexing techniques

Student get an idea about various signal transmission techniques.

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List of Students Enrolled for Certificate course – : Multiplexing

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/II Semester

S.No	Reg No.	Name of the students
1.	MLM23CS087	Lekshmi K R
2.	MLM23CS088	Lia Mariam Joby
3.	MLM23CS089	Manu Krishna
4.	MLM23CS090	Mathews Tess Chacko
5.	MLM23CS091	Meenakshi J
6.	MLM23CS092	Melbin Scaria Thomas
7.	MLM23CS093	Mikhel Suresh
8.	MLM23CS094	Mohammad Basid
9.	MLM23CS095	Muhammed Aslam
10.	MLM23CS096	Nakshathra A Pillai
11.	MLM23CS098	Nandana Prasanth
12.	MLM23CS097	Nandan Dileep
13.	MLM23CS099	Nathaniel Binu Mathew
14.	MLM23AIM001	Abhijith E S
15.	MLM23AIM002	Abhijith T Biju
16.	MLM23AIM003	Abhinave M Sudheendran
17.	MLM23AIM004	Abhirami Venugopal
18.	MLM23AIM005	Adi Anil
19.	MLM23CS001	Aayushi Rajesh
20.	MLM23CS002	Abel George
21.	MLM23CS003	Abhinav Krishna.S
22.	MLM23CS004	Abhinav Raj
23.	MLM23CS005	Abhishek J
24.	MLM23CS006	Abhishek Nair
25.	MLM23CS007	Abhitha Jayan

Course Coordinator **HOD/BSH**

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Attendance of Certificate course – Multiplexing

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/II Semester

S.No	Roll No.	Name of the students	7/10/2023	4/11/2023	18/11/2023	2/12/2023	16/12/2023	Total Attendance
1.	MLM23CS087	Lekshmi K R	P	P	P	P	P	100
2.	MLM23CS088	Lia Mariam Joby	P	P	a	a	a	40
3.	MLM23CS089	Manu Krishna	P	P	P	P	P	100
4.	MLM23CS090	Mathews Tess Chacko	P	P	P	P	P	100
5.	MLM23CS091	Meenakshi J	P	P	P	P	P	100
6.	MLM23CS092	Melbin Scaria Thomas	P	P	P	P	P	100
7.	MLM23CS093	Mikhel Suresh	A	P	P	P	P	80
8.	MLM23CS094	Mohammad Basid	P	P	P	P	P	100
9.	MLM23CS095	Muhammed Aslam	P	a	a	a	P	40
10.	MLM23CS096	Nakshathra A Pillai	P	P	P	P	P	100
11.	MLM23CS098	Nandana Prasanth	P	P	P	P	P	100
12.	MLM23CS097	Nandan Dileep	P	P	P	P	P	100
13.	MLM23CS099	Nathaniel Binu Mathew	P	P	P	P	P	100
14.	MLM23AIM001	Abhijith E S	P	P	P	P	P	100
15.	MLM23AIM002	Abhijith T Biju	P	P	P	P	P	100
16.	MLM23AIM003	Abhinave M Sudheendran	P	P	P	P	P	100
17.	MLM23AIM004	Abhirami Venugopal	P	P	P	P	P	100
18.	MLM23AIM005	Adi Anil	P	P	A	P	P	80
19.	MLM23CS001	Aayushi Rajesh	P	P	P	A	P	80
20.	MLM23CS002	Abel George	P	P	P	P	P	100
21.	MLM23CS003	Abhinav Krishna.S	P	a	a	a	P	40
22.	MLM23CS004	Abhinav Raj	P	P	P	P	P	100
23.	MLM23CS005	Abhishek J	P	P	P	P	P	100
24.	MLM23CS006	Abhishek Nair	P	P	P	P	P	100
25.	MLM23CS007	Abhitha Jayan	a	a	P	a	P	40

Course Coordinator **HOD/BSH**

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CERTIFICATE COURSE – Multiplexing

Date: 06/012024
Class: I YEAR

Time: 0.30 Hrs
Max. Marks: 10
10 * 1 = 10

Marks

PART – A

Answer all the questions

1. Which multiplexing technique used to transmit digital signals?
   (a) FDM
   (b) TDM
   (c) WDM
   (d) FDM & WDM
2. Multiplexing is used in.....
   (a) Packet switching
   (b) Circuit switching
   (c) Data switching
   (d) Packet & Circuit switching
3. In ..... we combine signals from different sources to fit into a larger bandwidth?
   (a) spread spectrum
   (b) line coding
   (c) block coding
   (d) isochronous
4. DMT is a modulation technique that combines elements of _____ and _____.?
   (a) FDM; TDM
   (b) QDM; QAM
   (c) FDM; QAM
   (d) PSK; FSK
5. ..... type of multiplexing are used by transport layer to improve transmission
   (a) upward
   (b) downward
   (c) horizontal
   (d) vertical
6. The technique expands the bandwidth of a signal by replacing each data bit with nbits.
   (a) FDM
   (b) DSSS
   (c) FHSS
   (d) TDM
7. In .....TDM, slots are dynamically allocated to improve bandwidth efficiency.?
   (a) synchronous
   (b) statistical
   (c) isochronous
   (d) Spread spectrum
8. How many types of multiplexing techniques are.....
   (a) one
   (b) two
   (c) three
   (d) four
9. The synchronous Time-division Multiplexing (TDM) is not efficient because of
   (a) Higher data rate
   (b) infinite frames
   (c) empty slots
   (d) lower data rates
10. Which of the following multiplexing technique shifts each signal to a different carrier
    (a) flow control
    (b) timer
    (c) error solution
    (d) flow specification

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CERTIFICATE COURSE – Multiplexing

Answers:

1	b
2	b
3	a
4	c
5	a
6	b
7	b
8	c
9	c
10	d

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Certificate course –Multiplexing

Mark Sheet

Academic Year: 2020-2021 **Batch 2020-2024**

Year: I/II Semester

S.No	Reg. No.	Name of the students	Marks (10)	Out of 100
1.	MLM23CS087	Lekshmi K R	10	100
2.	MLM23CS088	Lia Mariam Joby	4	40
3.	MLM23CS089	Manu Krishna	8	80
4.	MLM23CS090	Mathews Tess Chacko	9	90
5.	MLM23CS091	Meenakshi J	8	80
6.	MLM23CS092	Melbin Scaria Thomas	10	100
7.	MLM23CS093	Mikhel Suresh	9	90
8.	MLM23CS094	Mohammad Basid	10	100
9.	MLM23CS095	Muhammed Aslam	6	60
10.	MLM23CS096	Nakshathra A Pillai	10	100
11.	MLM23CS098	Nandana Prasanth	8	80
12.	MLM23CS097	Nandan Dileep	10	100
13.	MLM23CS099	Nathaniel Binu Mathew	10	100
14.	MLM23AIM001	Abhijith E S	9	100
15.	MLM23AIM002	Abhijith T Biju	10	100
16.	MLM23AIM003	Abhinave M Sudheendran	9	90
17.	MLM23AIM004	Abhirami Venugopal	10	100
18.	MLM23AIM005	Adi Anil	10	100
19.	MLM23CS001	Aayushi Rajesh	7	70
20.	MLM23CS002	Abel George	9	90
21.	MLM23CS003	Abhinav Krishna.S	5	50
22.	MLM23CS004	Abhinav Raj	8	80
23.	MLM23CS005	Abhishek J	9	90
24.	MLM23CS006	Abhishek Nair	10	100
25.	MLM23CS007	Abhitha Jayan	5	50

Course Coordinator

HOD/BSH

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Consolidated Report for the Certificate Course - Multiplexing

Academic Year: 2023-2024 **Batch 2023-2027**

Year/ Semester: I/II

Name of the Activity	: Certificate Course
Title of the Activity	: Multiplexing
Staff Incharges	: Ms.Chippy Sudevan, AP/BSH
Place of the Activity	: Physics Lab
No. of Participants	: 25
No. of Qualified	: 21
Name & Designation of Expert	: Ms.Chippy Sudevan, AP/BSH
Objective of the Activity	To create understanding of Multiplexing to enable signals to be transmitted more efficiently over a given communication channel, thereby decreasing transmission cost
Outcome of the Activity	Students understood how to perform signal transmission effectively through multiplexing.

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Certificate course - Students Feedback

Course Name: Multiplexing

Academic Year: 2023-24

Course/Branch: B.Tech/All Branches **Year/Semester:** I/II

Student Name: **Reg. No:**

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course improve your Knowledge About Multiplexing?

1	2	3	4

2. Is the course containing relevant information about data transfer through multiplexing?

1	2	3	4

3. Have you learnt any modern tools through this course?

1	2	3	4

4. Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?

1	2	3	4

5. Did the courses enable to build your future career?

1	2	3	4

6. Rate the depth of knowledge about the courses.

1	2	3	4

7. Are the courses providing good balance between theory and application?

1	2	3	4

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Certificate course - Students Feedback Analysis

S. No	Parameters	Average
1.	Does this course improve your Knowledge About Multiplexing?	3
2.	Is the course containing relevant information about data transfer through multiplexing?	3.5
3.	Have you learnt any modern tools through this course?	3.5
4.	Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?	3.7
5.	Did the courses enable to build your future career?	3.7
6.	Rate the depth of knowledge about the courses.	3.8
7.	Are the courses providing good balance between theory and application?	3.6

Course Coordinator **HOD/BSH** **Principal**

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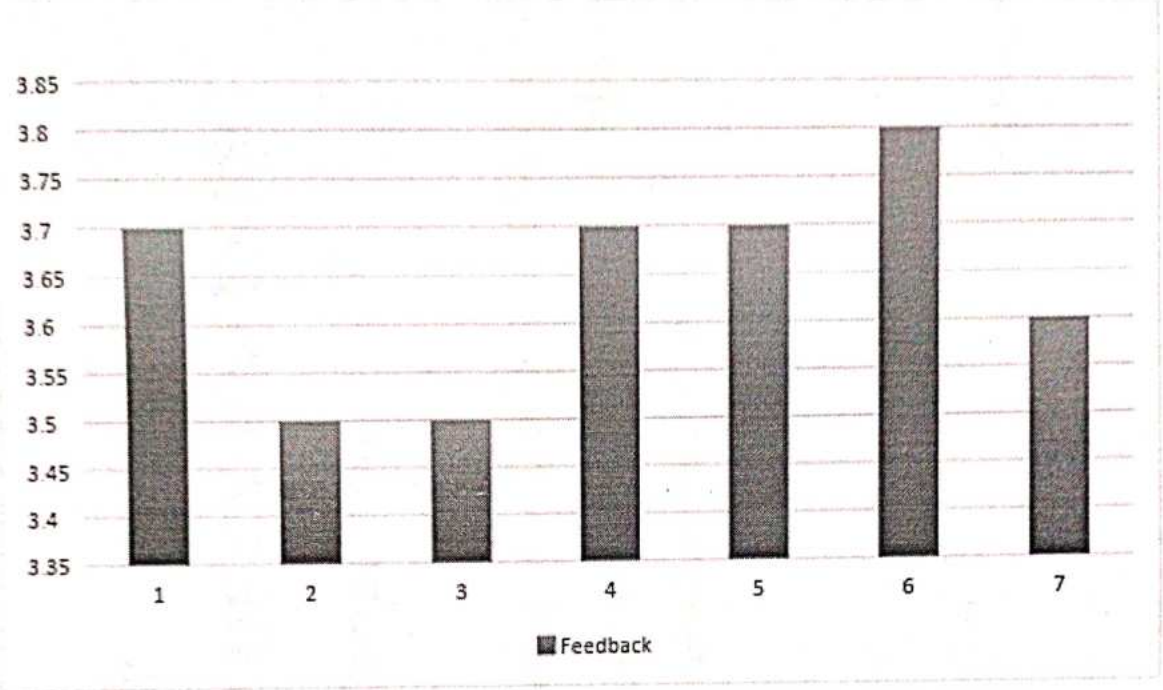
Certificate course - Students Feedback Analysis

Multiplexing



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Certificate of Completion

This is to certify that ***Ms. Lekshmi K R(MLM23CS087)*** *of first year B.Tech CSE has successfully completed the certificate course on* ***"Multiplexing"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

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Certificate of Completion

This is to certify that ***Ms. Nandan Dileep(MLM23CS097)*** *of first year B.Tech CSE has successfully completed the certificate course on* ***"Multiplexing"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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Certificate of Completion

This is to certify that ***Mr.Manu Krishna****(MLM23CS089)of first year B.Tech CSE has successfully completed the certificate course on* ***"Multiplexing"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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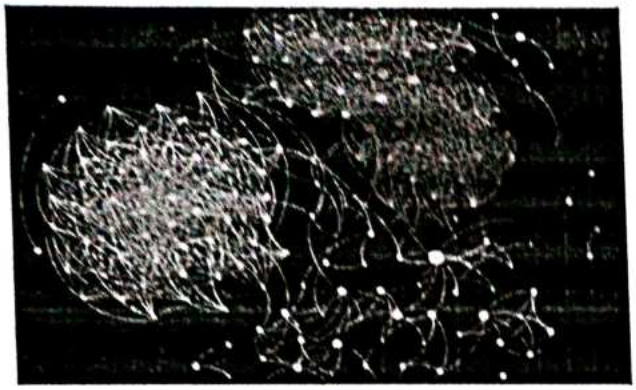

CERTIFICATE COURSE ON GRAPH THEORY

30 Hours Course (Certificate)

"Let's join to the amazing world of graphs..."

Time 9:00 AM to 4 PM

(5 Days)

Course Contents

- ✧ Introduction to graphs
- ✧ Vertex Degrees
- ✧ Sub graphs, Paths and cycles
- ✧ Matrix representation of graphs
- ✧ Trees. Definitions and Simple properties
- ✧ Bridges, Spanning trees, Cut vertices and Connectivity
- ✧ Applications of graph theory
- ✧ One dimensional heat equation

Date: 07.10.2023 to 27.01.2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Ms. Josna Thomas, AP / BSH

MANGALAM COLLEGE OF ENGINEERING

Mangalam Hills, Vettimukal P O

Ettumanoor, Kottayam 686631

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Date: 22//09/2023

Circular

The faculty members along with IQAC Coordinator are requested to assemble for a meeting at 10:00 am on 25/09/2023 in HOD Cabin.

Agenda:

1. Review of KTU university Curriculum and Syllabus
2. Review of gaps identified
3. Suggestions for Certificate course during academic Year 2023-2024
4. Suggestions

Copy to:

1. Principal
2. BSH Department faculty members
3. IQAC Coordinator

HOD / BSH

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Date: 25/09/2023

Minutes of Meeting

All the faculty members of BSH and IQAC coordinator were present in the meeting conducted on 25/09/2023 at BSH HOD Cabin to finalize the Certificate course.

After analyzing the feedback received from various stakeholders like students, faculty, Alumni and Employers, the gap in the Curriculum prescribed by KTU is identified. Further the discussion is held on selection of the Certificate course and identification of Guest lectures on par with the Standards of premier institutes and Industry expectations. Finalized the following Certificate course and guest lecturers for the Academic Year 2023-2024.

Details of Certificate course:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Date of Commencement	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	07/10/2023	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	07/10/2023	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	16/03/2024	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	16/03/2024	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	07/10/2023	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	07/10/2023	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	07/10/2023	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	07/10/2023	Mr. Akhil Mathew Moses

The faculty members will be initiated at the earliest to design the curriculum for the specified Certificate course after getting approval from the Principal.

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

From,

Head of the Department,
Basic Science And Humanities,
Mangalam College of Engineering,
Ettumanoor.

To,

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members for Certificate Course
Reg.

The department meeting is convened on 25/09/2023 for finalizing the Certificate Courses for the academic year 2023-2024. We along with IQAC coordinator and framed the following Certificate Courses:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	Mr. Akhil Mathew Moses

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned Certificate Courses.

Thanking You,
Yours faithfully,

HOD-BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Circular

Ref: MLM/ BSH/ Certificate Course / Circular / 2023-2024/ 25/09/2023

The Department of Basic Science and Humanities is planned to conduct a certificate course for first & second year students. So it is informed to the students to enroll their names for the course which will held on this year. Students are asked to enroll their names to their respective class advisor on or before 29/09/2023. The course syllabus is attached.

Name of the Course	: Graph Theory
Course Duration	: 07/10/2023 to 27/01/2024 **(Saturdays)(5 days)**
Time Duration	: 09.00 AM to 04.00 PM(6 hours per day)
Subject Handling Faculty	: Ms. Josna Thomas, AP/BSH

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

1.	Academic Year	2023-2024
2.	Tile of the Course	Graph Theory
3.	Objective of the Course	This course introduces fundamental concepts in Graph Theory, including properties and characterisation of graph/trees and graph theoretic algorithms, which are widely used in Mathematical modeling and has got applications across Computer Science and other branches in Engineering.
4.	Prerequisite	A basic course in graph theory
5.	Requirement	Online theory classes
6.	Beneficiary	S3 Students
7.	Date and Duration of the Course	07/10/2023 to 27/01/2024 (30 Hours)
8.	Proposed Timing	09.00 AM to 04.00 PM **(6 hours per every Saturday)**
9.	No of Hours Required	30 Hours
10.	Internal Resources	Ms. Josna Thomas, AP/BSH
11.	Course Registration Fees	Nil
12.	Contents of Courses	Enclosed Separately
13.	Credits and Certification	Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	M302

COURSE COORDINATOR **HOD/BSH** **PRINCIPAL**

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE

Graph Theory

Course Objective:

- Introduces fundamental concepts in Graph Theory.
- It has a wide range of application across all branches of engineering.

Course Outcomes:

- Understand the concept of graph theory
- Explain the fundamentals regarding graph theory

Sl.NO.	CONTENT	INSTRUCTIONAL HOURS
1	Introduction to graphs	1
2	Vertex Degrees	3
3	Sub graphs, Paths and cycles	3
4	Matrix representation of graphs	4
5	Trees. Definitions and Simple properties	4
6	Bridges, Spanning trees, Cut vertices and Connectivity	3
7	Applications of graph theory	5
8	One dimensional heat equation	5
9	Problems	2
	Total Hours	30

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

List of Students Enrolled for Certificate course

Academic Year : 2023-2024 **Batch 2022-2026**

Year: II/III Semester

Sl.No	Roll No.	Name of the students
1.	MLM22AIM001	ABHINAVE G NAIR
2.	MLM22AIM002	ADARSH SUNIL
3.	MLM22AIM003	ADHITHYAN V V
4.	MLM22AIM004	AGIN C VIJU
5.	MLM22AIM005	AKASH BIJU
6.	MLM22AIM006	ALAN BINOY
7.	MLM22AIM007	ALAN THANKACHAN
8.	MLM22AIM008	ALBIN BENNY
9.	MLM22AIM009	ALEX J MATHEW
10.	MLM22AIM010	ALFY MATHEW
11.	MLM22AIM011	ALFYMOL T A
12.	MLM22AIM012	AMAL SABU
13.	MLM22AIM013	ANANDHU K BINU
14.	MLM22AIM014	ANJANA ANILKUMAR
15.	MLM22AIM015	ASWIN PRAMOD
16.	MLM22AIM016	ATHUL MANOJ
17.	MLM22AIM017	DEVALAKSHMI S J
18.	MLM22AIM018	DEVA NARAYANAN
19.	MLM22AIM019	DHANUSH P
20.	MLM22AIM020	FAALIHA NISHAD
21.	MLM22AIM021	FARIS BASHEER
22.	MLM22AIM022	HASHIR MUHAMMED
23.	MLM22AIM023	JIBIN N ANI
24.	MLM22AIM024	LEKSHMI KRISHNA PA
25.	MLM22AIM025	MUHAMMED ASLAM S

Course Coordinator **HOD/BSH**

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Attendance of Certificate course

Academic Year: 2023-2024 **Batch 2022-2026**

Year: II/III Semester

S.No	Roll No.	Name of the students	14.11.20	21.11.20	28.11.20	05.12.20	12.12.20	Total Attendance
1.	MLM22AIM001	ABHINAVE G NAIR	P	P	P	P	P	100
2.	MLM22AIM002	ADARSH SUNIL	P	P	P	A	P	8
3.	MLM22AIM003	ADHITHYAN V V	P	A	P	P	P	
4.	MLM22AIM004	AGIN C VIJU	P	P	P	A.	A	
5.	MLM22AIM005	AKASH BIJU	P	P	P	P	P	
6.	MLM22AIM006	ALAN BINOY	P	P	P	P	P	
7.	MLM22AIM007	ALAN THANKACHAN	P	P	P	P	P	0
8.	MLM22AIM008	ALBIN BENNY	P	P	P	P	P	100
9.	MLM22AIM009	ALEX J MATHEW	P	P	P	P	P	100
10.	MLM22AIM010	ALFY MATHEW	P	P	P	P	P	10
11.	MLM22AIM011	ALFYMOL T A	P	P	A	P	A	
12.	MLM22AIM012	AMAL SABU	P	P	P	P	P	
13.	MLM22AIM013	ANANDHU K BINU	P	P	P	P	P	
14.	MLM22AIM014	ANJANA ANILKUMAR	P	P	P	P	A	
15.	MLM22AIM015	ASWIN PRAMOD	A	A	P	P.	A	0
16.	MLM22AIM016	ATHUL MANOJ	P	P	P	P	P	00
17.	MLM22AIM017	DEVALAKSHMI S J	A	P	P	P	P	80
18.	MLM22AIM018	DEVA NARAYANAN	P	P	P	P	P	10
19.	MLM22AIM019	DHANUSH P	P	P	P	P	P	1
20.	MLM22AIM020	FAALIHA NISHAD	P	P	P	P	P	
21.	MLM22AIM021	FARIS BASHEER	P	A	A	A	A	
22.	MLM22AIM022	HASHIR MUHAMMED	P	P	P	P	P	
23.	MLM22AIM023	JIBIN N ANI	P	P	P	P	P	0
24.	MLM22AIM024	LEKSHMI KRISHNA PA	P	P	P	P	P	00
25.	MLM22AIM025	MUHAMMED ASLAM S	P	P	P	P	P	100

Course Coordinator

HOD/BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE – Graph Theory

Date:
Class: II YEAR
PART – A

Time: 30 Minutes
Max. Marks: 10

Answer all the questions (10 * 1 = 10 Marks)

1. Which of the following statements for a simple graph is correct?
   (a) Every trail is a path
   (b) Every path is a trail
   (c) path
   (d) Path and trail have no relation

2. What is the number of edges present in complete graph Kn having n vertices.
   (a) n(n+1)
   (b) n(n−1)
   (c) n
   (d) None of the above

3. What is the maximum number of edges in a bipartite graph having 12 vertices.
   (a) 24 (b) 38 (c) 36 (d) 32

4. Which of the following is true for any simple connected graph with more than 2 vertices.
   (a) No two vertices have same degree
   (b) At least two vertices have same degree
   (c) At least 3 vertices have same degree
   (d) All vertices have same degree

5. Total number of trees with 5 vertices
   (a) 2 (b) 3 (c) 4 (d) 5

6. A graph is called a if it is a connected acyclic graph
   (a) Cyclic graph
   (b) Regular graph
   (c) Tree
   (d) Trivial graph

7. A graph with all vertices having equal degree is known as a
   (a) Multi graph
   (b) complete graph
   (c) Regular graph
   (d) Simple graph

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8. The graph in which, there is a closed trail which includes every edge of the graph is known as?
   (a) Hamiltonian graph
   (b) Euler graph
   (c) Directed graph
   (d) Planar graph

9. How many of the following statements are correct?
   (1) All cyclic graphs are complete graphs.
   (2) All complete graphs are cyclic graphs.
   (3) All paths are bipartite.
   (4) All cyclic graphs are bipartite.
   (5) There are cyclic graphs which are complete.
   (a) 1 (b) 2 (c) 3 (d) 4

10. Total number of edges of a complete graph $K_{m,n}$
   (a) $m + n$
   (b) $m - n$
   (c) mn
   (d) mn

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE – Graph Theory

Answers:

1	A
2	B
3	A
4	C
5	B
6	B
7	D
8	B
9	C
10	C

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course – Graph Theory

Mark Sheet

Academic Year: 2023-2024 **Batch 2022-2026**

Year: II/III Semester

Sl.No	Reg. No.	Name of the students	Marks (10)	Out of 100
1.	MLM22AIM001	ABHINAVE G NAIR	8	80
2.	MLM22AIM002	ADARSH SUNIL	8	80
3.	MLM22AIM003	ADHITHYAN V V	7	70
4.	MLM22AIM004	AGIN C VIJU	6	60
5.	MLM22AIM005	AKASH BIJU	7	70
6.	MLM22AIM006	ALAN BINOY	9	90
7.	MLM22AIM007	ALAN THANKACHAN	7	70
8.	MLM22AIM008	ALBIN BENNY	8	80
9.	MLM22AIM009	ALEX J MATHEW	10	100
10.	MLM22AIM010	ALFY MATHEW	9	90
11.	MLM22AIM011	ALFYMOL T A	7	70
12.	MLM22AIM012	AMAL SABU	9	90
13.	MLM22AIM013	ANANDHU K BINU	8	80
14.	MLM22AIM014	ANJANA ANILKUMAR	9	90
15.	MLM22AIM015	ASWIN PRAMOD	6	60
16.	MLM22AIM016	ATHUL MANOJ	8	80
17.	MLM22AIM017	DEVALAKSHMI S J	7	70
18.	MLM22AIM018	DEVA NARAYANAN	9	90
19.	MLM22AIM019	DHANUSH P	10	100
20.	MLM22AIM020	FAALIHA NISHAD	7	70
21.	MLM22AIM021	FARIS BASHEER	5	50
22.	MLM22AIM022	HASHIR MUHAMMED	8	80
23.	MLM22AIM023	JIBIN N ANI	7	70
24.	MLM22AIM024	LEKSHMI KRISHNA PA	8	80
25.	MLM22AIM025	MUHAMMED ASLAM S	8	80

Course Coordinator **HOD/BSH**

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Consolidated Report for the Certificate Course

Graph Theory

Academic Year: 2023-2024 **Batch: 2022-2026**

Year: II/III Semester

Name of the Activity	Certificate Course
Title of the Activity	Graph Theory
Staff In charge	Ms. Josna Thomas
Place of the Activity	M302
No. of Participants	25
No. of Qualified	24
Name & Designation of Expert	Ms. Josna Thomas, AP/BSH
Objective of the Activity	Introduces fundamental concepts in Graph Theory and it has a wide range of application across all branches of engineering.
Outcome of the Activity	Understand the concept of graph theory and explain the fundamentals regarding graph theory

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Certificate course - Students Feedback

Course Name: Graph Theory

Academic Year: 2023-2024

Course/Branch: B.Tech/ **Year/Semester:** II/III

Student Name: **Reg. No:**

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course improve the knowledge about graphs ?

1	2	3	4

2. Does the course improve your problem solving skills?

1	2	3	4

3. Have you learnt any modern tools through this course?

1	2	3	4

4. Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?

1	2	3	4

5. Did the courses enable to build your future career?

1	2	3	4

6. Rate the depth of knowledge about the courses.

1	2	3	4

7. Are the courses providing good balance between theory and application?

1	2	3	4

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Certificate course - Students Feedback Analysis

Sl. No	Parameters	Average
1.	Does this course improve the knowledge about graphs?	3.5
2.	Does the course improve your problem solving skills?	3.2
3.	Have you learnt any modern tools through this course?	3.6
4.	Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?	3.5
5.	Did the courses enable to build your future career?	3.7
6.	Rate the depth of knowledge about the courses.	3.9
7.	Are the courses providing good balance between theory and application?	3.7

Course Coordinator **HOD/BSH** **Principal**

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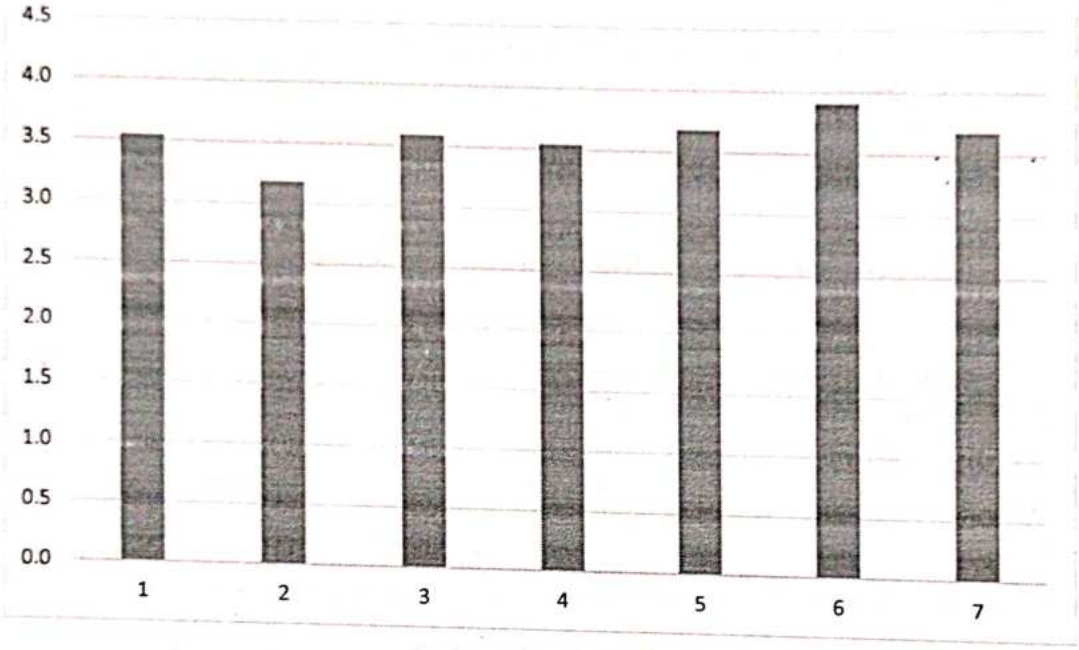
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course - Students Feedback Analysis

Graph Theory



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Certificate of Completion

This is to certify that ***Mr. AGIN C VIJU (MLM22AIM004)*** *of first year B.Tech AI&ML has successfully completed the certificate course on* ***"Graph Theory"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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Certificate of Completion

This is to certify that ***Mr. ALBIN BENNY (MLM22AIM008)*** *of first year B.Tech AI&ML has successfully completed the certificate course on* ***"Graph Theory"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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Certificate of Completion

This is to certify that ***Mr. ATHUL MANOJ (MLM22AIM016)*** *of first year B.Tech AI&ML has successfully completed the certificate course on* ***"Graph Theory"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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ART OF PUBLIC SPEAKING

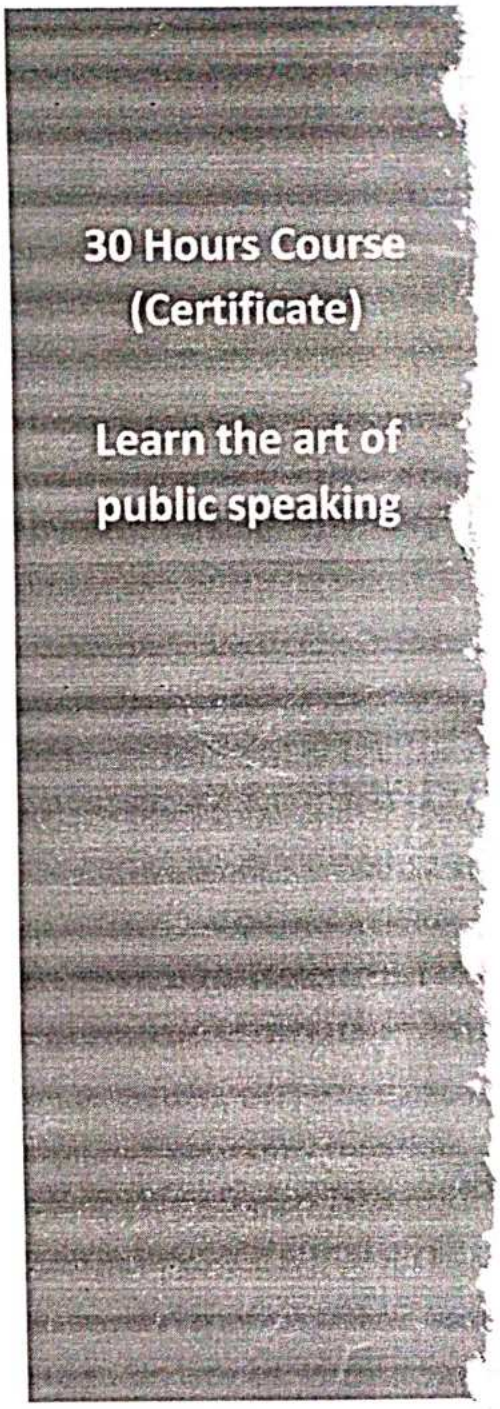
30 Hour Course

- ✓ To create understanding of public speaking
- ✓ To familiarize the art of public speaking with students.

Date: 07/10/2023 to 27/01/2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Ms Sruthi S ,AsstProf/BSH



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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Date: 22//09/2023

Circular

The faculty members along with IQAC Coordinator are requested to assemble for a meeting at 10:00 am on 25/09/2023 in HOD Cabin.

Agenda:

1. Review of KTU university Curriculum and Syllabus
2. Review of gaps identified
3. Suggestions for Certificate course during academic Year 2023-2024
4. Suggestions

Copy to:

1. Principal
2. BSH Department faculty members
3. IQAC Coordinator

HOD / BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Date: 25/09/2023

Minutes of Meeting

All the faculty members of BSH and IQAC coordinator were present in the meeting conducted on 25/09/2023 at BSH HOD Cabin to finalize the Certificate course.

After analyzing the feedback received from various stakeholders like students, faculty, Alumni and Employers, the gap in the Curriculum prescribed by KTU is identified. Further the discussion is held on selection of the Certificate course and identification of Guest lectures on par with the Standards of premier institutes and Industry expectations. Finalized the following Certificate course and guest lecturers for the Academic Year 2023-2024.

Details of Certificate course:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Date of Commencement	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	07/10/2023	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	07/10/2023	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	16/03/2024	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	16/03/2024	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	07/10/2023	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	07/10/2023	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	07/10/2023	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	07/10/2023	Mr. Akhil Mathew Moses

The faculty members will be initiated at the earliest to design the curriculum for the specified Certificate course after getting approval from the Principal.

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

From,

Head of the Department,
Basic Science And Humanities,
Mangalam College of Engineering,
Ettumanoor.

To,

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members for Certificate Course

Reg.

The department meeting is convened on 25/09/2023 for finalizing the Certificate Courses for the academic year 2023-2024. We along with IQAC coordinator and framed the following Certificate Courses:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	Mr. Akhil Mathew Moses

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned Certificate Courses.

Thanking You,

Yours faithfully,

HOD-BSH

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Department of Basic Science and Humanities

Circular

Ref: MLM/ BSH/ Certificate Course / Circular / 2023-2024/ 25.09.2023

The Department of Basic Science and Humanities is planning to conduct a certificate course for first year students. So it is informed to the students to enroll their names for the Composite Materials course which will be held this year. Students are asked to enroll their names to their respective class advisor on or before 29.09.2023. The course syllabus is attached.

Name of the Course	: ART OF PUBLIC SPEAKING
Course Duration	: 07/10/2023 to 27/01/2024**(Saturdays)(5 days)**
Time Duration	: 09.00 AM to 04.00 PM (6 hours per day)
Subject Handling Faculty	: Ms. Sruthi S

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

1.	Academic Year	: 2023-2024
2.	Tile of the Course	:ART OF PUBLIC SPEAKING
3.	Objective of the Course	:To create understanding of public speaking and familiarize the art of public speaking with students.
4.	Prerequisite	: Nil
5.	Requirement	: online theory class
6.	Beneficiary	: S1 Students
7.	Date and Duration of the Course	: 07/10/2023 to 27/01/2024 (30 Hours)
8.	Proposed Timing	: 09.00 AM to 03.00 PM **(6 hours per every Saturday excluding second Saturday)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Ms. SRUTHI S/AP/BSH
11.	Course Registration Fees	: Nil
12.	Contents of Courses	: Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	:Google meet

COURSE COORDINATOR **HOD/BSH** **PRINCIPAL**

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE

ART OF PUBLIC SPEAKING

Course Objective:

- To expose the students to the basic concepts of public speaking and its importance.
- To learn to speak confidently in a variety of situations
- Describe the difference between the linear and the transactional model of communication
- Students should identify the eleven core public speaking competencies.

Course Outcomes:

- Student learns about the basic concept of public speaking
- Student learns the basic ideas about the elements of communication process
- Students get an idea about the value of ethics in public speaking.

SL.NO.	CONTENT	INSTRUCTIONAL HOURS
1	Basic Communication Theory, Introduction	1
2	Organizing the Speech, Types of Organizational Arrangements, Outlining the Speech	2
3	Developing the Introduction, Developing the Conclusion	2
4	Elements of the Communication Process Encoding and Decoding, Communicator, Message, Channel, Noise, Worldview, Context	3
5	Developing communication skills	1
6	Using the Internet to Support your Speech	2
7	Methods of Speech delivery, The Voice/Body in Delivery	1
8	Informative Speech	1
10	Persuasive Speech	1
11	Special occasion speech	1
12	Inform the audience. Persuade the audience. Entertain the audience.	2
13	Models of Communication	2
14	Speaking Competencies	2
15	Benefits of Public Speaking 1.Personal 2.Professional 3.Public	1
16	Origin of Anxiety in Public Speaking; Anxiety and public speaking	3
17	Audience analysis and listening	1
18	Listening in public speaking setting	2

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19	Ethics in public speaking	2
	Total Hours	=30

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

List of Students Enrolled for Certificate course – : ART OF PUBLIC SPEAKING

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/ISemester

Sl.No	Reg No.	Name of the students
1.	MLM23ME027	HARISH SURESH
2.	MLM23ME028	HENRY JENU
3.	MLM23ME029	IRFAN MUHAMMED
4.	MLM23ME030	JAYAKRISHNAN J
5.	MLM23ME031	JOEL GEORGEKUTTY
6.	MLM23ME032	JOSEPH TV
7.	MLM23ME033	JOYAL JOSEPH
8.	MLM23ME034	KASINATH B. R
9.	MLM23ME035	MAHIN SALEEM
10.	MLM23ME036	MATHEW BENNY
11.	MLM23ME037	MOHAMMED YASER
12.	MLM23ME038	MUHAMMAD SIDAN BACKER C. K
13.	MLM23ME039	MUHAMMED ASHIK PS
14.	MLM23ME040	MUHAMMED ASLAM N
15.	MLM23ME042	MUHAMMED SAHAL K. J
16.	MLM23ME043	NANDA KISHOR C R

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	MLM23ME044	NIBIN JOSEPH
18.	MLM23ME045	NIKHIL T NEBU
19.	MLM23ME046	PRANAV P
20.	MLM23ME047	RISHIKESH S NAIR
21.	MLM23ME048	ROHITH S
22.	MLM23ME049	SANAL NARAYANAN
23.	MLM23ME050	SANIL SAJI
24.	MLM23ME051	SHIJIN V S
25.	MLM23ME052	SIVAPRASAD S
26.	MLM23ME053	SOJITH A BAIJU
27.	MLM23ME054	SREEHARI K B
28.	MLM23ME055	SREENATH K S
29.	MLM23ME056	SYAM SARAN P
30.	MLM23ME057	VINAYAK REJILAL

Course Coordinator

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Attendance of Certificate course – ART OF PUBLIC SPEAKING

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/I Semester

S.No	Roll No.	Name of the students	29.04.23	06.05.23	13.05.23	20.05.23	27.05.23	Total Attendance
1.	MLM23ME027	HARISH SURESH	P	P	P	P	P	100
2.	MLM23ME028	HENRY JENU	P	P	A	P	P	80
3.	MLM23ME029	IRFAN MUHAMMED	P	P	P	P	P	100
4.	MLM23ME030	JAYAKRISHNAN J	P	P	P	P	P	100
5.	MLM23ME031	JOEL GEORGEKUTTY	P	P	P	P	P	100
6.	MLM23ME032	JOSEPH TV	P	P	P	P	P	100
7.	MLM23ME033	JOYAL JOSEPH	A	P	P	P	P	80
8.	MLM23ME034	KASINATH B. R	P	P	P	P	P	100
9.	MLM23ME035	MAHIN SALEEM	P	a	P	P	P	80

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	MLM23ME036	MATHEW BENNY	P	P	P	P	P	100
11.	MLM23ME037	MOHAMMED YASER	P	P	P	P	P	100
12.	MLM23ME038	MUHAMMAD SIDAN BACKER C. K	P	P	P	P	P	100
13.	MLM23ME039	MUHAMMED ASHIK PS	P	P	P	P	P	100
14.	MLM23ME040	MUHAMMED ASLAM N	P	P	P	P	P	100
15.	MLM23ME041	MUHAMMED SAHAL K. J	P	P	P	P	P	100
16.	MLM23ME043	NANDA KISHOR C R	P	P	P	P	P	100
17.	MLM23ME044	NIBIN JOSEPH	P	P	P	P	P	100
18.	MLM23ME045	NIKHIL T NEBU	P	P	A	P	P	80
19.	MLM23ME046	PRANAV P	P	P	P	A	P	80
20.	MLM23ME047	RISHIKESH S NAIR	P	P	P	P	P	100
21.	MLM23ME048	ROHITH S	P	P	a	P	P	80
22.	MLM23ME049	SANAL NARAYANAN	P	P	P	P	P	100
23.	MLM23ME050	SANIL SAJI	P	P	P	P	P	100
24.	MLM23ME051	SHIJIN V S	P	P	P	P	P	100
25.	MLM23ME052	SIVAPRASAD S	P	P	P	P	P	100
26.	MLM23ME053	SOJITH A BAIJU	P	P	P	P	P	100
27.	MLM23ME054	SREEHARI K B	P	P	P	P	P	100

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	MLM23ME036	MATHEW BENNY	P	P	P	P	P	100
11.	MLM23ME037	MOHAMMED YASER	P	P	P	P	P	100
12.	MLM23ME038	MUHAMMAD SIDAN BACKER C. K	P	P	P	P	P	100
13.	MLM23ME039	MUHAMMED ASHIK PS	P	P	P	P	P	100
14.	MLM23ME040	MUHAMMED ASLAM N	P	P	P	P	P	100
15.	MLM23ME041	MUHAMMED SAHAL K. J	P	P	P	P	P	100
16.	MLM23ME043	NANDA KISHOR C R	P	P	P	P	P	100
17.	MLM23ME044	NIBIN JOSEPH	P	P	P	P	P	100
18.	MLM23ME045	NIKHIL T NEBU	P	P	A	P	P	80
19.	MLM23ME046	PRANAV P	P	P	P	A	P	80
20.	MLM23ME047	RISHIKESH S NAIR	P	P	P	P	P	100
21.	MLM23ME048	ROHITH S	P	P	a	P	P	80
22.	MLM23ME049	SANAL NARAYANAN	P	P	P	P	P	100
23.	MLM23ME050	SANIL SAJI	P	P	P	P	P	100
24.	MLM23ME051	SHIJIN V S	P	P	P	P	P	100
25.	MLM23ME052	SIVAPRASAD S	P	P	P	P	P	100
26.	MLM23ME053	SOJITH A BAIJU	P	P	P	P	P	100
27.	MLM23ME054	SREEHARI K B	P	P	P	P	P	100

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28.	MLM23ME055	SREENATH K S	P	P	A	P	P	80
29.	MLM23ME056	SYAM SARAN P	P	P	P	A	P	80
30.	MLM23ME057	VINAYAK REJILAL	P	P	P	P	P	100

Course Coordinator

HOD/BSH

CERTIFICATE COURSE – ART OF PUBLIC SPEAKING

Date: 27/01//2024
0.30 Hrs
Class: I YEAR

Time:

Max. Marks: 10
(10 * 1 = 10

Marks)

PART – A

Answer all the questions

1.Why must a public speaker be audience-centered?

1.So that the audience understands and can relate better to the speaker

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2.So that the audience gets bored faster

3.To entertain the audience

4.To meet the goals that you set for yourself

a) 3 & 4 b) 1 & 3 c) 1only d) 3 & 2

2. What are three kinds of questions used in questionnaires?
a) Fixed-alternative questions
b) topic-related questions
c) Scale questions
d) open-ended questions

3. Is adapting to your audience important?

a) Maybe, because they audience might listen
b) If you want to
c) No because they are on their phones
d) Yes, you need to adapt to have a successful speech

4. The messages, usually nonverbal, sent from a listener to a speaker are called _____.
   a) cues
   b) feedback
   c) prompts
   d) critical thinking

5. Which of the following is likely to help you deal with nervousness in your speeches?
   a) Visualize yourself giving a strong speech
   b) Focus on communicating rather than on being nervous
   c) Be thoroughly prepared for each speech
   d) all of the above

6. Which of the following violates the speaker's ethical obligation to be honest in what she or he says?
   a) juggling statistics
   b) quoting out of context
   c) citing unusual cases as typical examples
   d) all of the above

7. Listening for pleasure or enjoyment is called _____ listening.
a)emphatic
b) appreciative
c) comprehensive
d) spectrum

8. Listening to evaluate a message for purposes of accepting or rejecting it is called
   a) critical listening
   b) argumentative listening

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c) judicious listening
d) logical listening

9. This association sets standards of ethical communication for persuasive speakers
a) Panel Discussion
b) Evaluation Criteria
c) National Communication Association
d) Ethical Communication

10. The most useful resource for historical information
Body
a) Volume
b) Books
c) Noise

CERTIFICATE COURSE – ART OF PUBLIC SPEAKING

Answers:

1	b
2	b
3	d
4	b
5	d
6	d
7	b
8	a

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9	c
10	c

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course –ART OF PUBLIC SPEAKING

Mark Sheet

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/I Semester

Sl.No	Reg. No.	Name of the students	Marks (10)	Out of 100
1.	MLM23ME027	HARISH SURESH	10	100
2.	MLM23ME028	HENRY JENU	8	80
3.	MLM23ME029	IRFAN MUHAMMED	8	80
4.	MLM23ME030	JAYAKRISHNAN J	9	90
5.	MLM23ME031	JOEL GEORGEKUTTY	8	80
6.	MLM23ME032	JOSEPH TV	10	100
7.	MLM23ME033	JOYAL JOSEPH	9	90
8.	MLM23ME034	KASINATH B. R	10	100
9.	MLM23ME035	MAHIN SALEEM	6	60
10.	MLM23ME036	MATHEW BENNY	10	100
11.	MLM23ME037	MOHAMMED YASER	8	80
12.	MLM23ME038	MUHAMMAD SIDAN BACKER C. K	10	100
13.	MLM23ME039	MUHAMMED ASHIK PS	10	100
14.	MLM23ME040	MUHAMMED ASLAM N	9	100
15.	MLM23ME041	MUHAMMED SAHAL K. J	10	100
16.	MLM23ME043	NANDA KISHOR C R	9	90

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17.	MLM23ME044	NIBIN JOSEPH	10	100
18.	MLM23ME045	NIKHIL T NEBU	10	100
19.	MLM23ME046	PRANAV P	7	70
20.	MLM23ME047	RISHIKESH S NAIR	9	90
21.	MLM23ME048	ROHITH S	5	50
22.	MLM23ME049	SANAL NARAYANAN	8	80
23.	MLM23ME050	SANIL SAJI	10	100
24.	MLM23ME051	SHIJIN V S	9	100
25.	MLM23ME052	SIVAPRASAD S	10	100
26.	MLM23ME053	SOJITH A BAIJU	10	100
27.	MLM23ME054	SREEHARI K B	7	100
28.	MLM23ME055	SREENATH K S	9	80
29.	MLM23ME056	SYAM SARAN P	5	80
30.	MLM23ME057	VINAYAK REJILAL	8	100

Course Coordinator

HOD/BSH

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Consolidated Report for the Certificate Course - ART OF PUBLIC SPEAKING

Academic Year: 2023-2024

Year/ Semester: I/I **Batch 2023-2027**

Name of the Activity	: Certificate Course
Title of the Activity	: ART OF PUBLIC SPEAKING
Staff Incharges	: Ms. Sruthi S/ AP/BSH
Place of the Activity	: Google meet
No. of Participants	: 30
No. of Qualified	: 29
Name & Designation of Expert	Ms. Sruthi S/BSH
Objective of the Activity	To create understanding of public speaking and familiarize the art of public speaking with students.
Outcome of the Activity	Students understood how to perform public speaking confidently

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Certificate course - Students Feedback

Course Name: ART OF PUBLIC SPEAKING

Academic Year: 2022-23

Course/Branch: B.Tech/All Branches **Year/Semester:** I/II

Student Name: **Reg. No:**

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course improve your Knowledge About PUBLIC SPEAKING?

1	2	3	4

2. Is the course containing relevant information about public speaking skills?

1	2	3	4

3. Have you learnt any modern tools through this course?

1	2	3	4

4. Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?

1	2	3	4

5. Did the courses enable you to build your future career?

1	2	3	4

6. Rate the depth of knowledge about the courses.

1	2	3	4

7. Are the courses providing a good balance between theory and application?

1	2	3	4

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Certificate course - Students Feedback Analysis

S. No	Parameters	Average
1.	Does this course improve your Knowledge About public speaking?	3
2.	Is the course containing relevant information about public speaking skills?	3.5
3.	Have you learnt any modern tools through this course?	3.5
4.	Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?	3.7
5.	Did the courses enable you to build your future career?	3.7
6.	Rate the depth of knowledge about the courses.	3.8
7.	Are the courses providing a good balance between theory and application?	3.6

Course Coordinator **HOD/BSH** **Principal**

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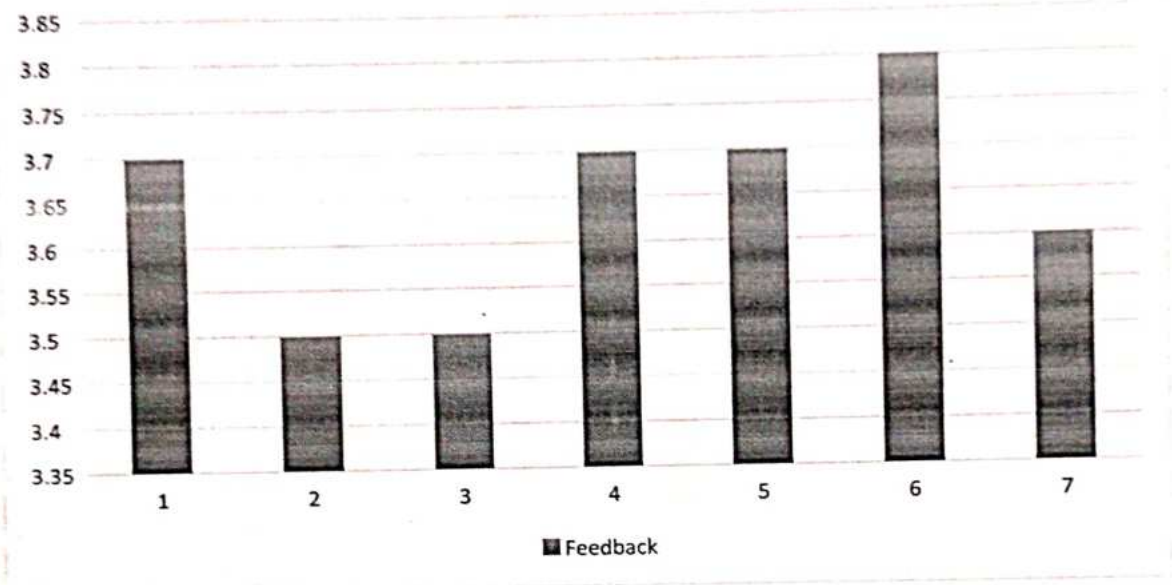
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course - Students Feedback Analysis

ART OF PUBLIC SPEAKING



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Certificate of Completion

This is to certify that ***Mr. Joyal Joseph*** *(MLM23ME033) of first year B.Tech ME has successfully completed the certificate course on* ***"Art of Public Speaking"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

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Certificate of Completion

This is to certify that ***Mr. Joseph T V (MLM23ME032)*** *of first year B.Tech ME has successfully completed the certificate course on* ***"Art of Public Speaking"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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Certificate of Completion

This is to certify that ***Mr. Jayakrishnan J*** ***(MLM23ME030)*** *of first year B.Tech ME has successfully completed the certificate course on* ***"Art of Public Speaking"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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PRINCIPAL

STUDENT DEVELOPMENT PROGRAM

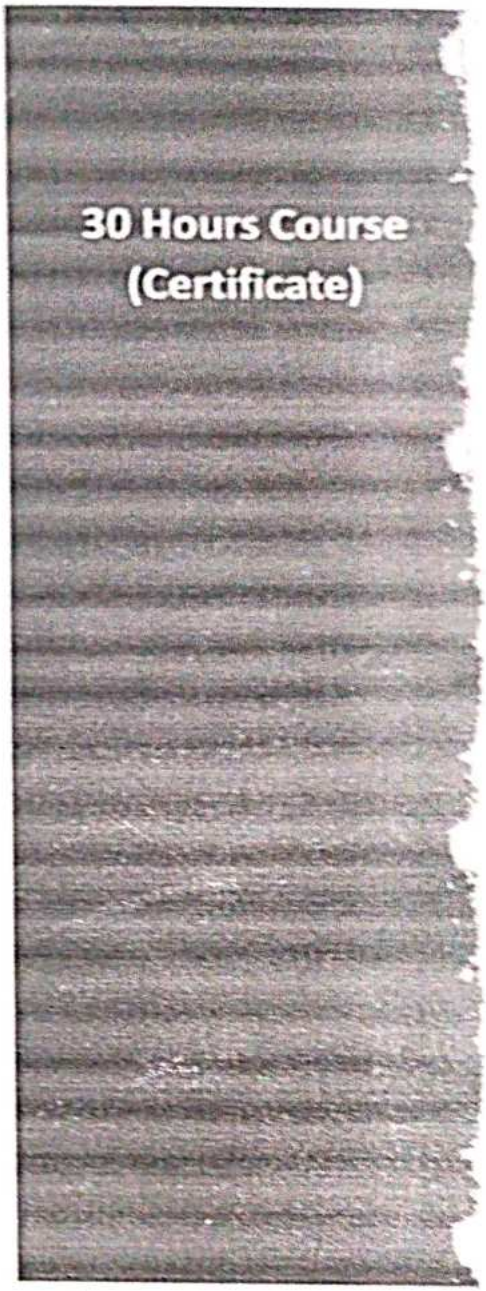
30 Hour Course

- ✓ Enhance critical thinking skills
- ✓ Develop stronger project management abilities
- ✓ Improve verbal and written communication
- ✓ Sharpen workplace productivity

Date: 16/03/2024 to 20/04/2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Ms Anjali George ,AsstProf/BSH



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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Date: 22//09/2023

Circular

The faculty members along with IQAC Coordinator are requested to assemble for a meeting at 10:00 am on 25/09/2023 in HOD Cabin.

Agenda:

1. Review of KTU university Curriculum and Syllabus
2. Review of gaps identified
3. Suggestions for Certificate course during academic Year 2023-2024
4. Suggestions

Copy to:

1. Principal
2. BSH Department faculty members
3. IQAC Coordinator

HOD / BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Date: 25/09/2023

Minutes of Meeting

All the faculty members of BSH and IQAC coordinator were present in the meeting conducted on 25/09/2023 at BSH HOD Cabin to finalize the Certificate course.

After analyzing the feedback received from various stakeholders like students, faculty, Alumni and Employers, the gap in the Curriculum prescribed by KTU is identified. Further the discussion is held on selection of the Certificate course and identification of Guest lectures on par with the Standards of premier institutes and Industry expectations. Finalized the following Certificate course and guest lecturers for the Academic Year 2023-2024.

Details of Certificate course:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Date of Commencement	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	07/10/2023	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	07/10/2023	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	16/03/2024	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	16/03/2024	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	07/10/2023	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	07/10/2023	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	07/10/2023	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	07/10/2023	Mr. Akhil Mathew Moses

The faculty members will be initiated at the earliest to design the curriculum for the specified Certificate course after getting approval from the Principal.

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

From,

Head of the Department,
Basic Science And Humanities,
Mangalam College of Engineering,
Ettumanoor.

To,

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members for Certificate Course Reg.

The department meeting is convened on 25/09/2023 for finalizing the Certificate Courses for the academic year 2023-2024. We along with IQAC coordinator and framed the following Certificate Courses:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	Mr. Akhil Mathew Moses

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned Certificate Courses.

Thanking You,
Yours faithfully,

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Circular

Ref: MLM/ BSH/ Certificate Course / Circular / 2022-2023/ 29/02/2024

The Department of Basic Science and Humanities is planned to conduct a certificate course for the students. So it is informed to the students to enroll their names for the course which will held on this year. Students are asked to enroll their names to their respective class advisor on or before 04/03/2024. The course syllabus is attached.

Name of the Course	: Student Professional Development Program
Course Duration	: 16/03/2024 to 20/04/2024 **(Saturdays)(5 days)**
Time Duration	: 09.00 AM to 04.00 PM (6 hours per day)
Subject Handling Faculty	:Ms. Anjali George /AP/BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE

STUDENT PROFESSIONAL DEVELOPMENT PROGRAM

Course Objective:

- Enhance critical thinking skills
- Develop stronger project management abilities
- Improve verbal and written communication
- Sharpen workplace productivity
- Hone quality workplace readiness and etiquette
- Gain a greater understanding of their leadership style
- Improve networking skills and interviewing techniques

Course Outcomes:

- Clarify values, interests, strengths and skills.
- Articulate students' transferable, liberal arts, graduate school and work-related skills.
- Identify and research a wide variety of career fields and opportunities.
- Identify and use relevant tools in the job search, including activating professional networks.
- Understand and plan for future educational pursuits.
- Acquire and develop Communication Skills, and Personality development skills.

S.NO.	CONTENT	INSTRUCTIONAL HOURS
	Section 1	
1	Introduction and Ice Breaking	1
2	Innovation, Leadership, & Management	2
3	Leadership in the Workplace	2
4	Team Collaboration, Team Building, Participatory Team	3
5	Business and Technical Communication	2
6	Introduction to Skill Development	2
7	Study Skills -Listening and Speaking, Body Language,English Fluency	1
8	Building on Confidence- Public Speaking, Understanding Self and Others,Self-Leadership, Self Discipline and Manners Matter.	2
9	Organizing Skills	1
	Section 2	
10	Research Ethics	1
11	Excel in Interviews	2
12	Body Language & Etiquettes	1
13	Time Management Skills	2

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

1.	Academic Year	: 2023-2024
2.	Tile of the Course	:Student Professional Development Program
3.	Objective of the Course	: To aid Personality development and mold a student as a Professional.
4.	Prerequisite	: Nil
5.	Requirement	: Online Theory Class
6.	Beneficiary	: S2 Students
7.	Date and Duration of the Course	: 16/03/2024 to 20/04/2024 (30 Hours)
8.	Proposed Timing	: 09.00 AM to 03.00 PM **(6 hours per every Saturday excluding second saturday)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Ms. Anjali George
11.	Course Registration Fees	: Nil
12.	Contents of Courses	: Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: Google meet

COURSE COORDINATOR **HOD/BSH** **PRINCIPAL**

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE

STUDENT PROFESSIONAL DEVELOPMENT PROGRAM

Course Objective:

- Enhance critical thinking skills
- Develop stronger project management abilities
- Improve verbal and written communication
- Sharpen workplace productivity
- Hone quality workplace readiness and etiquette
- Gain a greater understanding of their leadership style
- Improve networking skills and interviewing techniques

Course Outcomes:

- Clarify values, interests, strengths and skills.
- Articulate students' transferable, liberal arts, graduate school and work-related skills.
- Identify and research a wide variety of career fields and opportunities.
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- Understand and plan for future educational pursuits.
- Acquire and develop Communication Skills, and Personality development skills.

S.NO.	CONTENT	INSTRUCTIONAL HOURS
	Section 1	
1	Introduction and Ice Breaking	1
2	Innovation, Leadership, & Management	2
3	Leadership in the Workplace	2
4	Team Collaboration, Team Building, Participatory Team	3
5	Business and Technical Communication	2
6	Introduction to Skill Development	2
7	Study Skills -Listening and Speaking, Body Language,English Fluency	1
8	Building on Confidence- Public Speaking, Understanding Self and Others,Self-Leadership, Self Discipline and Manners Matter.	2
9	Organizing Skills	1
	Section 2	
10	Research Ethics	1
11	Excel in Interviews	2
12	Body Language & Etiquettes	1
13	Time Management Skills	2

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14	Group Discussion	2
15	Preparation of CV	1
16	Presentation Introduction	1
17	What to present and how	2
18	The world of visual culture.	2
	Total Hours	=30

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

List of Students Enrolled for Certificate course – : STUDENT PROFESSIONAL DEVELOPMENT PROGRAM

Academic Year: 2023-2024 **Batch 2023-2027**

Year/Semester :I/II

Sl.No	Reg No.	Name of the students
1.	MLM23ME027	HARISH SURESH
2.	MLM23ME028	HENRY JENU
3.	MLM23ME029	IRFAN MUHAMMED
4.	MLM23ME030	JAYAKRISHNAN J
5.	MLM23ME031	JOEL GEORGEKUTTY
6.	MLM23ME032	JOSEPH TV
7.	MLM23ME033	JOYAL JOSEPH
8.	MLM23ME034	KASINATH B. R
9.	MLM23ME035	MAHIN SALEEM
10.	MLM23ME036	MATHEW BENNY
11.	MLM23ME037	MOHAMMED YASER
12.	MLM23ME038	MUHAMMAD SIDAN BACKER C. K
13.	MLM23ME039	MUHAMMED ASHIK PS
14.	MLM23ME040	MUHAMMED ASLAM N
15.	MLM23ME042	MUHAMMED SAHAL K. J
16.	MLM23ME043	NANDA KISHOR C R
17.	MLM23ME044	NIBIN JOSEPH

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18.	MLM23ME045	NIKHIL T NEBU
19.	MLM23ME046	PRANAV P
20.	MLM23ME047	RISHIKESH S NAIR
21.	MLM23ME048	ROHITH S
22.	MLM23ME049	SANAL NARAYANAN
23.	MLM23ME050	SANIL SAJI
24.	MLM23ME051	SHIJIN V S
25.	MLM23ME052	SIVAPRASAD S
26.	MLM23ME053	SOJITH A BAIJU
27	MLM23ME054	SREEHARI K B
28	MLM23ME055	SREENATH K S
29	MLM23ME056	SYAM SARAN P
30	MLM23ME057	VINAYAK REJILAL

Coordinator

HOD/BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Attendance of Certificate course – STUDENT PROFESSIONAL DEVELOPMENT PROGRAM

Academic Year: 2022-2023 **Batch 2022-2026**

Year: I/I Semester

Sl.No	Roll No.	Name of the students	19.11.22	26.11.22	03.12.22	10.12.22	17.12.22	Total Attendar
1.	MLM23ME027	HARISH SURESH	P	P	P	P	P	100
2.	MLM23ME028	HENRY JENU	P	P	P	P	P	100
3.	MLM23ME029	IRFAN MUHAMMED	P	P	P	P	P	100
4.	MLM23ME030	JAYAKRISHNAN J	P	P	P	P	P	100
5.	MLM23ME031	JOEL GEORGEKUTTY	P	P	P	P	P	100
6.	MLM23ME032	JOSEPH TV	P	P	P	P	P	100
7.	MLM23ME033	JOYAL JOSEPH	A	P	P	P	P	80
8.	MLM23ME034	KASINATH B. R	P	P	P	P	P	100
9.	MLM23ME035	MAHIN SALEEM	P	P	P	P	P	100
10.	MLM23ME036	MATHEW BENNY	P	P	P	P	P	100
11.	MLM23ME037	MOHAMMED YASER	P	P	P	P	P	100
12.	MLM23ME038	MUHAMMAD SIDAN BACKER C. K	P	P	P	P	P	100
13.	MLM23ME039	MUHAMMED ASHIK PS	P	P	P	P	P	100
14.	MLM23ME040	MUHAMMED ASLAM N	P	P	P	P	P	100
15.	MLM23ME042	MUHAMMED SAHAL	P	P	P	P	P	100

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

		K. J						
16.	MLM23ME043	NANDA KISHOR C R	P	P	P	P	P	100
17.	MLM23ME044	NIBIN JOSEPH	P	P	P	P	P	100
18.	MLM23ME045	NIKHIL T NEBU	P	P	A	P	P	100
19.	MLM23ME046	PRANAV P	P	P	P	A	P	100
20.	MLM23ME047	RISHIKESH S NAIR	P	P	P	P	P	100
21.	MLM23ME048	ROHITH S	P	P	P	P	P	100
22.	MLM23ME049	SANAL NARAYANAN	P	P	P	P	P	100
23.	MLM23ME050	SANIL SAJI	P	P	P	P	P	100
24.	MLM23ME051	SHIJIN V S	P	P	P	P	P	100
25.	MLM23ME052	SIVAPRASAD S	P	P	P	P	P	100
26.	MLM23ME053	SOJITH A BAIJU	P	P	P	P	P	100
27.	MLM23ME054	SREEHARI K B	P	P	P	P	P	100
28	MLM23ME055	SREENATH K S	P	P	P	P	P	100
29	MLM23ME056	SYAM SARAN P	P	P	P	P	P	100
30	MLM23ME057	VINAYAK REJILAL	P	P	P	P	P	100

Course Coordinator

HOD/BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE – STUDENT PROFESSIONAL DEVELOPMENT PROGRAM

Date: 20.04.2024 **Time: 0.30 Hrs**

Class: I YEAR **Max. Marks: 10**

PART – A

Answer all the question(10 * 1 = 10 Marks)

1. Communication is a part of .....skills.
   (a)Soft (c) Rough
   (b)Hard (d) Short
2. It is generally NOT a good practice to deliver a presentation by
   (a) Elaborating each bullet point on the presentation materials.
   (b) Reading the entire presentation line by line.
   (c) Mentioning the highlights of what is on the screen.
   (d) Paraphrasing what is on the presentation materials.
3. When rehearsing a presentation, it is helpful to recognize and prevent:
   (a) Possible questions from the audience (c) Possible gestures
   (b) Criticism from friends in the room (d) Fillers such as umm and ahh
4. ___ means 'language full of technical or special words.
   (a) Colloquialism. (c) Pedantic words
   (b) Abbreviations (d) Jargon
5. Body language, body posture, and hand gestures are examples of ___ type of communication.
   (a) Verbal (c) Informal
   (b) Non Verbal (d) Formal
6. "She did a lot for her son". Here the word 'for' is a ___
   (a)Conjunction (c) adjective
   (b) Preposition (d) pronoun
7. ___ are documents presenting a compilation of facts or a number of options and related conclusions and recommendations
   (a)Notice (c) Remarks
   (b)Instructions (d) Report
8. Which of the following is NOT the prerequisite for the act of reading and comprehending?
   (a) Knowledge of the written symbols of the language
   (b) Understanding the lexical meaning of the words
   (c)Ability to interpret the literal, subtextual and contextual meanings
   (d) Ability to hear and listen
9. _____ is increasing Leadership rapidly:
   (a)Strategy (c) Command
   (b) Control (d) Getting others to follow
10. Which of these should be avoided for an effective speech

    (a) Determination of the purpose (b) Lack of interest
    (c) Selection of message
    (d) Selection of theme

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE – STUDENT PROFESSIONAL DEVELOPMENT PROGRAM

Answers:

1	a
2	b
3	d
4	d
5	b
6	b
7	d
8	d
9	d
10	c

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Certificate course – STUDENT PROFESSIONAL DEVELOPMENT PROGRAM

Mark Sheet

Academic Year: 2023-2024

Year: I/II Semester **Batch 2023-2027**

Sl.No	Reg. No.	Name of the students	Marks (10)	Out of 100
1.	MLM23ME027	HARISH SURESH	10	100
2.	MLM23ME028	HENRY JENU	10	100
3.	MLM23ME029	IRFAN MUHAMMED	8	80
4.	MLM23ME030	JAYAKRISHNAN J	9	90
5.	MLM23ME031	JOEL GEORGEKUTTY	8	80
6.	MLM23ME032	JOSEPH TV	10	100
7.	MLM23ME033	JOYAL JOSEPH	9	90
8.	MLM23ME034	KASINATH B. R	10	100
9.	MLM23ME035	MAHIN SALEEM	10	100
10.	MLM23ME036	MATHEW BENNY	10	100
11.	MLM23ME037	MOHAMMED YASER	8	80
12.	MLM23ME038	MUHAMMAD SIDAN BACKER C. K	10	100
13.	MLM23ME039	MUHAMMED ASHIK PS	10	100
14.	MLM23ME040	MUHAMMED ASLAM N	9	100
15.	MLM23ME042	MUHAMMED SAHAL K. J	10	100
16.	MLM23ME043	NANDA KISHOR C R	9	90

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17.	MLM23ME044	NIBIN JOSEPH	10	100
18.	MLM23ME045	NIKHIL T NEBU	10	100
19.	MLM23ME046	PRANAV P	7	70
20.	MLM23ME047	RISHIKESH S NAIR	9	90
21.	MLM23ME048	ROHITH S	8	100
22.	MLM23ME049	SANAL NARAYANAN	10	100
23.	MLM23ME050	SANIL SAJI	7	70
24.	MLM23ME051	SHIJIN V S	7	70
25.	MLM23ME052	SIVAPRASAD S	10	100
26.	MLM23ME053	SOJITH A BAIJU	9	90
27	MLM23ME054	SREEHARI K B	7	70
28	MLM23ME055	SREENATH K S	9	90
29	MLM23ME056	SYAM SARAN P	8	100
30	MLM23ME057	VINAYAK REJILAL	10	100

Course Coordinator

HOD/BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Consolidated Report for the Certificate Course

Academic Year : 2023-2024 **Batch 2023-2027**

Year/ Semester : I/II

Name of the Activity	: Certificate Course
Title of the Activity	: Student Professional Development Program
Staff Incharges	:Anjali George AP/ BSH
Place of the Activity	: Google meet
No. of Participants	: 30
No. of Qualified	: 30
Name & Designation of Expert	:Anjali George/AP/ BSH
Objective of the Activity	: Enhance critical thinking skills : Develop stronger project management abilities : Improve verbal and written communication : Sharpen workplace productivity : Hone quality workplace readiness and etiquette : Gain a greater understanding of their leadership style

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	: Improve networking skills and interviewing techniques
Outcome of the Activity	:Clarify values, interests, strengths and skills. :Articulate students' transferable, liberal arts, graduate school and work-related skills. :Identify and research a wide variety of career fields and opportunities. :Identify and use relevant tools in the job search, including activating professional networks. :Understand and plan for future educational pursuits. :Acquire and develop Communication Skills, and Personality development skills.

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course - Students Feedback

Course Name: STUDENT PROFESSIONAL DEVELOPMENT PROGRAM

Academic Year: 2022-2023

Course/Branch: B.Tech **Year/Semester:**I/I

Student Name: **Reg. No:**

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course improve your documentation skills?

1	2	3	4

2. Does the course improve your communication skills?

1	2	3	4

3. Have you learnt any modern tools through this course?

1	2	3	4

4. Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?

1	2	3	4

5. Did the courses enable you to build your future career?

1	2	3	4

6. Rate the depth of knowledge about the courses.

1	2	3	4

7. Are the courses providing a good balance between theory and application?

1	2	3	4

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Certificate course - Students Feedback Analysis

S. No	Parameters	Average
1.	Does this course improve your documentation skills?	3
2.	Does the course improve your communication skills?	3.5
3.	Have you learnt any modern tools through this course?	3.5
4.	Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?	3.7
5.	Did the courses enable you to build your future career?	3.7
6.	Rate the depth of knowledge about the courses.	3.8
7.	Are the courses providing a good balance between theory and application?	3.6

Course Coordinator

HOD/BSH

Principal

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Certificate of Completion

This is to certify that ***Mr. Harish Suresh*** *(**MLM23ME027**) of first year B.Tech ME has successfully completed the certificate course on* ***"Student Professional Development Program"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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Certificate of Completion

This is to certify that Mr. **Henry Jenu** *(MLM23ME028) of first year B.Tech ME has successfully completed the certificate course on* ***"Student Professional Development Program"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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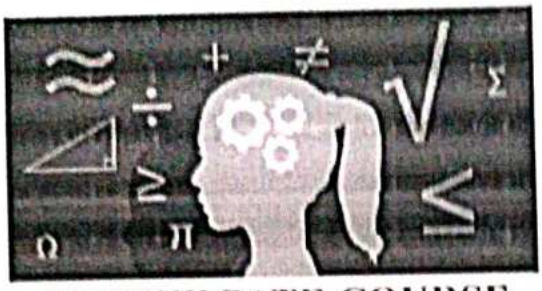
Certificate of Completion

This is to certify that ***Mr.*** **Irfan Muhammed** ***(MLM23ME029)*** *of first year B.Tech ME has successfully completed the certificate course on* ***"Student Professional Development Program"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL



CERTIFICATE COURSE
ON

MATHEMATICAL REASONING

Course Content

- ✓ Ratios and proportion
- ✓ Percentage,Time, Distance and Speed, Fractions
- ✓ Calendar problems,sequences
- ✓ BODMAS Rule
- ✓ Permutations and combinations
- ✓ Pigeon hole principle
- ✓ Number Puzzle
- ✓ Graphs and Venn Diagrams

Date: 07.10.2023 to 27.01.2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Ms. Biji Mathew, AP / BSH

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30 Hours Course
(Certificate)

"An open way to the tricks of Reasoning..."

Time 9: 00 AM to 4 PM
(5 Days)

MANGALAM COLLEGE OF ENGINEERING
Mangalam Hills, Vettimukal P O
Ettumanoor, Kottayam
686631

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Date: 22//09/2023

Circular

The faculty members along with IQAC Coordinator are requested to assemble for a meeting at 10:00 am on 25/09/2023 in HOD Cabin.

Agenda:

1. Review of KTU university Curriculum and Syllabus
2. Review of gaps identified
3. Suggestions for Certificate course during academic Year 2023-2024
4. Suggestions

Copy to:

1. Principal
2. BSH Department faculty members
3. IQAC Coordinator

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Date: 25/09/2023

Minutes of Meeting

All the faculty members of BSH and IQAC coordinator were present in the meeting conducted on 25/09/2023 at BSH HOD Cabin to finalize the Certificate course.

After analyzing the feedback received from various stakeholders like students, faculty, Alumni and Employers, the gap in the Curriculum prescribed by KTU is identified. Further the discussion is held on selection of the Certificate course and identification of Guest lectures on par with the Standards of premier institutes and Industry expectations. Finalized the following Certificate course and guest lecturers for the Academic Year 2023-2024.

Details of Certificate course:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Date of Commencement	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	07/10/2023	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	07/10/2023	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	16/03/2024	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	16/03/2024	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	07/10/2023	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	07/10/2023	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	07/10/2023	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	07/10/2023	Mr. Akhil Mathew Moses

The faculty members will be initiated at the earliest to design the curriculum for the specified Certificate course after getting approval from the Principal.

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

From,

Head of the Department,
Basic Science And Humanities,
Mangalam College of Engineering,
Ettumanoor.

To,

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members for Certificate Course

Reg.

The department meeting is convened on 25/09/2023 for finalizing the Certificate Courses for the academic year 2023-2024. We along with IQAC coordinator and framed the following Certificate Courses:

Sl. No	Name of Certificate course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	MATHEMATICAL REASONING	I/S1	30	Ms. Biji Mathew
2	GRAPH THEORY	II/S3	30	Ms. Josna Thomas
3	APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	I/S2	30	Ms.Ashu Prakash
4	STUDENT PROFESSIONAL DEVELOPMENT PROGRAMM	I/S2	30	Ms.Anjaly George
5	MULTIPLEXING	I/S1	30	Ms.Chinchu Anna Varkey
6	ART OF PUBLIC SPEAKING	I/S1	30	Ms.Sruthi S
7	CHEMICAL PARAMETERS OF WATER	I/S1	30	Ms.Vidhya Vinayan
8	FINANCIAL MARKETS, TRADING STRATEGIES IN EMERGING MARKETS	III/S5	30	Mr. Akhil Mathew Moses

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned Certificate Courses.

Thanking You,

Yours faithfully,

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

Circular

Ref: MLM/ BSH/ Certificate Course / Circular / 2023-2024/ 25.09.2023

The Department of Basic Science and Humanities is planned to conduct a certificate course for the students. So it is informed to the students to enroll their names for the course which will held on this year. Students are asked to enroll their names to their respective class advisor on or before 29.09.2023. The course syllabus is attached.

Name of the Course	: Mathematical Reasoning
Course Duration	: 07/10/2023 to 27/01/2024 **(Saturdays)(5 days)**
Time Duration	: 09.00 AM to 04.00 PM(6 hours per day)
Subject Handling Faculty	:Ms. Biji Mathew / BSH

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Department of Basic Science and Humanities

1.	Academic Year	2023-2024
2.	Title of the Course	Mathematical reasoning
3.	Objective of the Course	Students need to gear up and prepare for a future that will depend solely on mathematics. Build mathematical critical thinking and logical reasoning
4.	Prerequisite	Nil
5.	Requirement	Offline theory classes
6.	Beneficiary	S1 Students
7.	Date and Duration of the Course	07/10/2023 to 27/01/2024 (30 Hours)
8.	Proposed Timing	09.00 AM to 04.00 PM **(6 hours per every Saturday)**
9.	No of Hours Required	30 Hours
10.	Internal Resources	Ms. Biji Mathew / BSH
11.	Course Registration Fees	Nil
12.	Contents of Courses	Enclosed Separately
13.	Credits and Certification	Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	M401

COURSE COORDINATOR **HOD/BSH** **PRINCIPAL**

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE

Mathematical Reasoning

Course Objective:

- The development of mathematical critical thinking abilities will enable them to understand their math lessons faster.
- It will be quite useful in everyday life as well as in any field that they will pursue in the future.
- It is useful to solve real-world problems.

Course Outcomes:

- Solve practical problems using appropriate mathematical techniques.
- Students will use proportional reasoning to solve problems that require ratios, rates, proportions, and scaling.

Sl.NO.	CONTENT	INSTRUCTIONAL HOURS
1	Introduction	1
2	Ratios and proportion	3
3	Percentage	3
4	Time, Distance and Speed	3
5	Fractions	3
6	Calendar problems	3
7	sequences	2
8	BODMAS Rule	2
10	Permutations and combinations	3
11	Pigeon hole principle	2
12	Number Puzzle	2
13	Graphs and Venn Diagrams	3
	Total Hours	30

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

List of Students Enrolled for Certificate course: Mathematical Reasoning

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/I Semester

Sl.No	Roll No.	Name of the students
1.	MLM23EC001	ABHIJITH B PILLAI
2.	MLM23EC002	ABHINAND ROY
3.	MLM23EC004	ADITHYA ANUP
4.	MLM23EC005	AGAPH ANISH
5.	MLM23EC006	AJAY ANTONY
6.	MLM23EC007	AJAY RAJEEV
7.	MLM23EC008	AJMAL AL HAMEED
8.	MLM23EC009	AJMAL T MOHAMMED
9.	MLM23EC010	AKAMSHA ANIL KUMAR
10.	MLM23EC011	AKASH JOSEPH A
11.	MLM23EC012	AKASH ROY
12.	MLM23EC013	AKHIL SABU
13.	MLM23EC014	AKSHAY KRISHNA B
14.	MLM23EC015	AKSHAY RAJ
15.	MLM23EC016	ALPHY BABY
16.	MLM23EC017	AMAN ABDULKHADAR
17.	MLM23EC018	AMRITHA T
18.	MLM23EC019	ANJANA G NAIR
19.	MLM23EC020	ANNAMOL T J
20.	MLM23EC021	ANN LIYA MARIYA K A
21.	MLM23EC022	ANSA THERESE
22.	MLM23EC023	ARDRA NAIR A
23.	MLM23EC024	ARJUN P MANOJ
24.	MLM23EC025	ARJUN S
25.	MLM23EC026	ARJUN VIJAYAKUMAR

Course Coordinator

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Attendance of Certificate course – Mathematical Reasoning

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I/I Semester

Sl.No	Roll No.	Name of the students	07.10.23	04.11.23	18.11.23	02.12.23	16.12.23	Total Attendance
1.	MLM23EC001	ABHIJITH B PILLAI	P	P	P	P	p	100
2.	MLM23EC002	ABHINAND ROY	P	P	P	A	P	80
3.	MLM23EC004	ADITHYA ANUP	P	A	P	P	P	80
4.	MLM23EC005	AGAPH ANISH	P	P	P	A	A	60
5.	MLM23EC006	AJAY ANTONY	P	P	P	P	P	100
6.	MLM23EC007	AJAY RAJEEV	P	P	P	P	P	100
7.	MLM23EC008	AJMAL AL HAMEED	P	P	P	P	P	100
8.	MLM23EC009	AJMAL T MOHAMMED	P	P	P	P	P	100
9.	MLM23EC010	AKAMSHA ANIL KUMAR	P	P	P	P	P	100
10.	MLM23EC011	AKASH JOSEPH A	P	P	P	P	P	100
11.	MLM23EC012	AKASH ROY	P	p	A	P	A	60
12.	MLM23EC013	AKHIL SABU	P	P	P	P	P	100
13.	MLM23EC014	AKSHAY KRISHNA B	P	P	P	P	P	100
14.	MLM23EC015	AKSHAY RAJ	P	P	P	P	A	80
15.	MLM23EC016	ALPHY BABY	A	A	P	P	A	40
16.	MLM23EC017	AMAN ABDULKHADAR	P	P	P	P	P	100
17.	MLM23EC018	AMRITHA T	A	P	P	P	P	80
18.	MLM23EC019	ANJANA G NAIR	P	P	P	P	P	100
19.	MLM23EC020	ANNAMOL T J	P	P	P	P	P	100
20.	MLM23EC021	ANN LIYA MARIYA K A	P	P	P	P	P	100
21.	MLM23EC022	ANSA THERESE	P	A	A	A	A	20
22.	MLM23EC023	ARDRA NAIR A	P	P	P	P	P	100
23.	MLM23EC024	ARJUN P MANOJ	P	P	P	P	P	100
24.	MLM23EC025	ARJUN S	P	P	P	P	P	100
25.	MLM23EC026	Arjun Vijayakumar	P	P	P	P	A	80

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE – Mathematical Reasoning

Date:
Class: I YEAR

Time: 30 Minutes
Max. Marks: 10

PART – A

Answer all the questions (10 * 1 = 10 Marks)

1. The ratio of two numbers a and b is 3 :7. After adding 9 to each number, the ratio becomes 9:17. The numbers a and b are

   (a) (8, 42) (b) (9, 21)

   (c) (15, 35) (d) (18, 42)

2. If 'a' is inversely proportional to 'b' and 'b' is inversely proportional to c. then

   (a) 'a' is inversely proportional to 'c' (b) 'a' is directly proportional to 'c'

   (c) 'a' is constant (d) 'a' is directly proportional to 'bc'

3. If the day before yesterday was Friday, what will be the third day after the day after tomorrow?
   (a) Friday (b) Saturday
   (c) Thursday (d) Wednesday
4. $98 \times 98 \div 2 \times 100 \times 2 - 4$ _____ is
   (a) 1921196 (b) 19604
   (c) 10000 (d) 48412
5. Have a look at the series: 4, 7, 5, 8, 6, 9,...What number should come next
   (a) 7 (b) 9
   (c) 10 (d) 13

6. If 18-x = 9, then x =____ ?
   (a) 7 (b) 8
   (b) 9 (d) 10
7. The car park area for a new Mall will have 80 parking spaces. If each row can have 4 parking spaces for cars, how many rows will the car park area need?
   (a) 10 (b) 20
   (c) 30 (d) 40
8. Find the missing number: 4,____, 64, 256, 1024 ?
   (a) 8 (b) 24
   (c) 16 (d) 32
9. If one -third of one- fourth of a number is 15, then three-tenth of that number will be.
   (a) 54 (b) 36
   (c) 45 (d) 21

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10. In a group of dogs and chicks, the number of legs was 14 more than twice the number of heads. The number of dogs was:

(a) 5
(b) 6
(c) 10
(d) 7

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

CERTIFICATE COURSE –Mathematical Reasoning

Answers:

1	D
2	B
3	A
4	C
5	A
6	B
7	B
8	C
9	A
10	D

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course – Mathematical Reasoning

Mark Sheet

Academic Year: 20203-2024 **Batch: 2023-2027**

Year: I/I Semester

Sl.No	Reg. No.	Name of the students	Marks (10)	Out of 100
1.	MLM23EC001	ABHIJITH B PILLAI	8	80
2.	MLM23EC002	ABHINAND ROY	8	80
3.	MLM23EC004	ADITHYA ANUP	7	70
4.	MLM23EC005	AGAPH ANISH	6	60
5.	MLM23EC006	AJAY ANTONY	7	70
6.	MLM23EC007	AJAY RAJEEV	9	90
7.	MLM23EC008	AJMAL AL HAMEED	7	70
8.	MLM23EC009	AJMAL T MOHAMMED	8	80
9.	MLM23EC010	AKAMSHA ANIL KUMAR	10	100
10.	MLM23EC011	AKASH JOSEPH A	9	90
11.	MLM23EC012	AKASH ROY	7	70
12.	MLM23EC013	AKHIL SABU	9	90
13.	MLM23EC014	AKSHAY KRISHNA B	8	80
14.	MLM23EC015	AKSHAY RAJ	9	90
15.	MLM23EC016	ALPHY BABY	6	60
16.	MLM23EC017	AMAN ABDULKHADAR	8	80
17.	MLM23EC018	AMRITHA T	7	70
18.	MLM23EC019	ANJANA G NAIR	9	90
19.	MLM23EC020	ANNAMOL T J	10	100
20.	MLM23EC021	ANN LIYA MARIYA K A	7	70
21.	MLM23EC022	ANSA THERESE	5	50
22.	MLM23EC023	ARDRA NAIR A	8	80
23.	MLM23EC024	ARJUN P MANOJ	8	80
24.	MLM23EC025	ARJUN S	7	70
25.	MLM23EC026	ARJUN VIJAYAKUMAR	5	50

Course Coordinator **HOD/BSH**

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Consolidated Report for the Certificate Course - Mathematical Reasoning

Academic Year: 2023-2024 **Batch: 2023-2027**

Year: I/I Semester

Name of the Activity	Certificate Course
Title of the Activity	Mathematical Reasoning
Staff In charge	Ms. Biji Mathew / BSH
Place of the Activity	M401
No. of Participants	25
No. of Qualified	23
Name & Designation of Expert	Ms. Biji Mathew / BSH
Objective of the Activity	Students need to gear up and prepare for a future that will depend solely on mathematics. Build mathematical critical thinking and logical reasoning
Outcome of the Activity	Solve practical problems using appropriate mathematical techniques. Students will use proportional reasoning to solve problems that require ratios, rates, proportions, and scaling.

HOD-BSH

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Certificate course - Students Feedback

Course Name: Mathematical Reasoning

Academic Year: 2023-2024

Course/Branch: B.Tech

Year/Semester: I/I

Student Name:

Reg. No:

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course improve mathematical reasoning?

1	2	3	4

2. Does the course improve your technical skills?

1	2	3	4

3. Have you learnt any modern tools through this course?

1	2	3	4

4. Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?

1	2	3	4

5. Did the courses enable to build your future career?

1	2	3	4

6. Rate the depth of knowledge about the courses.

1	2	3	4

7. Are the courses providing good balance between theory and application?

1	2	3	4

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Certificate course - Students Feedback Analysis

S. No	Parameters	Average
1.	Does this course improve mathematical reasoning?	3.5
2.	Does the course improve your technical skills?	3.2
3.	Have you learnt any modern tools through this course?	3.6
4.	Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?	3.5
5.	Did the courses enable to build your future career?	3.7
6.	Rate the depth of knowledge about the courses.	3.9
7.	Are the courses providing good balance between theory and application?	3.7

Course Coordinator

HOD/BSH

Principal

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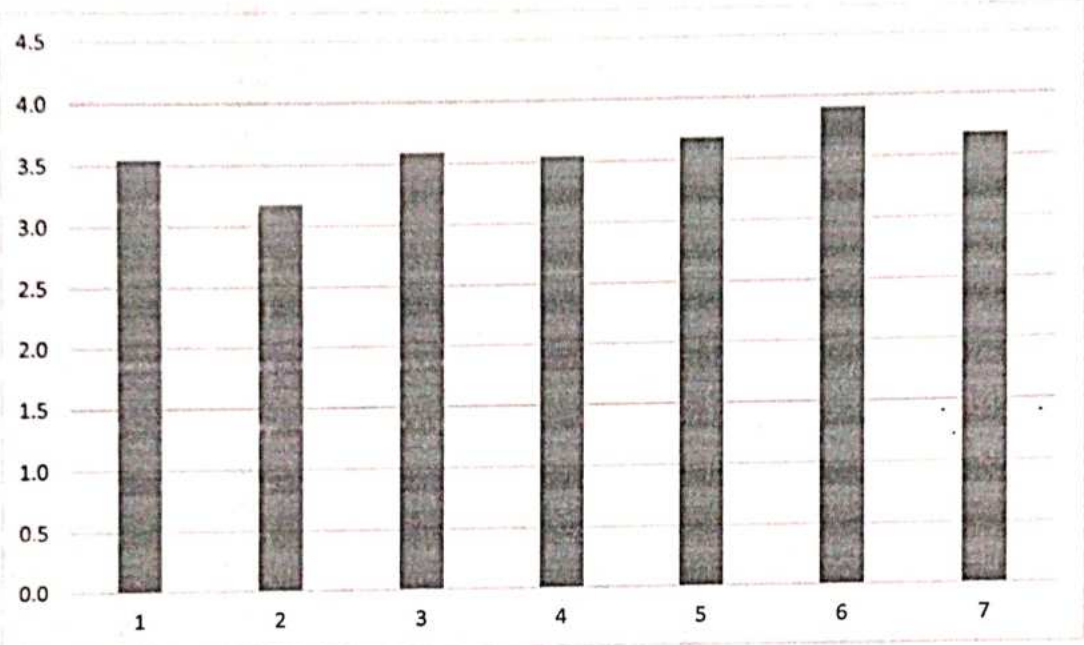
DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

Certificate course - Students Feedback Analysis

Mathematical Reasoning



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विश्वं शास्त्रे प्रतिष्ठितम्।

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Certificate of Completion

This is to certify that ***Mr. ARJUN P MANOJ (MLM23EC024)*** *of first year B.Tech ECE has successfully completed the certificate course on* ***"Mathematical Reasoning"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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Certificate of Completion

This is to certify that ***Ms. ANNAMOL T J (MLM23EC020)*** *of first year B.Tech ECE has successfully completed the certificate course on* ***"Mathematical Reasoning"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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Certificate of Completion

This is to certify that **Mr. AJMAL AL HAMEED (MLM23EC008)** *of first year B.Tech ECE has successfully completed the certificate course on* ***"Mathematical Reasoning"*** *for the duration of 30 hours organised by the Department of Basic Science and Humanities during the academic year 2023-24.*

CO-ORDINATOR

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Ref: MLM/CSE/CC/2022-2023/ 004 Date: 23/10/23

Submitted to the Principal approval

We have proposed to conduct the certificate course on " **Python**" for our UG CSE students during this semester (2023-24). Tentative timings and course fees details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Schedule: - 4/11/2023 to 2/12/23

S.No.	Name of the course	Course instructors	Course duration	Approx. Course fee	Target students (year/branch)
1	Certificationon Python	Ms Renju Renjith	30 hrs	Free	S1/CSE
2		Ms Raihanath AS			
3		Ms. Sruthy Emmanuel			

Thanking You,

Ms Renju Renjith
Course I/C

HoD/CSE

Principal

Copy to:

1. CSE Department faculty members
2. Department Notice board
3. IQAC Coordinator

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Academic year 2023-24

DETAILED SYLLABUS

Course Name: certification on Python

Total hours: 30

MODULE 1: (8 hours)

Introduction to *Python* –

variables, expressions and statements, evaluation of expressions, precedence Conditional Statements, Looping, Control Statements

MODULE 2: (8 hours)

Functions -calling functions, type conversion and coercion, composition of functions, mathematical functions, user-defined functions, parameters and arguments.

MODULE 3: (6 hours)

Strings – string traversal and comparison with examples. List -operations with examples

MODULE 4: (8 hours)

Dictionaries- operations with examples Tuples- operations with examples

Classes-objects, attributes Files- text files, directories

Prepared By
Ms Renju Renjith

Approved by
HOD

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List of Students Enrolled for Certificate course – Certification on Python

Academic Year: 2023-24 **Batch :2023-27**

Year/ Semester:I/S1

S.NO	ROLL NO.	NAME OF THE STUDENTS
1	MLM23CS001	AAYUSHI RAJESH
2	MLM23CS002	ABEL GEORGE
3	MLM23CS003	ABHINAV KRISHNA S
4	MLM23CS004	ABHINAV RAJ
5	MLM23CS005	ABHISHEK B
6	MLM23CS006	ABHISHEK J
7	MLM23CS007	ABHISHEK NAIR
8	MLM23CS008	ABHITHA JAYAN
9	MLM23CS009	ABIN SHIJO
10	MLM23CS010	ADHIL MUHAMMED
11	MLM23CS011	ADITHYAN M
12	MLM23CS012	ADITHYAN R
13	MLM23CS013	ADITHYAN R PILLAI
14	MLM23CS014	ADVAITH G
15	MLM23CS015	ADWAITH S
16	MLM23CS016	AGNASS GEORGE
17	MLM23CS017	AHAMMED FAWAZ
18	MLM23CS018	AISWARYA MADHU
19	MLM23CS019	AKASH ANIL
20	MLM23CS020	AKASH V SANTHOSH

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21	MLM23CS021	AKHIL SADANANDAN
22	MLM23CS022	AKSHAYA P
23	MLM23CS023	AKSHAY C
24	MLM23CS024	ALAN VARGHESE
25	MLM23CS025	ALBERT SAJI
26	MLM23CS026	ALBERT SCARIA
27	MLM23CS027	ALBIN S THOMAS
28	MLM23CS028	ALBIN V SOJU
29	MLM23CS029	AMAL A S
30	MLM23CS030	AMAL SANTHOSH
31	MLM23CS031	AMEER K S
32	MLM23CS032	AMITA S
33	MLM23CS033	ANAGHA K B
34	MLM23CS034	ANAND M S
35	MLM23CS035	ANANTHAKRISHNAN K P
36	MLM23CS036	ANDREA SEBASTIAN
37	MLM23CS037	ANGEL GEORGE
38	MLM23CS038	ANGEL SUNNY
39	MLM23CS039	ANJALY H KRISHNA
40	MLM23CS040	ANJANA MANOJ
41	MLM23CS041	ANJU RAJ N
42	MLM23CS042	ANN MARY PAUL
43	MLM23CS043	ANSIYA S
44	MLM23CS044	ARJUN SAJEEV
45	MLM23CS045	ARYA PREM
46	MLM23CS046	ASHIN GEORGE
47	MLM23CS047	ASHIQUE P

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48	MLM23CS048	ASWATHI AJITHKUMAR
49	MLM23CS049	ASWATHY M P
50	MLM23CS050	ATHUL KRISHNA T A
51	MLM23CS051	ATHUL M NAIR
52	MLM23CS052	BADUSHA FAIZAL
53	MLM23CS053	BEEMA FATHIMA
54	MLM23CS054	BENNET VARGHESE REJI
55	MLM23CS055	B HARIDEV
56	MLM23CS056	BHAVYA V RENJITH
57	MLM23CS057	BINIL BIJU
58	MLM23CS058	DEVAPRIYA B
59	MLM23CS059	DEVIKA S BINU
60	MLM23CS060	DHANUSH B NAIR

Ms Renju Renjith
Course I/C

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Certification on Python- attendance

S.NO	Reg.No	Name of the students	9/1/23	11/1/23	12/1/23	25/1/23	2/2/23		
1	MLM23CS001	AAYUSHI RAJESH	X	X	X	A	X	80%	
2	MLM23CS002	ABEL GEORGE	X	X	X	X	X	100%	
3	MLM23CS003	ABHINAV KRISHNA S	A	X	X	X	X	80%	
4	MLM23CS004	ABHINAV RAJ	X	X	A	X	X	80%	
5	MLM23CS005	ABHISHEK B	X	X	X	X	X	100%	
6	MLM23CS006	ABHISHEK J	X	X	X	X	X	100%	
7	MLM23CS007	ABHISHEK NAIR	X	X	A	X	X	80%	
8	MLM23CS008	ABHITHA JAYAN	X	X	X	X	X	100%	
9	MLM23CS009	ABIN SHIJO	X	X	X	X	X	100%	
10	MLM23CS010	ADHIL MUHAMMED	A	X	X	X	X	80%	
11	MLM23CS011	ADITHYAN M	X	X	X	X	X	100%	
12	MLM23CS012	ADITHYAN R	X	X	X	X	A	80%	
13	MLM23CS013	ADITHYAN R PILLAI	X	X	X	X	X	100%	
14	MLM23CS014	ADVAITH G	X	X	X	A	X	80%	
15	MLM23CS015	ADWAITH S	X	X	X	X	X	100%	
16	MLM23CS016	AGNASS GEORGE	X	X	X	X	X	100%	
17	MLM23CS017	AHAMMED FAWAZ	X	A	X	X	X	80%	
18	MLM23CS018	AISWARYA MADHU	X	X	X	X	X	100%	
19	MLM23CS019	AKASH ANIL	X	A	X	X	X	80%	

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20	MLM23CS020	AKASH V SANTHOSH	x	a	x	x	x	80%.	
21	MLM23CS021	AKHIL SADANANDAN	x	x	x	x	x	100%.	
22	MLM23CS022	AKSHAYA P	a	x	x	x	x	80%.	
23	MLM23CS023	AKSHAY C	x	x	x	x	x	100%.	
24	MLM23CS024	ALAN VARGHESE	x	x	x	a	x	80%.	
25	MLM23CS025	ALBERT SAJI	x	x	x	x	x	100%.	
26	MLM23CS026	ALBERT SCARIA	x	x	x	x	x	100%.	
27	MLM23CS027	ALBIN S THOMAS	x	x	x	x	x	100%.	
28	MLM23CS028	ALBIN V SOJU	x	x	a	x	x	80%.	
29	MLM23CS029	AMAL A S	x	x	x	x	x	100%.	
30	MLM23CS030	AMAL SANTHOSH	x	x	x	x	x	100%.	
31	MLM23CS031	AMEER K S	x	x	x	a	x	80%.	
32	MLM23CS032	AMITA S	a	x	x	x	x	100%.	
33	MLM23CS033	ANAGHA K B	x	x	x	x	x	100%.	
34	MLM23CS034	ANAND M S	x	x	x	x	x	100%.	
35	MLM23CS035	ANANTHAKRISHNAN K P	x	x	x	a	x	80%.	
36	MLM23CS036	ANDREA SEBASTIAN	x	x	x	x	a	80%.	
37	MLM23CS037	ANGEL GEORGE	x	x	x	x	x	100%.	
38	MLM23CS038	ANGEL SUNNY	a	x	x	x	x	80%.	
39	MLM23CS039	ANJALY H KRISHNA	x	x	x	x	x	100%.	
40	MLM23CS040	ANJANA MANOJ	x	x	x	x	x	100%.	
41	MLM23CS041	ANJU RAJ N	x	a	x	x	x	80%.	
42	MLM23CS042	ANN MARY PAUL	x	x	x	x	x	100%.	
43	MLM23CS043	ANSIYA S	a	x	x	x	x	80%.	

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44	MLM23CS044	ARJUN SAJEEV	✓	✓	A	✓	✓	70%	
45	MLM23CS045	ARYA PREM	A	✓	✓	✓	✓	70%	
46	MLM23CS046	ANJIN GEORGE	✓	✓	✓	✓	A	70%	
47	MLM23CS047	ASHIQUE P	✓	✓	✓	✓	✓	100%	
48	MLM23CS048	ASWATHI AJITHKUMAR	✓	✓	✓	✓	✓	100%	
49	MLM23CS049	ASWATHY M P	✓	A	✓	✓	✓	70%	
50	MLM23CS050	ATHUL KRISHNA T A	✓	✓	✓	✓	✓	100%	
51	MLM23CS051	ATHUL M NAIR	✓	✓	✓	✓	✓	100%	
52	MLM23CS052	BADUSHA FAIZAL	✓	✓	✓	✓	✓	100%	
53	MLM23CS053	BEEMA FATHIMA	✓	✓	✓	✓	✓	100%	
54	MLM23CS054	BENNET VARGHESE REJI	✓	✓	✓	✓	✓	100%	
55	MLM23CS055	B HARIDEV	✓	✓	✓	✓	✓	100%	
56	MLM23CS056	BHAVYA V RENJITH	✓	✓	✓	✓	✓	100%	
57	MLM23CS057	BINIL BIJU	✓	✓	✓	✓	✓	100%	
58	MLM23CS058	DEVAPRIYA B	A	✓	✓	✓	✓	80%	
59	MLM23CS059	DEVIKA S BINU	✓	✓	A	✓	✓	80%	
60	MLM23CS060	DHANUSH B NAIR	✓	✓	✓	A	✓	80%	

Course I/C
Ms Renju Renjith

Renju

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Certificate Course – Certification on Python

MARK SHEET

Academic Year: 2023-24 **Batch 2024-2028**

S. No.	Name of Student	Mark (30)	Out of 100
1	AAYUSHI RAJESH	20	67
2	ABEL GEORGE	30	100
3	ABHINAV KRISHNA S	21	70
4	ABHINAV RAJ	23	77
5	ABHISHEK B	25	83
6	ABHISHEK J	23	77
7	ABHISHEK NAIR	26	87
8	ABHITHA JAYAN	27	90
9	ABIN SHIJO	28	93
10	ADHIL MUHAMMED	24	80
11	ADITHYAN M	25	83
12	ADITHYAN R	29	97
13	ADITHYAN R PILLAI	28	93
14	ADVAITH G	27	90
15	ADWAITH S	26	87
16	AGNASS GEORGE	26	87
17	AHAMMED FAWAZ	25	83
18	AISWARYA MADHU	28	93
19	AKASH ANIL	21	70

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20	AKASH V SANTHOSH	23	77
21	AKHIL SADANANDAN	25	83
22	AKSHAYA P	21	70
23	AKSHAY C	20	67
24	ALAN VARGHESE	26	87
25	ALBERT SAJI	29	97
26	ALBERT SCARIA	23	77
27	ALBIN S THOMAS	26	87
28	ALBIN V SOJU	27	90
29	AMAL A S	28	93
30	AMAL SANTHOSH	24	80
31	AMEER K S	25	83
32	AMITA S	29	97
33	ANAGHA K B	28	93
34	ANAND M S	27	90
35	ANANTHAKRISHNAN K P	26	87
36	ANDREA SEBASTIAN	26	87
37	ANGEL GEORGE	25	83
38	ANGEL SUNNY	28	93
39	ANJALY H KRISHNA	21	70
40	ANJANA MANOJ	23	77
41	ANJU RAJ N	25	83
42	ANN MARY PAUL	21	70
43	ANSIYA S	20	67
44	ARJUN SAJEEV	21	70
45	ARYA PREM	23	77
46	ASHIN GEORGE	25	83

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47	ASHIQUE P	23	77
48	ASWATHI AJITHKUMAR	26	87
49	ASWATHY M P	27	90
50	ATHUL KRISHNA T A	28	93
51	ATHUL M NAIR	24	80
52	BADUSHA FAIZAL	25	83
53	BEEMA FATHIMA	29	97
54	BENNET VARGHESE REJI	28	93
55	B HARIDEV	27	90
56	BHAVYA V RENJITH	26	87
57	BINIL BIJU	26	87
58	DEVAPRIYA B	25	83
59	DEVIKA S BINU	28	93
60	DHANUSH B NAIR	21	70

Course Coordinator

Ms Renju Renjith

Renju

HoD CSE

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FEED BACK

	Questionnaire	Total Response	Yes	No	Strongly Agree	Agree	Disagree
	THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	56	56	0	-		-
B.	The course contents met with your expectations.	56	-	-	52	3	1
C.	The lecture sequence was well planned	56	-	-	51	3	2
D.	The contents were illustrated with	56	-	-	50	5	1
E.	The level of the course was	56	-	-	53	3	0
F.	The course contents compared with your expectations	56	-	-	51	5	0
G.	The course exposed you to new knowledge and practices	56	-	-	51	5	0
H.	Will you recommend this course to your colleagues?	56	-	-	51	4	1
A.	The lectures were clear and easy to understand	56	-	-	50	5	1
B.	The teaching aids were effectively used	56	-	-	53	3	0
C.	The course material handed out was adequate	56	-	-	51	5	0
D.	The instructors encouraged interaction and were helpful	56	-	-	51	5	0
E.	Were objectives of the course realized? Y	56	56	0	-		-
F.	Please give overall rating of the course	56					
	90% - 100%				89		
	80% - 90%				10		
	70% - 80%				2		
	60% - 70%				0		
	50% - 60%				0		
	below 50%				0		

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Certification On Python

4. What is the output of the following code?
(a) none of the above
(b) orange
(c) yellow
(d) green
(e) blue

5. What is the output of the following code?
(a) none of the above
(b) ['Tech', 'Basement']
(c) Error
(d) ['Tech', 'Basement']
(e) ['Tech', 'Basement']

6. What is the output of the following Python code?
(a) none of the above
(b) ('123', 'techfbasement') * 2
(c) ('123', 'techfbasement', '123', 'techfbasement')
(d) Error
(e) tinytuple**tinytuple

7. What would be the result of the following expression in Python? 3/5
(a) 0.6
(b) 0.75
(c) 5
(d) none of the above

8. What gets printed?
(a) str
(b) sto
(c) to
(d) tor
(e) syntax error

9. What gets printed? x = [1, 2, 4, 3] print(x[1:3])
(a) [1, 2]
(b) [1, 2, 4]
(c) [2, 4]
(d) [2, 4, 3]
(e) [2,3]

10. Which Of The Following Commands Can Be Used To Read "N" Number Of Characters From A File Using The File Object <fileV?
(A) file.read(n)
(B) n = file.read()
(C) file.readline(n)
(D) file.readlines()
(E) none of the above

11. What gets printed? name = "snow storm" name[5] = 'X' print(name)
(A) snow storm
(B) snow Xtorm
(C) snowXstorm
(D) ERROR, this code will not run
(E) None of the above

12. Which numbers are printed? for i in range(2): print(i) for i in range(4,6): print(i)
(A) 2, 4, 6
(B) 0, 1, 2, 4, 5, 6
(C) 0, 1, 4, 5
(D) 0, 1, 4, 5, 6, 7, 8, 9
(E) 1, 2, 4, 5, 6

13. What gets printed? x = "foo " y = 2 print(x + y)
(A) foo
(B) foofoo
(C) foo2
(D) an exception error is thrown
(E) None of the above

14. What gets printed? names = ['Amir', 'Barry', 'Chales', 'Dao'] print(names[-1][-1])
(A) A
(B) r
(C) Amir
(D) Dao
(E) o

15. Suppose t = (1, 2, 4, 3), which of the following is incorrect?
(A) print(t[3])
(B) t[3] = 45
(C) print(max(t))
(D) print(len(t))
(E) None of the above

16. What will be the output? t=(1,2,4,3) t[1:3]
(A) (1, 2)
(B) (1, 2, 4)
(C) (2, 4)
(D) (2, 4, 3)
(E) (2,3)

17. What will be the output? d1 = {"john":40, "peter":45} d2 = {"john":466, "peter":45} d1 == d2
(A) True
(B) False
(C) None
(D) Error

18. Suppose d = {"john":40, "peter":45}, to delete the entry for "john" what command do we use
(A) d.delete("john":40)
(B) d.delete("john")
(C) del d["john"],
(D) del d("john":40)

19. Suppose d = {"john":40, "peter":45}. To obtain the number of entries in dictionary which command do we use?
(A) d.size()
(B) len(d)
(C) size(d)
(D) d.len()
(E) none of the above

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20. Suppose listExample is [3, 4, 5, 20, 5, 25, 1, 3], what is list1 after listExample.extend([34, 5]) ?

(A) [3, 4, 5, 20, 5, 25, 1, 3, 34, 5]
(B) [3, 4, 5, 20, 5, 25, 1, 3, [34, 5]]
(C) [25, 20, 5, 5, 4, 3, 3, 1, 34, 5]
(D) [1, 3, 4, 5, 20, 5, 25, 3, 34, 5]

21. n = [[9, 8, 7], [6, 5, 4], [3, 2, 1]] print n[2] what gets printed

(A) [6, 5, 4]
(B) 2
(C) 7
(D) [3, 2, 1]

22. Which of the following statements create a dictionary?

(A) d = ()
(B) d = {"john":40, "peter":45}
(C) d = {40:"john", 45:"peter"}
(D) All of the mentioned

23. Which of the following is a Python tuple?

(A) [1, 2, 3].
(B) {1, 2, 3}
(C) (1, 2, 3)
(D) ()

24. What arithmetic operators cannot be used with strings ?

(A) +
(B) *
(C) -
(D) All of the mentioned

25. Suppose listExample is ['h','e','l','l','o'], what is len(listExample)?

(A) 5
(B) 4
(C) None
(D) Error

26. To add a new element to a list we use which command ?

(A) list1.add(5)
(B) list1.append(5)
(C) list1.addLast(5)
(D) list1.addEnd(5)

27. Suppose list1 is [2445,133,12454,123], what is max(list1) ?

(A) 2445
(B) 133
(C) 12454
(D) 123

28. Suppose list1 is [2, 33, 222, 14, 25], What is list1[ ] ?

(A) [2, 33, 222, 14,25]
(B) Error
(C) 25
(D) [25, 14, 222, 33, 2]
(E) [2, 33, 222, 14]

29. Suppose list1 is [1, 3, 2], What is list1 * 2 ?

(A) [2, 6, 4]
(B) [1, 3, 2, 1, 3]
(C) [1, 3, 2, 1, 3, 2]
(D) [1, 3, 2, 3, 2, 1]

30. Suppose list1 is [3, 4, 5, 20, 5, 25, 1, 3], what is list1 after list1.reverse() ?

(A) [3, 4, 5, 20, 5, 25, 1, 3]
(B) [1, 3, 3, 4, 5, 5, 20, 25]
(C) [25, 20, 5, 5, 4, 3, 3, 1]
(D) [3, 1, 25, 5, 20, 5, 4, 3]

socrative

Name
Date

Certification On Python

Score

1. What is the output of print str if str = 'Hello World!'
(A) Hello World!
(B) 'Hello World!'
(C) Error
(D) str
(E) none of the above

2. Which of the following statement causes the loop to skip the remainder of its body and immediately retest its condition prior to reiterating?
(A) break
(B) goto
(C) continue
(D) pass
(E) none of the above

3. what is the output of the below program? a = [1,2,3,None,(),[]] print(len(a))
(A) syntax error
(B) 6
(C) 5
(D) 7
(E) 8

4. What gets printed? x = 4.5 y = 2 print(x//y)
(A) 2.0
(B) 2.25
(C) 20.25
(D) 21
(E) 22.5

5. What is the value of colors[2]? colors = ['red', 'orange', 'yellow', 'green', 'blue', 'indigo', 'violet']
(A) indigo
(B) orange
(C) yellow
(D) green
(E) blue

6. What is the output of following code? list = ['Tech', 404, 3.03, 'Beamers', 33.3] print list[1:3]
(A) None of the above
(B) ['Tech', 404, 3.03, 'Beamers', 33.3]
(C) [404, 3.03]
(D) ['Tech', 'Beamers']
(E) [404, 3.03, 'Beamers']

7. What is the output of the following Python code? tinytuple = (123, 'techbeamers') print tinytuple * 2
(A) (123, 'techbeamers') * 2
(B) none of the above
(C) (123, 'techbeamers', 123, 'techbeamers')
(D) Error
(E) tinytuple*tinytuple

8. What would be the result of the following expression in Python? 3/5
(A) 0.6
(B) 6/10
(C) 0
(D) none of the above

9. What gets printed? name = "snow storm" print(name[6:8])
(A) st
(B) sto
(C) to
(D) tor
(E) syntax error

10. Which Of The Following Commands Can Be Used To Read "N" Number Of Characters From A File Using The File Object <File>?
(A) file.read(n)
(B) n = file.read()
(C) file.readline(n)
(D) file.readlines()
(E) none of the above

11. What gets printed? name = "snow storm" name[5] = 'X' print(name)
(A) snow storm
(B) snow Xtorm
(C) snowXstorm
(D) ERROR, this code will not run
(E) None of the above

12. Which numbers are printed? for i in range(2): print(i) for i in range(4,6): print(i)
(A) 2, 4, 6
(B) 0, 1, 2, 4, 5, 6
(C) 0, 1, 4, 5
(D) 0, 1, 4, 5, 6, 7, 8, 9
(E) 1, 2, 4, 5, 6

13. What gets printed? x = "foo " y = 2 print(x + y)
(A) foo
(B) foofoo
(C) foo2
(D) an exception error is thrown
(E) None of the above

14. What gets printed? names = ['Amir', 'Barry', 'Chales', 'Dao'] print(names[-1][-1])
(A) A
(B) r
(C) Amir
(D) Dao
(E) o

15. Suppose t = (1, 2, 4, 3), which of the following is incorrect?
(A) print(t[3])
(B) t[3] = 45
(C) print(max(t))
(D) print(len(t))
(E) None of the above

16. What will be the output? t=(1,2,4,3) t[1:3]
(A) (1, 2)
(B) (1, 2, 4)
(C) (2, 4)
(D) (2, 4, 3)
(E) (2,3)

17. What will be the output? d1 = {"john":40, "peter":45} d2 = {"john":466, "peter":45} d1 == d2
(A) True
(B) False
(C) None
(D) Error

18. Suppose d = {"john":40, "peter":45}, to delete the entry for "john" what command do we use
(A) d.delete("john":40)
(B) d.delete("john")
(C) del d["john"].
(D) del d["john" 40)

19. Suppose d = {"john":40, "peter":45}. To obtain the number of entries in dictionary which command do we use?
(A) d.size()
(B) len(d)
(C) size(d)
(D) d.len()
(E) none of the above

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20. Suppose listExample is [3, 4, 5, 20, 5, 25, 1, 3], what is list1 after listExample.extend([34, 5]) ?

(A) [3, 4, 5, 20, 5, 25, 1, 3, 34, 5]
(B) [3, 4, 5, 20, 5, 25, 1, 3, [34, 5]]
(C) [25, 20, 5, 5, 4, 3, 3, 1, 34, 5]
(D) [1, 3, 4, 5, 20, 5, 25, 3, 34, 5]

21. n = [[9, 8, 7], [6, 5, 4], [3, 2, 1]] print n[2] what gets printed

(A) [6, 5, 4]
(B) 2
(C) 7
(D) [3, 2, 1]

22. Which of the following statements create a dictionary?

(A) d = {}
(B) d = {"john":40, "peter":45}
(C) d = {40:"john", 45:"peter"}
(D) All of the mentioned

23. Which of the following is a Python tuple?

(A) {1, 2, 3}
(B) (1, 2, 3)
(C) [1, 2, 3]
(D) {}

24. What arithmetic operators cannot be used with strings ?

(A) *
(B) +
(C) -
(D) All of the mentioned

25. Suppose listExample is ['h','e','l','l','o'], what is len(listExample)?

(A) 5
(B) 4
(C) None
(D) Error

26. To add a new element to a list we use which command ?

(A) list1.add(5)
(B) list1.append(5)
(C) list1.addLast(5)
(D) list1.addEnd(5)

27. Suppose list1 is [2445,133,12454,123], what is max(list1) ?

(A) 2445
(B) 133
(C) 12454
(D) 123

28. Suppose list1 is [2, 33, 222, 14, 25], What is list1[ ] ?

(A) [2, 33, 222, 14,25]
(B) Error
(C) 25
(D) [25, 14, 222, 33, 2]
(E) [2, 33, 222, 14]

29. Suppose list1 is [1, 3, 2], What is list1 * 2 ?

(A) [2, 6, 4]
(B) [1, 3, 2, 1, 3]
(C) [1, 3, 2, 1, 3, 2]
(D) [1, 3, 2, 3, 2, 1]

30. Suppose list1 is [3, 4, 5, 20, 5, 25, 1, 3], what is list1 after list1.reverse() ?

(A) [3, 4, 5, 20, 5, 25, 1, 3]
(B) [1, 3, 3, 4, 5, 5, 20, 25]
(C) [25, 20, 5, 5, 4, 3, 3, 1]
(D) [3, 1, 25, 5, 20, 5, 4, 3]

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Course Feed Back

Course Title: Certification on Python.
Date: 2/12/2023 **Venue:** _____
Name: Advaith O.
Semester: S1
Branch: CSD

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you?	✓	Yes		No
B. The course contents met with your expectations.	3			
C. The lecture sequence was well planned	3			
D. The contents were illustrated with	3			
E. The level of the course was	3			
F. The course contents compared with your expectations	3			
G. The course exposed you to new knowledge and practices	3			
H. Will you recommend this course to your colleagues?	3			

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand	3			
B. The teaching aids were effectively used	3			
C. The course material handed out was adequate	3			
D. The instructors encouraged interaction and were helpful	3			
E. Were objectives of the course realized?	✓			No

F. Please give overall rating of the course

90% - 100%	✓	80% - 90%	
70% - 80%		60% - 70%	
50% - 60%		below 50%	

Please comment the Strength of the course and the way it was conducted:

Nil

Please comment the Weakness of the course and the way it was conducted:

Nil

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Course Feed Back

Course Title: Certification on Python. **Venue:** _____
Date: 8/12/23
Name: Abin Shyo
Semester: S1
Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you?	✓	Yes		No
B. The course contents met with your expectations.	3			
C. The lecture sequence was well planned	3			
D. The contents were illustrated with	3			
E. The level of the course was	3			
F. The course contents compared with your expectations	3			
G. The course exposed you to new knowledge and practices	3			
H. Will you recommend this course to your colleagues?	3			

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand	3			
B. The teaching aids were effectively used	3			
C. The course material handed out was adequate	3			
D. The instructors encouraged interaction and were helpful	3			
E. Were objectives of the course realized?	✓			No

F. Please give overall rating of the course

90% - 100%	✓	80% - 90%	
70% - 80%		60% - 70%	
50% - 60%		below 50%	

Please comment the Strength of the course and the way it was conducted:

Nil

Please comment the Weakness of the course and the way it was conducted:

Nil

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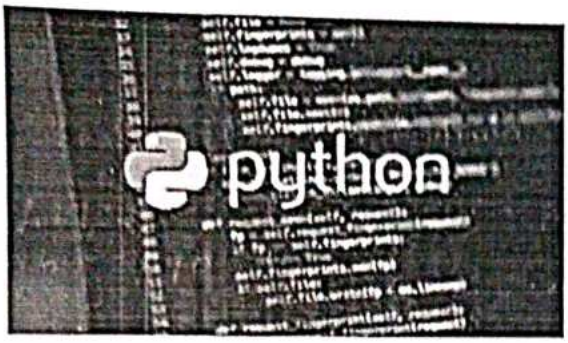

CERTIFICATION ON PYTHON

30 Hour Course

- ✓ Includes detailed python Programme
- ✓ **Available with Updated Short Study Material**
- ✓ Completion Certificate Will be provided
- ✓ Interaction with Domain Expert

Resource Person

Ms Renju Renjith, AP CSE
Ms Raihanath AS, AP CSE
Ms Sruthy Emmanuel, AP CSE

Date: 04-11-2023to 2-12-2023

विश्वं शास्त्रे प्रतिष्ठितम्।

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Coordinator: Ms Renju Renjith, AP CSE

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30 Hours Course (Certificate)

Needed to gain skills on python

Learn the fundamentals on python

Become 1 among the trained Engineer

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Mangalam Hills,

30 HoursCourse (Certificate)

Gain knowledge on python programming

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Certificate of Completion

This is to certify that Mr/Ms Amita S of First year B.Tech Computer Science and Engineering has successfully completed the ***"certification on Python "*** *for the duration of 30hours organized by the Department of Computer Science and Engineering during the academic year 2023-24.*

CO-ORDINATOR

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HOD

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CIRCULAR

Ref: MLM/CSE/CC/2023-2024 /02

Date: 6/09/2023

Submitted to the Principal approval

We have proposed to conduct the certificate course on **"PC Hardware and Networking"** for our UG CSE students during this semester (2023-24). Tentative timings and course fees details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Explanation:

PC Hardware and Networking focus to train the students to acquire basic knowledge in computer hardware and peripherals for installation, PC assembly, trouble shooting and maintenance including system management and its backup. The course also provides a basic knowledge of TCP/IP networks work group, internet and intranet.

Course Schedule: - 22.09.2023 to 20.10.2023

S.No.	Name of the course	Course instructors	Course duration	Approx. Course fee	Target students (year/branch)
1	**PC Hardware and Networking**	Ms Nayana N Panicker Ms Jinu P Sainudeen Ms Anjumol Zacharia	30 hrs	Free	UG Students

Thanking You,

HoD/CSE

Principal

Course I/C

Nayana.

Copy to:

1. CSE Department faculty members
2. Notice board
3. IQAC Coordinator

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Academic year 2023-24
DETAILED SYLLABUS

1. Basic networking concepts,
    - 1.1 Network topologies:
        - 1.1.1 LAN, WAN, MAN, PAN, CAN.
    - 1.2 Networking Model
        - 1.2.1. The OSI model
        - 1.2.2. TCP/ IP Model
    - 2.3 Network adapters.
    - 2.4 Introducing protocols.
    - 2.5 Cabling and troubleshooting.
2. Introduction to various networking devices:
    - 2.1. Routers.
    - 2.2. Switches.
    - 2.3. Modems.
    - 2.4. Hubs etc.
    - 2.5. Wired and Wireless technology.
3. Inside the PC:
    - 3.1. Opening the PC and identification.
    - 3.2. Study of different blocks,
    - 3.3. Assembling and disassembling.
4. Network basic and configuration:
    - 4.1. Setting IP addresses,
    - 4.2. Sharing files and folders.
    - 4.3. Network troubleshooting.
    - 4.4. PING test, ipconfig etc.
5. Introduction to servers and network security
    - 5.1. Types of servers:
        - 5.1.1. Files servers,
        - 5.1.2. Email Servers,
        - 5.1.3. Proxy servers etc.
    - 5.2 .Basics of Internet and Intranet:
    - 5.3 .Types of Internet connections:
        - 5.3.1 Dialup, Broadband, Leased Line, Wi-Fi, Wi-Max, 2G, 3G, 4G, WWW, E-mails, Search Engines, Social Networking.
        - 5.3.2 Cloud application.
        - 5.3.3 Audio-video Conferencing.
        - 5.3.4 Voice over Internet Protocol (VOIP).
    - 5.4. Recovery and backup.
    - 5.5. Essential security measures.

Prepared By Nayana

Ms Nayana N Panicker

Approved by

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List of Students Enrolled for Certificate course – PC Hardware and Networking

Academic Year: 2023-24 **Batch : 2022-2026**

Year/Sem: II/III Semester

S.No	Roll No.	Name of the students
1	MLM22CS001	AAROMAL K J
2	MLM22CS002	ABDUL HADHI T N
3	MLM22CS003	ABHIJITH P J
4	MLM22CS004	ABHIMANUE A S
5	MLM22CS005	ADARSH V NAIR
6	MLM22CS006	ADITHYAN JAIMON
7	MLM22CS007	AFLA FATHIMA RAHIM
8	MLM22CS008	AISHA HUSSAIN
9	MLM22CS009	AISWARYA MADHU
10	MLM22CS010	AJITH SEBASTAIN
11	MLM22CS011	AKHIL BABU
12	MLM22CS012	AKHILESH K S
13	MLM22CS013	AKSA MARY JOHN
14	MLM22CS014	AKSHARA PRADEEP
15	MLM22CS015	ALAN ABRAHAM
16	MLM22CS016	ALAN GEORGE JOSHY
17	MLM22CS017	ALAN JOSE
18	MLM22CS018	ALAN P S
19	MLM22CS019	ALBIN ABEY
20	MLM22CS020	ALBY SHIJI
21	MLM22CS021	ALFIN BAIJU

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33	MLM22CS033	ALEN VARGHESE
34	MLM22CS034	ALWIN WILSON
35	MLM22CS035	AMAL GEORGE MATHEW
36	MLM22CS036	AMEEKHA THYAS
37	MLM22CS037	AMPADI REJI P
38	MLM22CS038	ANEENA ANN MATHAI
39	MLM22CS039	ANGITHA SUNIL
40	MLM22CS040	ANIRUDH T MADHU
41	MLM22CS041	ANNA VINCENT
42	MLM22CS042	ANUSREE BINOY
43	MLM22CS043	ARJUN T ANISH
44	MLM22CS044	AROMAL SUNIL
45	MLM22CS045	ARUNDHATHI AJAY
46	MLM22CS046	ARUN THOMAS JACOB
47	MLM22CS047	ASHLIN P CHERIAN
48	MLM22CS048	ASWATHY RAJ
49	MLM22CS049	ASWIN PRAMOD
50	MLM22CS050	ASWIN SHIBU
51	MLM22CS051	ATHUL UDAYAN
52	MLM22CS052	BASIL J MATHEW
53	MLM22CS053	BENEDICT JOJI
54	MLM22CS054	BINNY BIJU
55	MLM22CS055	BINOSH T MATHEW
56	MLM22CS056	CHARMATHY M
57	MLM22CS057	CHRIS VARGHESE VINOD
58	MLM22CS058	DAN ELDHO ANIL
59	MLM22CS059	DELWIN THOMAS
60	MLM22CS060	DEVANARAYANAN H
61	MLM22CS061	DEVIKRISHNA M

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52	MLM22CS052	DONA MARIYA SOJI
53	MLM22CS053	EBNU HAJEESH
54	MLM22CS054	EHSAN NAVAS
55	MLM22CS055	ELBIN SOJAN
56	MLM22CS056	EVAN PUNNEN JACOB
57	MLM22CS057	FARHAN AHAMMED V M
58	MLM22CS058	FATHIMA NIZAR
59	MLM22CS059	GAUTHAM S
60	MLM22CS060	GEORGE JAMES
61	MLM22CS061	GOUTHAM NAIR B
62	MLM22CS062	HANNA MARIAM SHIBU
63	MLM22CS063	IRFAN AHAMED

Course I/C
Ms Nayana N Panicker

for HoD/CSE

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Certification on PC Hardware and Networking- Attendance

SL NO	REG NO	NAME	22/9	28/9	5/10	19/10	26/10		
1	MLM22CS001	AAROMAL K J	x	x	x	x	x	100%	
2	MLM22CS002	ABDUL HADHI T N	x	a	x	x	x	80%	
3	MLM22CS003	ABHIJITH P J	x	x	a	x	x	80%	
4	MLM22CS004	ABHIMANUE A S	a	x	x	x	x	80%	
5	MLM22CS005	ADARSH V NAIR	x	x	x	x	x	100%	
6	MLM22CS006	ADITHYAN JAIMON	x	x	x	x	a	80%	
7	MLM22CS007	AFLA FATHIMA RAHIM	x	x	x	x	x	100%	
8	MLM22CS008	AISHA HUSSAIN	x	x	x	x	x	100%	
9	MLM22CS009	AISWARYA MADHU	x	x	x	x	x	100%	
10	MLM22CS010	AJITH SEBASTAIN	x	x	x	x	a	80%	
11	MLM22CS011	AKHIL BABU	x	a	x	x	x	80%	
12	MLM22CS012	AKHILESH K S	x	x	x	x	x	100%	
13	MLM22CS013	AKSA MARY JOHN	x	x	x	x	x	100%	
14	MLM22CS014	AKSHARA PRADEEP	x	x	x	x	x	100%	
15	MLM22CS015	ALAN ABRAHAM	x	a	x	x	x	80%	
16	MLM22CS016	ALAN GEORGE JOSHY	x	x	a	x	x	80%	
17	MLM22CS017	ALAN JOSE	x	x	x	x	x	100%	
18	MLM22CS018	ALAN P S	x	x	x	x	x	100%	
19	MLM22CS019	ALBIN ABEY	x	x	x	a	x	80%	
20	MLM22CS020	ALBY SHIJI	x	x	x	x	x	100%	
21	MLM22CS021	ALFIN BAIJU	x	x	x	x	x	100%	
22	MLM22CS022	ALISHA BAIJU	x	a	x	x	x	80%	

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23	MLM22CS023	ALLEN VARGHESE	✓	✓	✓	✓	✓	100%	
24	MLM22CS024	ALWIN WILSON	✓	✓	✓	✓	✓	100%	
25	MLM22CS025	AMAL GEORGE MATHEW	a	✓	✓	✓	✓	80%	
26	MLM22CS026	AMEEKHA NIYAS	✓	a	✓	✓	✓	80%	
27	MLM22CS027	AMPADI REJI P	✓	✓	a	✓	✓	80%	
28	MLM22CS028	ANEENA ANN MATHAI	✓	✓	✓	✓	a	80%	
29	MLM22CS029	ANGITHA SUNIL	✓	✓	✓	✓	✓	100%	
30	MLM22CS030	ANIRUDH T MADHU	✓	✓	✓	✓	✓	100%	
31	MLM22CS031	ANNA VINCENT	✓	✓	✓	✓	a	80%	
32	MLM22CS032	ANUSREE BINOY	✓	✓	✓	✓	✓	100%	
33	MLM22CS033	ARJUN T ANISH	✓	✓	✓	✓	✓	100%	
34	MLM22CS034	AROMAL SUNIL	✓	✓	a	✓	✓	80%	
35	MLM22CS035	ARUNDHATHI AJAY	✓	✓	✓	✓	✓	100%	
36	MLM22CS036	ARUN THOMAS JACOB	✓	✓	✓	✓	✓	100%	
37	MLM22CS037	ASHLIN P CHERIAN	a	✓	✓	✓	✓	80%	
38	MLM22CS038	ASWATHY RAJ	✓	✓	✓	✓	✓	100%	
39	MLM22CS039	ASWIN PRAMOD	✓	✓	✓	✓	✓	100%	
40	MLM22CS040	ASWIN SHIBU	✓	✓	✓	✓	a	80%	
41	MLM22CS041	ATHUL UDAYAN	✓	✓	✓	✓	✓	100%	
42	MLM22CS042	BASIL J MATHEW	✓	✓	✓	✓	a	80%	
43	MLM22CS043	BENEDICT JOJI	✓	✓	✓	✓	✓	100%	
44	MLM22CS044	BINNY BIJU	a	✓	✓	✓	✓	80%	
45	MLM22CS045	BINOSH T MATHEW	✓	✓	✓	✓	✓	100%	
46	MLM22CS046	CHARMATHY M	✓	✓	✓	✓	✓	100%	
47	MLM22CS047	CHRIS VARGHESE VINOD	✓	a	✓	✓	✓	80%	
48	MLM22CS048	DAN ELDHO ANIL	✓	a	✓	✓	✓	80%	
49	MLM22CS049	DELWIN THOMAS	✓	✓	✓	✓	✓	100%	
50	MLM22CS050	DEVANARAYANAN H	✓	✓	✓	✓	✓	100%	
51	MLM22CS051	DEVIKRISHNA M	✓	✓	✓	✓	✓	100%	
52	MLM22CS052	DONA MARIYA SOJI	✓	✓	✓	✓	a	80%	

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53	MLM22CS053	EBNU HAJEESH	x	x	x	a	x	80%	
54	MLM22CS054	EHSAN NAVAS	x	x	x	x	x	100%	
55	MLM22CS055	ELBIN SOJAN	x	x	x	x	x	100%	
56	MLM22CS056	EVAN PUNNEN JACOB	x	x	x	x	x	100%	
57	MLM22CS057	FARHAN AHAMMED V M	x	x	x	x	x	100%	
58	MLM22CS058	FATHIMA NIZAR	a	x	x	x	x	80%	
59	MLM22CS059	GAUTHAM S	x	a	x	x	x	80%	
60	MLM22CS060	GEORGE JAMES	x	x	x	x	x	100%	
61	MLM22CS061	GOUTHAM NAIR B	x	x	x	x	x	100%	
62	MLM22CS062	HANNA MARIAM SHIBU	x	x	x	x	x	100%	
63	MLM22CS063	IRFAN AHAMED	x	x	x	a	x	80%	

Course I/C
Ms Nayana N Panicker

HoD/CSE

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Questions for Test

1. What is networking and types of networking?
2. What does a network do?
3. Which type of cable is used in networking laboratory?
4. How a network does works?
5. What are the types of cables?
6. What is the difference between CAT 5 and CAT 6?
7. What is the difference between STP and UTP cable?
8. What is the network topology?
9. What are the different types of network?
10. Which is the most common network topology?
11. What are the different types of networking devices?
12. What is a client and server network?
13. What is a an IP address?
14. How do I find the IP address of my computer?
15. What are the classes of IP address and its range?
16. What are the different types of Internet protocols?
17. What is the difference between static and dynamic IP?
18. What is the DHCP IP address?
19. What is DHCP and how it works?
20. What is data backup and recovery?

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Course coordinator

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Certificate Course – Certification on PC Hardware and Networking

MARK SHEET

Academic Year: 2022-23 **Batch 2022-26**

S. No.	Name of Student	Mark (20)	Out of 100
1	ABEL DAVID RAJAN	15	75
2	ABHIJITH KUMAR P A	16	80
3	ABHIJITH P S	18	90
4	ABHIJITH SUBASH	15	75
5	ABHINANDH R NAIR	18	90
6	ABIN BABY	19	95
7	ADITHYA PRADEEP	20	100
8	ADONIS C DAVIS	20	100
9	ADWAITH B NAIR	20	100
10	AISWARYA LAKSHMI T R	18	90
11	AKHILA K G	20	100
12	AKHIA M S	19	95
13	AKHIL KURIAN	18	90
14	AKSHAY K S	17	85
15	ALAN SABU	15	75
16	ALAN SEBASTIAN XAVIER	15	75
17	ALBIN SABU	15	75
18	ALEENA BIJU	16	80
19	ALEN ELIAS VARGHESE	18	90

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20	ALICIA MARIYAM JACOB	15	75
21	ALZA K TOBY	19	95
22	AMAL C SANTHOSH	17	85
23	AMAL K SONY	16	80
24	AMERDESH J NAIR	15	75
25	AMITH V PURUSHOTHAMAN	15	75
26	ANANDHU B	18	90
27	ANAS KURIAKOSE	19	95
28	ANASWARA MOHAN	16	80
29	ANOOP PRAKASH	18	90
30	ANUPRIYA M S	15	75
31	ANU T KURIAN	15	75
32	APARNA S	19	95
33	ARJUN MOHAN C L	17	85
34	AROMAL RAJ	16	80
35	ARUNIMA PRINCE	15	75
36	ARUN P S	15	75
37	ASHIKA P E	18	90
38	ASHIK MATHEW THOMAS	19	95
39	ASHISH JOHN MANI	16	80
40	ASHLY MARY VARGHESE	18	90
41	ASHMI SUSAN MATHEW	15	75
42	ASIF MAJEED	15	75
43	ASISH ALBERT	14	70
44	ASWIN NADH	17	85
45	ATHUL JOHNSON	16	80
46	ATHUL PRAKASH	15	75
47	AYUSHI S NAIR	15	75

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48	AYUSH K RAJ	14	70
49	CHANDANA SUMENDRAN K	15	75
50	CHRISTO P AJEESH	14	70
51	CHRISTY CYRIAC	17	85
52	DEVIKA RADHAKRISHNAN	16	80
53	DONA ELIZABETH SAJI	15	75
54	GEORGEKUTTY S PUTHUSSERIL	20	100
55	GEORGY THOMAS	19	95
56	GINCE GEORGE	15	75
57	GRIFITH CHACKO	14	70
58	HARIHARAN S NAIR	17	85
59	HENAN N S	16	80
60	JAGANNADHAN M V	15	75
61	JAIN BABU K	20	100
62	JAISUN T BIJI	19	95
63	JAYAKRISHNAN K J	15	75

Course Coordinator

HoD CSE

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FEED BACK

	Questionnaire	Total Response	Yes	No	Agree	Neutral	Disagree
	THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	59	59				
B.	The course contents met with your expectations.				55	4	
C.	The lecture sequence was well planned				55	4	
D.	The contents were illustrated with				55	4	
E.	The level of the course was				56	3	
F.	The course contents compared with your expectations				57	2	
G.	The course exposed you to new knowledge and practices				57	2	
H.	Will you recommend this course to your colleagues?		59				
A.	The lectures were clear and easy to understand	59	-	-	55		4
B.	The teaching aids were effectively used	59	-	-	54		5
C.	The course material handed out was adequate	59	-	-	56		3
D.	The instructors encouraged interaction and were helpful	59	-	-	56		3
E.	Were objectives of the course realized? Y	59	57	2	-		-
F.	Please give overall rating of the course	59					
	90% - 100%				53		
	80% - 90%				3		
	70% - 80%				3		
	60% - 70%				0		
	50% - 60%				0		
	below 50%				0		

Course I/C

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Course Feed Back

Course Title: PC Hardware and Networking
Date: 26/10/24 **Venue:** _____
Name: Aaromal K.J
Semester: S3
Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you?	✓	Yes		No
B. The course contents met with your expectations.	3			
C. The lecture sequence was well planned	3			
D. The contents were illustrated with	3			
E. The level of the course was	3			
F. The course contents compared with your expectations	3			
G. The course exposed you to new knowledge and practices	3			
H. Will you recommend this course to your colleagues?	3			

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand	3		
B. The teaching aids were effectively used	3		
C. The course material handed out was adequate	3		
D. The instructors encouraged interaction and were helpful	3		
E. Were objectives of the course realized?	✓		No

F. Please give overall rating of the course

90% - 100%	✓	80% - 90%	
70% - 80%		60% - 70%	
50% - 60%		below 50%	

Please comment the Strength of the course and the way it was conducted:

NIL

Please comment the Weakness of the course and the way it was conducted:

NIL

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Course Feed Back

Course Title: PC Hardware and Networking
Date: 26/10/24 **Venue:** _____
Name: Allen Baiju
Semester: S5
Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you?	✓	Yes		No
B. The course contents met with your expectations.	3			
C. The lecture sequence was well planned	3			
D. The contents were illustrated with	3			
E. The level of the course was	3			
F. The course contents compared with your expectations	3			
G. The course exposed you to new knowledge and practices	3			
H. Will you recommend this course to your colleagues?	3			

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand	3			
B. The teaching aids were effectively used	3			
C. The course material handed out was adequate	3			
D. The instructors encouraged interaction and were helpful	3			
E. Were objectives of the course realized?				No

F. Please give overall rating of the course

`90% - 100% (✓)		80% - 90% ( )	
70% - 80% ( )		60% - 70% ( )	
50% - 60% ( )		below 50% ( )	

Please comment the Strength of the course and the way it was conducted:

NIL

Please comment the Weakness of the course and the way it was conducted:

NIL

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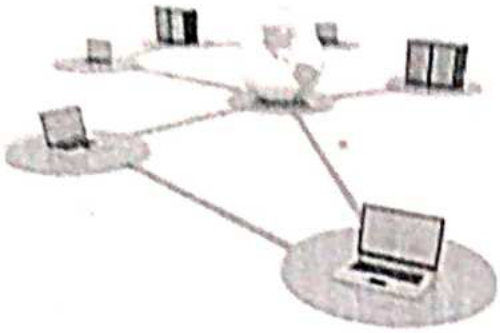

CERTIFICATION PC HARDWARE AND NETWORKING

30 Hour Course

- ✓ Trusted by Recruiters of Semiconductor Industry
- ✓ Includes detailed pc and networking
- ✓ **Available with updated Short Study Material**
- ✓ Completion Certificate Will be provided
- ✓ Interaction with Domain Expert

Resource Person

Ms Nayana N Panicker
Ms Jinu P Sainudeen
Ms Anusmitha S

Date: 23-09-2023 to 21-10-2023

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विद्यां शास्त्रं प्रतिष्ठितम्।

Coordinator: Ms. Nayana N Panicker

MANGALAM COLLEGE OF ENGINEERING ETTUMANOOR 686 631 DEPT OF COMPUTER SCIENCE & ENGG

30 HoursCourse (Certificate)

Gain knowledge on pc hardware and networking

Learn the fundamentals of pc hardware

Become 1 among the trained Engineer

MANGALAM COLLEGE OF ENGINEERING
Mangalam Hills
Vettimukal P.O
Ettumanoor, Kottayam
686631

Time 9: 00 AM to 5 PM

MANGALAM COLLEGE OF ENGINEERING

Certificate of Completion

This is to certify that Mr/Ms Alan PS of second year B.Tech Computer Science and Engineering has successfully completed ***"Certification on PC Hardware and Networking"*** *for the duration of 30hours organized by the Department of Computer Science and Engineering during the academic year 2023-24.*

CO-ORDINATOR

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HOD

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Ref: MLM/CSE/CC/2023-2024 /01

Date: 10/07/23

Submitted to the Principal approval

We have proposed to conduct the certificate course on **"Certification on Data Science and Machine Learning"** for our UG CSE students during this semester. Tentative timings and course fees details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Explanation:

The Data Science & Machine Learning Developer Certification program provides a comprehensive set of knowledge and skills in data science, machine learning, and deep learning. As an immersive training program it covers all the key technologies, techniques, principles and practices you need to understand to play a key role on your data science development team, and to distinguish them professionally. This program also covers the significant development of deep learning methods that enable state-of-the-art performance for many tasks, including image classification, time series (such as audio) classification and natural language processing.

Course Schedule: - 22/7/23 to 19/8/23

S.No.	Name of the course	Course instructors	Course duration	Approx. Course fee	Target students (year/branch)
1	**Certification on Data Science and Machine Learning**	Mr.Jayakrishnan B	30 hrs	Free	VII/CSE
2		Ms. Sruthy Emmanuel			
3		Ms. Roja Thomas			

Thanking You,

Course I/C **HoD/CSE** **Principal**

Copy to:

1. CSE Department faculty members
2. CSE Department Notice Board
3. IQAC Coordinator

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Academic year 2023-24

Certification on Data Science and Machine Learning

1. Foundations of Data Science 7

In the first, we will cover the foundational concepts for data science that form the building blocks of the course and will help you sail through the rest of the journey with ease. With guidance from mentors, get up to speed with the statistics and python foundations that will make you ready for the program.

1.1Python for Data Science - Numpy -Pandas - Data Visualization

1.2 Statistics for Data Science

Learn Descriptive and Inferential Statistics, which are used for data analysis and estimation.

Descriptive Statistics - data analysis by describing and summarizing, Inferential **Statistics** - data for estimation and assess theories using Python.

2. Making Sense of Unstructured Data 12

Bootstrapping data to make it AI/ML ready, along with the practical applications of the techniques utilized.

2.1 Introduction - Unsupervised Learning and its examples.

What is unsupervised learning, and why is it challenging? - Unsupervised learning algorithms - analyze and cluster unlabelled data sets, challenges.

2.2 Clustering

Introduction of clustering and its various applications.

What is clustering? - Basic intuition behind clustering and why it is extremely prevalent.**When to use clustering? - K-means preliminaries** - preliminaries before we begin with K-means clustering.-**The K-means algorithm** - K-means clustering unsupervised learning in Data Science or Machine Learning.- **How to evaluate clustering?.- Beyond K-means: What really makes a cluster?** techniques that make a cluster.- **Beyond K-means: Other notions of distance** - types of distance methods in clustering and discuss the use cases for the same. - **Beyond K-means: Data and pre-processing** - Data pre-processing as time-taking process. necessity and steps involved.- **Beyond K-means: Big data and nonparametric Bayes** determining large and complex data sets both structured and unstructured. Fraud Protection, Product Development, Machine Learning, Bayesian nonparametric model.

2.3 Spectral Clustering, Components, and Embeddings

The last module for this week will focus on various spectral clustering techniques, components, and embeddings.

What if we do not have features to describe the data or not all are meaningful? -.Finding the principal components in data and applications - Reducing the complexity of an unsupervised machine learning model to avoid overfitting. **-The magic of eigenvectors I** - implement eigenvectors in a matrix.- **Clustering in graphs and networks** - clustering in graphs and networks.- **Features from**

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graphs: The magic of eigenvectors II - implement eigenvectors in a matrix using features from graphs. **- Spectral clustering** - reduce complex in multidimensional datasets **-Modularity Clustering** - the measure of the strength of a network division into clusters.- **Embeddings: New features and their meaning** - translate high-dimensional vectors.

11

3. Regression and Prediction

We will explore the fundamentals of Supervised Machine Learning and Prediction, including some key algorithms and widely-used techniques.

3.1 Classical Linear and Nonlinear Regression and Extensions

Linear Regression is a popular algorithm that is used for predictive analysis in Machine Learning, which produces the best results. It manages a linear relationship between the independent variable and the dependent variable. Nonlinear Regression is a technique that assumes a non-linear relationship between the independent variable and dependent variable.

Linear regression with one and several variables – implementation of linear regression with one and several variables, **Linear regression for prediction** - implementation linear regression for predictive analysis. **Linear regression for causal inference** - implementation linear regression for causal inference. **Logistic and other types of nonlinear regression** – predicting the categorical dependent variables by the assistance of independent variables. Fundamentals of Logistic Regression and other nonlinear regression

3.2 Modern Regression with High-Dimensional Data

We will learn high-dimensional regression, which is a modern regression technique. It helps in approximating high-dimensional data with a low-dimensional representation using an inverse regression framework, which is the modern regression technique.

Making good predictions with high-dimensional data. Avoiding overfitting by validation and cross-validation - how to avoid overfitting by validation and cross-validation techniques. **Regularization by Lasso, Ridge, and their . Regression Trees, Random Forest, Boosted Trees** - Binary recursive partitioning, Random Forest Algorithm, predictive accuracy, Boosting algorithm- Gradient boosting and Adaptive (ADA) boosting.

Prepared By
Mr Jayakrishnan B

Approved by
HOD

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

List of Students Enrolled for Certificate course – Certification on Data Science and Machine Learning

Academic Year: 2023-24 **Batch :2020-24**

Year/ Semester:IV/VII

S.No	ROLL NO.	NAME OF THE STUDENTS
1	MLM20CS002	ABEL DAVID RAJAN
2	MLM20CS003	ABHIJITH KUMAR P A
3	MLM20CS004	ABHIJITH P S
4	MLM20CS005	ABHIJITH SUBASH
5	MLM20CS006	ABHINANDH R NAIR
6	MLM20CS007	ABIN BABY
7	MLM20CS008	ADITHYA PRADEEP
8	MLM20CS009	ADONIS C DAVIS
9	MLM20CS010	ADWAITH B NAIR
10	MLM20CS011	AISWARYA LAKSHMI T R
11	MLM20CS012	AKHILA K G
12	MLM20CS013	AKHIA M S
13	MLM20CS014	AKHIL KURIAN
14	MLM20CS015	AKSHAY K S
15	MLM20CS016	ALAN SABU
16	MLM20CS017	ALAN SEBASTIAN XAVIER
17	MLM20CS019	ALBIN SABU
18	MLM20CS020	ALEENA BIJU
19	MLM20CS021	ALEN ELIAS VARGHESE
20	MLM20CS022	ALICIA MARIYAM JACOB
21	MLM20CS023	ALZA K TOBY
22	MLM20CS024	AMAL C SANTHOSH

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S.No	ROLL NO.	NAME OF THE STUDENTS
23	MLM20CS026	AMAL K SONY
24	MLM20CS027	AMERDESH J NAIR
25	MLM20CS028	AMITH V PURUSHOTHAMAN
26	MLM20CS029	ANANDHU B
27	MLM20CS030	ANAS KURIAKOSE
28	MLM20CS031	ANASWARA MOHAN
29	MLM20CS032	ANOOP PRAKASH
30	MLM20CS033	ANUPRIYA M S
31	MLM20CS034	ANU T KURIAN
32	MLM20CS035	APARNA S
33	MLM20CS036	ARJUN MOHAN C L
34	MLM20CS037	AROMAL RAJ
35	MLM20CS038	ARUNIMA PRINCE
36	MLM20CS039	ARUN P S
37	MLM20CS040	ASHIKA P E
38	MLM20CS041	ASHIK MATHEW THOMAS
39	MLM20CS042	ASHISH JOHN MANI
40	MLM20CS043	ASHLY MARY VARGHESE
41	MLM20CS044	ASHMI SUSAN MATHEW
42	MLM20CS045	ASIF MAJEED
43	MLM20CS046	ASISH ALBERT
44	MLM20CS048	ASWIN NADH
45	MLM20CS049	ATHUL JOHNSON
46	MLM20CS050	ATHUL PRAKASH
47	MLM20CS051	AYUSHI S NAIR
48	MLM20CS052	AYUSH K RAJ
49	MLM20CS053	CHANDANA SUMENDRAN K
50	MLM20CS054	CHRISTO P AJEESH
51	MLM20CS055	CHRISTY CYRIAC
52	MLM20CS056	DEVIKA RADHAKRISHNAN

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S.No	ROLL NO.	NAME OF THE STUDENTS
53	MLM20CS057	DONA ELIZABETH SAJI
54	MLM20CS058	GEORGEKUTTY S PUTHUSSERIL
55	MLM20CS059	GEORGY THOMAS
56	MLM20CS060	GINCE GEORGE
57	MLM20CS061	GRIFITH CHACKO
58	MLM20CS062	HARIHARAN S NAIR
59	MLM20CS063	HENAN N S
60	MLM20CS064	JAGANNADHAN M V
61	MLM20CS065	JAIN BABU K
62	MLM20CS066	JAISUN T BIJI
63	MLM20CS067	JAYAKRISHNAN K J
64	MLM20CS068	JAYCE BEN RAJ
65	MLM20CS069	JEFFRY RONY
66	MLM20CS070	JIJO ABRAHAM
67	MLM20CS071	JITHIN JOY
68	MLM20CS072	JITTA ELSA JOBY
69	MLM20CS073	JOEL SABU
70	MLM20CS074	JOEL THOMAS MATHAI
71	MLM20CS075	JUNAID K
72	MLM20CS076	KADHEEJA AMBI
73	MLM20CS078	KEERTHANA M JOHN
74	MLM20CS079	KEZIN KENUT
75	MLM20CS080	KURIAN THOMAS
76	MLM20CS081	MANU MATHEW THOMAS
77	MLM20CS082	MARIA THOMAS
78	MLM20CS083	MARTIN JOY
79	MLM20CS084	MEGHA VARGHESE
80	MLM20CS085	MICHAEL CHRISTOPHER
81	MLM20CS086	MINNUMOL T S
82	MLM20CS087	MONISH ZACHARIA
83	MLM20CS088	MUHAMMED ISMAIL

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S.No	ROLL NO.	NAME OF THE STUDENTS
84	MLM20CS089	MUHAMMED YASEEN
85	MLM20CS091	NIRANJANA N SAJEEV
86	MLM20CS092	NISSYMOL JOSEPH
87	MLM20CS093	NITHIN M JOJO
88	MLM20CS094	POOJA PRADEEP
89	MLM20CS095	PRANAV P HEGDEN
90	MLM20CS096	R ADARSH
91	MLM20CS097	ROJAN SEBASTAIN
92	MLM20CS098	SAFIN JOHNY
93	MLM20CS099	SEBIN SABU
94	MLM20CS100	SHOBIN BINU HILLSON
95	MLM20CS101	SHON BENNY
96	MLM20CS102	SHRUTHI S SURESH
97	MLM20CS103	SNEHA ELSA KORUTH
98	MLM20CS104	SNEHA SHIJU THOMAS
99	MLM20CS105	SNEHA V BINU
100	MLM20CS106	SOORAJ SHAJI
101	MLM20CS107	SREEHARI
102	MLM20CS108	SREEKUTTY K S
103	MLM20CS109	SREYAS V NAIR
104	MLM20CS110	STELIN SHABU
105	MLM20CS111	STEPHAN THOMAS JOSE
106	MLM20CS112	SUJITH SAM SAJU
107	MLM20CS113	SURYA S
108	MLM20CS114	TANIA MARY JOSEPH
109	MLM20CS115	TOJO JOSE
110	MLM20CS116	TOM TELSON
111	MLM20CS117	TREESA JOSEPH
112	MLM20CS118	VARSHA DINESH

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Certification on Data Science and Machine Learning- attendance

S.NO	REG.NO	NAME OF THE STUDENTS	22/7/23	29/7/23	5/8/23	12/8/23	19/8/23		
1	MLM20CS002	ABEL DAVID RAJAN	X	X	X	a	X	80%	
2	MLM20CS003	ABHIJITH KUMAR P A	X	X	X	X	X	100%	
3	MLM20CS004	ABHIJITH P S	X	X	X	X	X	100%	
4	MLM20CS005	ABHIJITH SUBASH	a	X	X	X	X	80%	
5	MLM20CS006	ABHINANDH R NAIR	X	X	X	X	X	100%	
6	MLM20CS007	ABIN BABY	X	X	a	X	X	80%	
7	MLM20CS008	ADITHYA PRADEEP	X	X	X	X	X	100%	
8	MLM20CS009	ADONIS C DAVIS	X	a	X	X	X	80%	
9	MLM20CS010	ADWAITH B NAIR	X	X	X	X	X	100%	
10	MLM20CS011	AISWARYA LAKSHMI T R	X	X	X	X	X	100%	
11	MLM20CS012	AKHILA K G	X	X	X	X	a	80%	
12	MLM20CS013	AKHIA M S	X	X	X	X	X	100%	
13	MLM20CS014	AKHIL KURIAN	X	X	X	X	X	100%	
14	MLM20CS015	AKSHAY K S	X	X	X	X	a	80%	
15	MLM20CS016	ALAN SABU	X	X	X	X	X	100%	
16	MLM20CS017	ALAN SEBASTIAN XAVIER	X	X	X	X	X	100%	
17	MLM20CS019	ALBIN SABU	X	a	X	X	X	80%	
18	MLM20CS020	ALEENA BIJU	X	X	X	X	X	100%	
19	MLM20CS021	ALEN ELIAS VARGHESE	X	X	X	X	X	100%	

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21	MLM20CS023	ALZA K TOBY	x	x	a	x	x	80%	
22	MLM20CS024	AMAL C SANTHOSH	x	a	x	x	x	80%	
23	MLM20CS026	AMAL K SONY	x	x	x	x	a	80%	
24	MLM20CS027	AMERDESH J NAIR	x	a	x	x	x	80%	
25	MLM20CS028	AMITH V PURUSHOTHAMAN	x	x	x	x	x	100%	
26	MLM20CS029	ANANDHU B	x	x	x	x	x	100%	
27	MLM20CS030	ANAS KURIAKOSE	x	a	x	x	x	80%	
28	MLM20CS031	ANASWARA MOHAN	x	x	a	x	x	80%	
29	MLM20CS032	ANOOP PRAKASH	x	x	x	x	x	100%	
30	MLM20CS033	ANUPRIYA M S	x	x	x	x	x	100%	
31	MLM20CS034	ANU T KURIAN	x	x	x	x	x	100%	
32	MLM20CS035	APARNA S	x	x	x	x	x	100%	
33	MLM20CS036	ARJUN MOHAN C L	x	x	x	x	x	100%	
34	MLM20CS037	AROMAL RAJ	x	x	x	x	a	80%	
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37	MLM20CS040	ASHIKA P E	x	x	x	x	x	100%	
38	MLM20CS041	ASHIK MATHEW THOMAS	x	x	x	x	x	100%	
39	MLM20CS042	ASHISH JOHN MANI	x	x	x	x	x	100%	
40	MLM20CS043	ASHLY MARY VARGHESE	x	x	a	x	x	80%	
41	MLM20CS044	ASHMI SUSAN MATHEW	x	x	x	x	x	100%	
42	MLM20CS045	ASIF MAJEED	x	x	x	x	x	100%	
43	MLM20CS046	ASISH ALBERT	x	x	x	x	x	100%	

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45	MLM20CS049	ATHUL JOHNSON	x	x	a	x	x	80%	
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48	MLM20CS052	AYUSH K RAJ	x	x	x	x	x	100%	
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50	MLM20CS054	CHRISTO P AJEESH	x	x	x	x	a	80%	
51	MLM20CS055	CHRISTY CYRIAC	x	x	x	x	x	100%	
52	MLM20CS056	DEVIKA RADHAKRISHNAN	x	x	x	x	x	100%	
53	MLM20CS057	DONA ELIZABETH SAJI	x	x	x	x	x	100%	
54	MLM20CS058	GEORGEKUTTY S PUTHUSSERIL	a	x	x	x	x	80%	
55	MLM20CS059	GEORGY THOMAS	x	x	x	x	x	100%	
56	MLM20CS060	GINCE GEORGE	x	x	x	x	x	100%	
57	MLM20CS061	GRIFITH CHACKO	x	x	x	x	x	100%	
58	MLM20CS062	HARIHARAN S NAIR	x	x	x	x	a	80%	
59	MLM20CS063	HENAN N S	x	x	x	a	x	80%	
60	MLM20CS064	JAGANNADHAN M V	x	x	x	x	x	100%	
61	MLM20CS065	JAIN BABU K	x	x	x	x	x	100%	
62	MLM20CS066	JAISUN T BIJI	x	x	x	x	x	100%	
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64	MLM20CS068	JAYCE BEN RAJ	x	x	x	x	x	100%	
65	MLM20CS069	JEFFRY RONY	x	x	x	x	x	100%	
66	MLM20CS070	JIJO ABRAHAM	x	a	x	x	x	80%	
67	MLM20CS071	JITHIN JOY	x	x	x	a	x	80%	
68	MLM20CS072	JITTA ELSA JOBY	x	x	x	x	x	100%	
69	MLM20CS073	JOEL SABU	x	x	x	x	a	80%	
70	MLM20CS074	JOEL THOMAS MATHAI	x	x	x	x	x	100%	

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72	MLM20CS076	KADHEEJA AMBI	X	X	X	X	a	80%	
73	MLM20CS078	KEERTHANA M JOHN	X	X	X	X	X	100%	
74	MLM20CS079	KEZIN KENUT	X	X	X	X	X	100%	
75	MLM20CS080	KURIAN THOMAS	X	X	X	X	X	100%	
76	MLM20CS081	MANU MATHEW THOMAS	X	X	X	X	X	100%	
77	MLM20CS082	MARIA THOMAS	X	X	a	X	X	80%	
78	MLM20CS083	MARTIN JOY	X	X	X	X	X	100%	
79	MLM20CS084	MEGHA VARGHESE	X	X	X	X	X	100%	
80	MLM20CS085	MICHAEL CHRISTOPHER	X	X	X	X	X	100%	
81	MLM20CS086	MINNUMOL T S	X	a	X	X	X	80%	
82	MLM20CS087	MONISH ZACHARIA	X	X	X	X	X	100%	
83	MLM20CS088	MUHAMMED ISMAIL	a	X	X	X	X	80%	
84	MLM20CS089	MUHAMMED YASEEN	X	X	X	X	X	100%	
85	MLM20CS091	NIRANJANA N SAJEEV	X	X	X	X	X	100%	
86	MLM20CS092	NISSYMOL JOSEPH	X	X	a	X	X	80%	
87	MLM20CS093	NITHIN M JOJO	X	X	X	X	X	100%	
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89	MLM20CS095	PRANAV P HEGDEN	X	a	X	X	X	80%	
90	MLM20CS096	R ADARSH	X	X	X	X	X	100%	
91	MLM20CS097	ROJAN SEBASTAIN	X	X	a	X	X	80%	
92	MLM20CS098	SAFIN JOHNY	X	X	X	X	X	100%	
93	MLM20CS099	SEBIN SABU	X	X	X	X	X	100%	
94	MLM20CS100	SHOBIN BINU HILLSON	X	X	X	X	X	100%	
95	MLM20CS101	SHON BENNY	X	X	X	X	X	100%	
96	MLM20CS102	SHRUTHI S SURESH	X	X	X	X	X	100%	
97	MLM20CS103	SNEHA ELSA KORUTH	X	X	X	X	a	80%	
98	MLM20CS104	SNEHA SHIJU THOMAS	X	X	X	X	X	100%	
99	MLM20CS105	SNEHA V BINU	X	X	a	X	X	80%	
100	MLM20CS106	SOORAJ SHAJI	X	X	X	X	X	100%	

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101	MLM20CS107	SREEHARI	✗	a	✗	✗	✗	80%	
102	MLM20CS108	SREEKUTTY K S	✗	✗	✗	a	✗	80%	
103	MLM20CS109	SREYAS V NAIR	✗	✗	✗	✗	✗	100%	
104	MLM20CS110	STELIN SHABU	✗	✗	✗	✗	✗	100%	
105	MLM20CS111	STEPHAN THOMAS JOSE	✗	✗	✗	✗	✗	100%	
106	MLM20CS112	SUJITH SAM SAJU	✗	✗	✗	✗	✗	100%	
107	MLM20CS113	SURYA S	a	✗	✗	✗	✗	80%	
108	MLM20CS114	TANIA MARY JOSEPH	✗	✗	✗	✗	✗	100%	
109	MLM20CS115	TOJO JOSE	✗	✗	✗	✗	✗	100%	
110	MLM20CS116	TOM TELSON	✗	✗	a	✗	✗	80%	
111	MLM20CS117	TREESA JOSEPH	✗	✗	✗	✗	a	80%	
112	MLM20CS118	VARSHA DINESH	✗	✗	✗	✗	✗	100%	

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Questions for Test- Certification on Data Science and Machine Learning

1. Identify the language which is used in data science?
C++
R
Java
Ruby

2. Choose the correct components of data science.
domain expertise
data engineering
advanced computing
all of the above

3. Which of the following is not a part of the data science process?
communication building
operationalize
model planning
Discovery

4. Total groups in which data can be characterized is?
1
2
3
4

5. Choose whether the following statement is true or false: Unstructured data is not organized
True
False
maybe true or false
cannot be determined

6. A column is a _____- representation of data.
Diagonal
Vertical
Top
horizontal

7. Choose whether the following statement is true or false: A data frame is an unstructured representation of data
True
False

8. Among the following identify the one in which dimensionality reduction reduces.
Performance
Entropy
Stochastics
collinearity

9. Machine learning is a subset of which of the following.
Artificial intelligence
deep learning
data learning
none of the above

10. FIND-S algorithm ignores?
Positive

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Negative
Both
None

11. Full form of PAC is _____
Probably Approx Cost
Probably Approximate Correct
Probability Approx Communication
Probably Approximate Computation

12. Total types of layer in radial basis function neural networks is _____
1
2
3
4

13. Choose whether true or false: Decision tree cannot be used for clustering
True
False

14. Procedural Domain Knowledge in a rule-based system, is in the form of?
Meta-Rules
Control Rules
Production Rules
None of the above

15. Which of the following architecture is also known as systolic arrays?
MISD
SISD
SIMD
None of the above

16. Machines running LISP are also called?
AI Workstations
Time-Sharing Terminals
Both A and B
None of the above

17. A hybrid Bayesian Network consists of?
Discrete Variables
Continuous Variables
Both A and B
None of the above

18. Identify the key data science skills among the following
data visualization
machine learning
Statistics
all of the above

19. Raw data should be processed only one time. Is the following statement true or false?
True
False

20. Identify the revision control system on the following.
Scipy
Numpy
Git
Slidify

21. Among the following options identify the one which is false regarding regression.
it is used for the prediction
it is used for interpretation
it relates inputs to outputs

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it discovers casual relationships
22. Choose the general limitations of the backpropagation rule among the following.
slow convergence
Scaling
local minima problem
All of the above
23. Choose the instance-based learner.
Eager learner
lazy learner
both a and b are correct
none of the above
24. Choose whether the following statement is true or false: Artificial intelligence is the process that allows a computer to learn and make decisions like humans.
True
False
25. What does K stand for in K mean algorithm?
number of clusters
number of data
number of attributes
Number of iterations
26. Which of the following machine learning algorithm is based upon the idea of bagging?
decision tree
random-forest
Classification
regression
27. Choose a disadvantage of decision trees among the following.
Decision trees are robust to outliers
factor analysis
decision trees are prone to overfit
All of the above
28. Which of the following is not a supervised learning
PCA
Naive Bayesian
linear regression
Decision tree
29. Identify the clustering method which takes care of variance in data
Decision tree
Gaussian mixture model
K means
All of the above
30. Among the following options choose which one of the following focuses on the discovery of unknown properties on the data.
Big data
Data mining
Machine learning
Data wrangling
31. Identify the model which is usually a gold standard for data analysis
Casual
Inferential
Descriptive
all of the above
32. Another name of data fishing is?
Data merging

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Data dredging
Data bagging
None of the above
33. CLI stands for _____
Command-line interface
Command language interface
Command-line intercom
None of the above
34. Choose whether the following statement is true or false: Time deltas are differences in times, expressed in difference units
True
False
35. Among the following, choose the correct application of data science in Healthcare.
Data science for genomics
Data science for medical imaging
Drug discovery with data science
All of the above
36. Identify the Incorrect CLI command.
clear
rm
delete
None of the above
37. Total principles of analytical graphs that exist are _____
2
4
6
8
38. Knowledge in AI can be represented as?
Predicate Logic
Propositional Logic
Both A and B
None of the above
39. Inference engines work on the principle of?
Backward Chaining
Forward Chaining
Both A and B
None of the above
40. Components of an expert system are?
Knowledge base
User interface
Inference engine
All of the above
41. How many types of observing environments are there?
2
3
0
1
42. Another name of data dredging is
Data booting
Data bagging
Data snooping
Data merging
43. Out of the given options, which of the following algorithms uses the least memory?

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DFS
BFS
Both A and B are the same
Cannot be compared
44. What are different machine learning methods?
Memorization
Analogy
Deduction
All of the above
45. The different types of machine learning are?
Supervised
Unsupervised
Reinforcement
All of the above
46. Artificial Intelligence is associated with computers of which generation?
Second
First
Fifth
Third
47. PEAS is an abbreviation for?
Peace, Environment, Action, Sense
Peer, Environment, Actuators, Sensors
Performance, Environment, Actuators, Sensors
Performance, Environment, Actuators, Sense
48. Among the following SGD variant, which of the following is based on both Momentum and adaptive learning.
RMSprop
Adam
Nesterov
Adagrad
49. Identify the activation function output which is zero centered
Hyperbolic tangent
Rectified linear unit
Sigmoid
Softmax
50. Among the following logic function, which of the following cannot be implemented by a perceptron having two inputs
XOR
NOR
OR
AND

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Answer Key- Certification on Data Science and Machine Learning

1. **Answer: D)** Ruby is used in data science.
2. **Answer: D)** All of the options are components of data science.
3. **Answer: A)** Communication building is not a part of the data science process.
4. **Answer: B)** Data can be categorized into two groups: structured and unstructured data.
5. **Answer: A)** True. Unstructured data is not organized.
6. **Answer: B)** A column is a vertical representation of data.
7. **Answer: B)** false. Data frame is a structured representation of data.
8. **Answer: D)** Dimensionality reduction reduces collinearity.
9. **Answer: A)** machine learning is a subset of artificial intelligence
10. **Answer: B)** FIND-S algorithm ignores negative
11. **Answer: B)** PAC stands for Probably Approximately Correct.
12. **Answer: C)** There is a total of 3 Types of layered in radial basis function neural networks.
13. **Answer: B)** False. A decision tree can be used for clustering.
14. **Answer: C)** Explanation: Procedural Domain Knowledge in a rule-based system, is in the form of Production Rules.
15. **Answer: A)** Explanation: MISD architecture is also known as systolic arrays
16. **Answer: A)** Explanation: Machines running LISP are also called AI workstations
17. **Answer: C)** Explanation: Discrete and Continuous variables both act as numerical inputs to a hybrid Bayesian network.
18. **Answer: D)** All of the above are the key data science skills.
19. **Answer: B)** False. Raw data may only need to be processed once.
20. **Answer: C)** Git is the revision control system
21. **Answer: D)** option d is incorrect among the following.
22. **Answer: D)** All of the above general limitations of the backpropagation rule.
23. **Answer: B)** Lazy learner is an instance-based learner.
24. **Answer: A)** The above statement is true.
25. **Answer: D)** K stands for a number of iterations in the K mean algorithm
26. **Answer: B)** Random forest is based on the idea of bagging
27. **Answer: C)** Decision trees are prone to overfitting
28. **Answer: A)** PCA Is not supervised learning.
29. **Answer: B)** Gaussian mixture model takes care of variance in data
30. **Answer: B)** Data mining focuses on the discovery of unknown properties on the data.
31. **Answer: A)** Casual is usually a gold standard for data analysis.
32. **Answer: B)** Data processing is also known as data dredging.
33. **Answer: A)** CLI stands for Command-line interface.
34. **Answer: A)** The above statement is True.
35. **Answer: D)** All of the above are applications of data science in Healthcare.
36. **Answer: C)** delete is not a CLI command.
37. **Answer: C)** Total principles of analytical graphs that exist are 6.
38. **Answer: C)** The representation of knowledge in AI can be done both as Predicate and Propositional Logic
39. **Answer: C)** The modes on which inference engines work are forward and backward chaining
40. **Answer: D)** All the above options comprise the components of an expert system.
41. **Answer: A)** There are 2 types of observing environments: Fully and Partial.
42. **Answer: C)** Data dredging is also known as data snooping

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43. **Answer: A)** DFS uses a lesser amount of memory because at a time the path from the node to a root is only stored in the memory stack, unlike BFS which will have to store the whole tree within it.
44. **Answer: D)** The machine learning methods include Memorization, Analogy, and Deduction.
45. **Answer: D)** The 3 types of machine learning are: Supervised, Unsupervised, and Reinforcement Learning
46. **Answer: C)** Fifth Generation computers are said to be able to have Artificial Intelligence within them
47. **Answer: C)** PEAS is an abbreviation for Performance, Environment, Actuators, Sensors.
48. **Answer: B)** Adam, is a deep learning Optimizer that is based on both Momentum and additive learning.
49. **Answer: A)** Hyperbolic Tangent activation function is zero centered
50. **Answer: A)** XOR cannot be implemented by a perceptron having two inputs.

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Certificate Course – Certification on Data Science and Machine Learning

MARK SHEET

Academic Year: 2022-23 **Batch 2020-24**

S. No.	Name of Student	Mark (50)	Out of 100
1	ABEL DAVID RAJAN	34	68
2	ABHIJITH KUMAR P A	36	72
3	ABHIJITH P S	40	80
4	ABHIJITH SUBASH	37	74
5	ABHINANDH R NAIR	49	98
6	ABIN BABY	46	92
7	ADITHYA PRADEEP	39	78
8	ADONIS C DAVIS	36	72
9	ADWAITH B NAIR	37	74
10	AISWARYA LAKSHMI T R	41	82
11	AKHILA K G	47	94
12	AKHIA M S	42	84
13	AKHIL KURIAN	44	88
14	AKSHAY K S	47	94
15	ALAN SABU	38	76
16	ALAN SEBASTIAN XAVIER	48	96
17	ALBIN SABU	45	90
18	ALEENA BIJU	35	70
19	ALEN ELIAS VARGHESE	34	68

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20	ALICIA MARIYAM JACOB	36	72
21	ALZA K TOBY	40	80
22	AMAL C SANTHOSH	37	74
23	AMAL K SONY	49	98
24	AMERDESH J NAIR	46	92
25	AMITH V PURUSHOTHAMAN	39	78
26	ANANDHU B	36	72
27	ANAS KURIAKOSE	37	74
28	ANASWARA MOHAN	41	82
29	ANOOP PRAKASH	47	94
30	ANUPRIYA M S	42	84
31	ANU T KURIAN	41	82
32	APARNA S	47	94
33	ARJUN MOHAN C L	42	84
34	AROMAL RAJ	44	88
35	ARUNIMA PRINCE	47	94
36	ARUN P S	38	76
37	ASHIKA P E	48	96
38	ASHIK MATHEW THOMAS	45	90
39	ASHISH JOHN MANI	35	70
40	ASHLY MARY VARGHESE	50	100
41	ASHMI SUSAN MATHEW	44	88
42	ASIF MAJEED	45	90
43	ASISH ALBERT	43	86
44	ASWIN NADH	36	72
45	ATHUL JOHNSON	37	74
46	ATHUL PRAKASH	47	94

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47	AYUSHI S NAIR	35	70
48	AYUSH K RAJ	32	64
49	CHANDANA SUMENDRAN K	37	74
50	CHRISTO P AJEESH	39	78
51	CHRISTY CYRIAC	35	70
52	DEVIKA RADHAKRISHNAN	34	68
53	DONA ELIZABETH SAJI	33	66
54	GEORGEKUTTY S PUTHUSSERIL	43	86
55	GEORGY THOMAS	36	72
56	GINCE GEORGE	37	74
57	GRIFITH CHACKO	47	94
58	HARIHARAN S NAIR	35	70
59	HENAN N S	32	64
60	JAGANNADHAN M V	35	70
61	JAIN BABU K	39	78
62	JAISUN T BIJI	44	88
63	JAYAKRISHNAN K J	34	68
64	JAYCE BEN RAJ	33	66
65	JEFFRY RONY	37	74
66	JIJO ABRAHAM	47	94
67	JITHIN JOY	38	76
68	JITTA ELSA JOBY	48	96
69	JOEL SABU	45	90
70	JOEL THOMAS MATHAI	35	70
71	JUNAID K	34	68
72	KADHEEJA AMBI	44	88
73	KEERTHANA M JOHN	40	80

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74	KEZIN KENUT	37	74
75	KURIAN THOMAS	49	98
76	MANU MATHEW THOMAS	46	92
77	MARIA THOMAS	39	78
78	MARTIN JOY	36	72
79	MEGHA VARGHESE	37	74
80	MICHAEL CHRISTOPHER	41	82
81	MINNUMOL T S	47	94
82	MONISH ZACHARIA	42	84
83	MUHAMMED ISMAIL	36	72
84	MUHAMMED YASEEN	39	78
85	NIRANJANA N SAJEEV	34	68
86	NISSYMOL JOSEPH	36	72
87	NITHIN M JOJO	40	80
88	POOJA PRADEEP	41	82
89	PRANAV P HEGDEN	39	78
90	R ADARSH	46	92
91	ROJAN SEBASTAIN	39	78
92	SAFIN JOHNY	36	72
93	SEBIN SABU	41	82
94	SHOBIN BINU HILLSON	30	60
95	SHON BENNY	37	74
96	SHRUTHI S SURESH	42	84
97	SNEHA ELSA KORUTH	44	88
98	SNEHA SHIJU THOMAS	47	94
99	SNEHA V BINU	48	96
100	SOORAJ SHAJI	32	64

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101	SREEHARI	35	70
102	SREEKUTTY K S	35	70
103	SREYAS V NAIR	48	96
104	STELIN SHABU	47	94
105	STEPHAN THOMAS JOSE	33	66
106	SUJITH SAM SAJU	44	88
107	SURYA S	36	72
108	TANIA MARY JOSEPH	40	80
109	TOJO JOSE	31	62
110	TOM TELSON	34	68
111	TREESA JOSEPH	42	84
112	VARSHA DINESH	37	74
113	VIJAY VINOD	31	62

Course Coordinator

HoD CSE

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

FEED BACK

	Questionnaire	Total Response	Yes	No	Strongly Agree	Agree	Disagree
	THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	99	99	0	-		-
B.	The course contents met with your expectations.	99	-	-	89	8	2
C.	The lecture sequence was well planned	99	-	-	91	8	0
D.	The contents were illustrated with	99	-	-	87	11	1
E.	The level of the course was	99	-	-	89	9	1
F.	The course contents compared with your expectations	99	-	-	92	5	2
G.	The course exposed you to new knowledge and practices	99	-	-	91	6	2
H.	Will you recommend this course to your colleagues?	99	-	-	93	5	1
A.	The lectures were clear and easy to understand	99	-	-	89	9	1
B.	The teaching aids were effectively used	99	-	-	88	10	1
C.	The course material handed out was adequate	99	-	-	90	8	1
D.	The instructors encouraged interaction and were helpful	99	-	-	89	10	0
E.	Were objectives of the course realized? Y	99	99	0	-		-
F.	Please give overall rating of the course	99					
	90% - 100%				91		
	80% - 90%				6		
	70% - 80%				2		
	60% - 70%				0		
	50% - 60%				0		
	below 50%				0		

Course I/C

Mr Jayakrishnan B

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Course Feed Back

Course Title: Certification on Data Science and Machine Learning

Date: 19/8/23 **Venue:** _____

Name: Tojo Jose

Semester: VII

Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? [✓] Yes [ ] No

B. The course contents met with your expectations. 3

C. The lecture sequence was well planned 3

D. The contents were illustrated with 3

E. The level of the course was 3

F. The course contents compared with your expectations 3

G. The course exposed you to new knowledge and practices 3

H. Will you recommend this course to your colleagues? 3

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand 3

B. The teaching aids were effectively used 3

C. The course material handed out was adequate 3

D. The instructors encouraged interaction and were helpful 3

E. Were objectives of the course realized? [✓] Yes [ ] No

F. Please give overall rating of the course

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`90% - 100% (✓)

80% - 90% ( )

70% - 80% ( )

60% - 70% ( )

50% - 60% ( )

below 50% ( )

Please comment the Strength of the course and the way it was conducted:

Please comment the Weakness of the course and the way it was conducted:

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Thank you

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Course Feed Back

Course Title: Certification on Data science and Machine Learning

Date: 19/8/23 **Venue:** _____

Name: Dian Babu

Semester: VIII

Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? [✓] Yes [ ] No

B. The course contents met with your expectations. 3

C. The lecture sequence was well planned 3

D. The contents were illustrated with 3

E. The level of the course was 3

F. The course contents compared with your expectations 3

G. The course exposed you to new knowledge and practices 3

H. Will you recommend this course to your colleagues? 3

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand 3

B. The teaching aids were effectively used 3

C. The course material handed out was adequate 3

D. The instructors encouraged interaction and were helpful 3

E. Were objectives of the course realized? [✓] Yes [ ] No

F. Please give overall rating of the course

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`90% - 100% (100%)

80% - 90% ( )

70% - 80% ( )

60% - 70% ( )

50% - 60% ( )

below 50% ( )

Please comment the Strength of the course and the way it was conducted:

Please comment the Weakness of the course and the way it was conducted:

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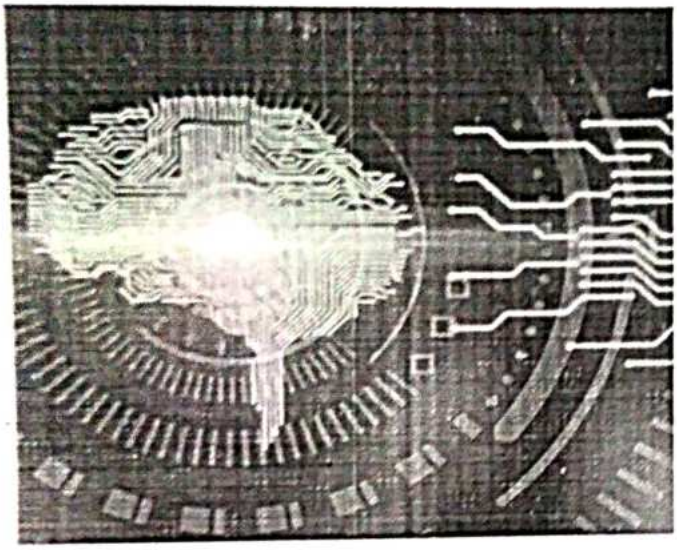
Thank you

CERTIFICATION ON DATA SCIENCE & MACHINE LEARNING



30 Hour Course

- ✓ Includes detailed Data Science & Machine Learning Programme
- ✓ Available with Updated Short Study Material
- ✓ Completion Certificate Will be provided
- ✓ Interaction with Domain Expert

Resource Person

Mr. Jayakrishnan B (AP,CSE)
Ms. Sruthy Emmanuel (AP,CSE)
Ms. Roja Thomas (AP,CSE)

Date: 21/07/2023 To 19/08/2023

Coordinator: Mr. Jayakrishnan B (AP,CSE)

30 Hours Course (Certificate)

Needed to become a data Science Analyst

Learn the fundamentals of Data Science &Machine Learning

Become 1 among the trained Data Science & Machine Learning Analyst

MANGALAM COLLEGE OF ENGINEERING

Mangalam Hills,
Vettimukal P O
Ettumanoor, Kottayam
686631

Time 9: 00 AM to 5 PM
(5 Days)

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Certificate of Completion

This is to certify that ***Mr/Ms Abhijith PS*** *of fourth year B.Tech Computer Science and Engineering has successfully completed the* ***"Certification on Data Science and Machine Learning"*** *for the duration of 30 hours organized by the Department of Computer Science and Engineering during the academic year 2023-24.*

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CO-ORDINATOR

HOD

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Ref: MLM/CSE/CC/2023-2024 /05 Date: 11/12/23

Submitted to the Principal approval

We have proposed to conduct the certificate course on **"Certification on IoT "** for our UG CSE students during this semester. Tentative timings and course fees details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Explanation:

The Internet of Things is transforming our physical world into a complex and dynamic system of connected devices on an unprecedented scale. The IoT brings the power of the internet, data processing and analytics to the real world of physical objects. IoT is about connecting machines or, as we refer to them, 'things' that were previously 'dumb objects'. Advances in technology are making possible a more widespread adoption of IoT, from pill-shaped micro-cameras that can pinpoint thousands of images within the body, to smart sensors that can assess crop conditions on a farm, to the smart home devices that are becoming increasingly popular.

Course Schedule :- 6/1/24 to 3/2/24

S.No.	Name of the course	Course instructors	Course duration	Approx. Course fee	Target students (year/branch)
1	**Certification on IoT**	Ms Renju Renjith	30 hrs	Free	S6/CSE
2		Ms Merlin Mary james			
3		Ms DeviGopal T			

Thanking You,

Renju

Course I/C

for

HoD/CSE

Principal

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Copy to:

1. CSE Department faculty members
2. Department Notice board
3. IQAC Coordinator

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Academic year 2023-24

Certification on IoT

1. Introduction to IoT-Course Introduction. **3**

2 - Origin and Impact **6**

IoT Revolution in Industries-Use Case: Fleet Management Using IoT- Benefits of IoT in Fleet Management- Use Case: IoT for Financial Services- Benefits of IoT for Financial Services- IoT in Dairy Farming.

3. Overview of IoT **5**

Evolution of IoT- Transforming Digital World- Differences between M2M and IoT- Use Case: M2M vs IoT-Use Case: IoT in Autonomous Vehicles.

4 - Building Blocks of IoT **8**

Building Blocks of IoT-Hardware for IoT-Connectivity Blocks and Communication Protocols-Platforms Supporting IoT-Cloud Computing for IoT-Data Management for IoT-Mobile Applications for IoT-Use Case: LoRa Communication Protocol-Use Case: Smart Home Using Arduino.

5 - IoT Design and Development Considerations-IoT Design and Development Considerations-IoT Device Architecture-IoT Reference Architecture-IoT Standardization and Design Considerations-IoT Device Architecture: Network and Cloud-IoT in Smart Farming.

6 - Security Considerations Using IoT **8**

Security Considerations Using IoT-IoT Security Standards and Best Practices-IoT Attack and Vulnerabilities-IoT Hardware Solutions-IoT Software Solutions-IoT's Open Source Solutions-IoT USe Case: Utility Companies-IoT Security in Utilities Challenges-Use Case: IoT Security in Manufacturing Industry.

Prepared By

for Approved by HOD

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List of Students Enrolled for Certificate course - Certification on IoT

Academic Year: 2023-2024 **Batch :2021-2025**

Year/ Semester: III/S6

S.No	Roll No.	Name of the students
1	MLM21CS001	A AKSHAY
2	MLM21CS002	ABHID METHAR
3	MLM21CS003	ABHINANDANA K S
4	MLM21CS004	ABIN BIJU VAEGHESE
5	MLM21CS005	ADHWAITH S
6	MLM21CS006	ADITHYA KRISHNAN
7	MLM21CS007	ADITHYA KRISHNA PK
8	MLM21CS008	ADITHYAN H
9	MLM21CS009	ADWAITH ASHOK
10	MLM21CS010	AHAMMED YASEEN
11	MLM21CS011	AHANNA GEORGE
12	MLM21CS013	AJAI A M
13	MLM21CS014	AJITH SAJIMON
14	MLM21CS015	AKSHAYA SURESH
15	MLM21CS016	AKSHAY KUMAR
16	MLM21CS017	AKSON CHERIYAN
17	MLM21CS018	ALAN BIJU
18	MLM21CS019	ALAN JOSEPH

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19	MLM21CS020	ALBIN K VARGHESE
20	MLM21CS021	ALBIN RAJAN
21	MLM21CS022	ALBIN VARGHESE
22	MLM21CS023	ALPHIN JOYES
23	MLM21CS024	ALWIN T THOMAS
24	MLM21CS025	AMAL SURESH
25	MLM21CS026	AMEENA KS
26	MLM21CS027	AMITHAMOL VARGHESE
27	MLM21CS028	AMRUTHA PRADEEP
28	MLM21CS029	ANAGHA ANIL KUMAR
29	MLM21CS030	ANANDA KRISHNA K A
30	MLM21CS031	ANAND SURESH
31	MLM21CS032	ANANDU S
32	MLM21CS033	ANANTHAKRISHNAN M NAIR
33	MLM21CS034	ANN LITTA JOE
34	MLM21CS035	ARJUN JAYAKUMAR
35	MLM21CS036	ARJUN RAJEEV
36	MLM21CS037	ARJUN SABU
37	MLM21CS038	AROMAL PS
38	MLM21CS039	ASWIN SURESH
39	MLM21CS040	ATHUL KRISHNA A
40	MLM21CS041	BALAGOPAL B
41	MLM21CS042	BHAGYALAKSHMI S PRASAD
42	MLM21CS044	BICHU ANTONY
43	MLM21CS045	BIJOY OOMMEN
44	MLM21CS046	BINO THOMAS
45	MLM21CS048	DIYA PRASAD

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46	MLM21CS050	DON XAVIER
47	MLM21CS051	EDWIN S GEORGE
48	MLM21CS052	ELIZABATH SUSAN VARGHESE
49	MLM21CS054	HARI NARAYANAN.V
50	MLM21CS056	JEWEL ELIZABETH GEORGE
51	MLM21CS057	JIBIN BIJU
52	MLM21CS058	JINU TREESA ABRAHAM
53	MLM21CS059	JITHIN JACOB BYJU
54	MLM21CS060	JITHU REJI
55	MLM21CS061	JOBIN ABRAHAM
56	LMLM21CS122	MIDHUN MEDAYIL

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Certificate course On IoT -Attendance
Period of Training : 06.01.24 to 03.02.24

S. NO	Reg.No	Name of the students	6/1/24	13/1/24	20/1/24	27/1/24	3/2/24		
1	MLM21CS001	A AKSHAY	∝	∝	∝	∝	∝	100%	
2	MLM21CS002	ABHID METHAR	∝	∝	∝	∝	∝	100%	
3	MLM21CS003	ABHINANDANA K S	∝	∝	∝	∝	∝	100%	
4	MLM21CS004	ABIN BIJU VAEGHESE	∝	∝	∝	∝	∝	100%	
5	MLM21CS005	ADHWAITH S	∝	a	∝	∝	∝	100%	
6	MLM21CS006	ADITHYA KRISHNAN	∝	∝	∝	∝	∝	100%	
7	MLM21CS007	ADITHYA KRISHNA PK	a	∝	∝	∝	∝	80%	
8	MLM21CS008	ADITHYAN H	∝	∝	∝	∝	∝	100%	
9	MLM21CS009	ADWAITH ASHOK	∝	∝	∝	∝	∝	100%	
10	MLM21CS010	AHAMMED YASEEN	a	∝	∝	∝	∝	80%	
11	MLM21CS011	AHANNA GEORGE	∝	∝	∝	∝	a	80%	
12	MLM21CS013	AJAI A M	∝	∝	∝	∝	∝	100%	
13	MLM21CS014	AJITH SAJIMON	∝	∝	a	∝	∝	80%	
14	MLM21CS015	AKSHAYA SURESH	∝	∝	∝	∝	∝	100%	
15	MLM21CS016	AKSHAY KUMAR	∝	∝	∝	∝	∝	100%	
16	MLM21CS017	AKSON CHERIYAN	∝	∝	∝	∝	∝	100%	
17	MLM21CS018	ALAN BIJU	∝	∝	∝	∝	∝	100%	
18	MLM21CS019	ALAN JOSEPH	∝	∝	∝	∝	∝	100%	
19	MLM21CS020	ALBIN K VARGHESE	∝	∝	∝	∝	a	80%	

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20	MLM21CS021	ALBIN RAJAN	∝	∝	∝	a	∝	80%	
21	MLM21CS022	ALBIN VARGHESE	∝	∝	∝	∝	∝	100%	
22	MLM21CS023	ALPHIN JOYES	∝	∝	∝	∝	∝	100%	
23	MLM21CS024	ALWIN T THOMAS	∝	∝	∝	∝	∝	100%	
24	MLM21CS025	AMAL SURESH	∝	∝	∝	∝	∝	100%	
25	MLM21CS026	AMEENA KS	∝	∝	∝	∝	∝	100%	
26	MLM21CS027	AMITHAMOL VARGHESE	∝	∝	∝	∝	∝	100%	
27	MLM21CS028	AMRUTHA PRADEEP	a	∝	∝	∝	∝	80%	
28	MLM21CS029	ANAGHA ANIL KUMAR	∝	∝	∝	∝	∝	100%	
29	MLM21CS030	ANANDA KRISHNA K A	∝	∝	∝	∝	∝	100%	
30	MLM21CS031	ANAND SURESH	∝	∝	∝	∝	∝	100%	
31	MLM21CS032	ANANDU S	∝	∝	∝	∝	∝	100%	
32	MLM21CS033	ANANTHAKRISHNAN M NAIR	∝	a	∝	∝	∝	80%	
33	MLM21CS034	ANN LITTA JOE	∝	∝	∝	∝	∝	100%	
34	MLM21CS035	ARJUN JAYAKUMAR	∝	a	∝	∝	∝	80%	
35	MLM21CS036	ARJUN RAJEEV	∝	∝	∝	∝	∝	100%	
36	MLM21CS037	ARJUN SABU	∝	∝	∝	∝	✗	100%	
37	MLM21CS038	AROMAL PS	∝	∝	∝	∝	∝	100%	
38	MLM21CS039	ASWIN SURESH	∝	∝	a	∝	∝	80%	
39	MLM21CS040	ATHUL KRISHNA A	∝	∝	∝	a	∝	80%	
40	MLM21CS041	BALAGOPAL B	∝	∝	∝	∝	∝	100%	
41	MLM21CS042	BHAGYALAKSHMI S PRASAD	∝	a	∝	∝	∝	80%	
42	MLM21CS044	BICHU ANTONY	∝	∝	a	∝	∝	80%	
43	MLM21CS045	BIJOY OOMMEN	∝	∝	∝	∝	a	80%	

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44	MLM21CS046	BINO THOMAS	✓	✓	✓	✓	✓	80%	
45	MLM21CS048	DIYA PRASAD	✓	✓	✓	✓	✓	100%	
46	MLM21CS050	DON XAVIER	✓	✓	✓	✓	✓	100%	
47	MLM21CS051	EDWIN S GEORGE	✓	✓	✓	✓	✓	80%	
48	MLM21CS052	ELIZABATH SUSAN VARGHESE	✓	✓	✓	✓	✓	80%	
49	MLM21CS054	HARI NARAYANAN.V	✓	✓	✓	✓	✓	100%	
50	MLM21CS056	JEWEL ELIZABETH GEORGE	✓	✓	✓	✓	✓	100%	
51	MLM21CS057	JIBIN BIJU	✓	✓	✓	✓	✓	100%	
52	MLM21CS058	JINU TREESA ABRAHAM	✓	✓	✓	✓	✓	100%	
53	MLM21CS059	JITHIN JACOB BYJU	✓	✓	✓	✓	✓	100%	
54	MLM21CS060	JITHU REJI	✓	✓	✓	✓	✓	100%	
55	MLM21CS061	JOBIN ABRAHAM	✓	✓	✓	✓	✓	80%	
56	LMLM21CS122	MIDHUN MEDAYIL	✓	✓	✓	✓	✓	80%	

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Questions for Test

1. Terms SSL and TLS stand for:
   a. Secure Socket Layers and Transport Layer Session
   b. Secure Socket Layers and Transport Layer Security
   c. Secure Socket Layout and Transport Level Session
   d. Session Socket Layers and Transport Layer Session
2. Which one out of these is not a data link layer technology:
   a. Bluetooth
   b. UART
   c. WiFi
   d. HTTP
3. Which transport layer protocols is used by DHCP?
   a. RSVP
   b. TCP
   c. DCCP
   d. UDP
4. Which layer is called a port layer in OSI model:
   a. Session
   b. Application
   c. Presentation
   d. Transport
5. What is a firewall in computer networks:
   a. A system designed to prevent unauthorized access
   b. A web browser
   c. The physical boundary of network
   d. The Network Operating System
6. Router operate at ..... layer of OSI reference model?
   a. Layer 2 (Data Link)
   b. Layer 3 (Network)

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c. Layer 1 (Physical)

d. Layer 4 (Transport)

7. Each IP packet must contain:

a. Only Destination IP Address

b. Only Source IP Address

c. None of Above

d. Source and destination IP Addresses

8. Which one of this is not a networking device:

a. Router

b. Switch

c. Bridge

d. Traffic Analyzer

9. What is the standard length of MAC address:

a. 16 bits

b. 32 bits

c. 48 bits

d. 64 bits

10. What is the use of Ping command:

a. To know network speed

b. None of the above

c. To test a host on the network is reachable

d. To test storage device

11. What is Secure Shell (SSH):

a. A router

b. A firewall

c. A network protocol

d. Python Shell

12. What does VNC stand for:

a. Various Network computers

b. Virtual Network Computing

c. None of the above

d. Virtual Network Communication

13. What is the purpose of bin directory in Linux environment:

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a. Contains essential device files

b. Contains essential binary commands

c. Containing configuration files

d. Contains user home directories

14. What is Inter Integrated Communication(I2C):

a. An application layer protocol

b. A networking communication protocol for multi-master support

c. An OS for distributed network communication

d. A cellular communication protocol

15. How many wires does SPI protocol use:

a. 2

b. 3

c. 1

d. 4

16. What does LTE stand for:

a. Long Term Errors

b. Long Term Evolution

c. Lengthy Terminal Estimation

d. Long Term Estimates

17. Which one out of these is not LPWAN technologies:

a. SigFox

b. WiFi

c. NB-IoT

d. LoRa

18. Frequency band used by 802.11 ah standard is:

a. 60 GHz

b. 2.4 GHz

c. Sub 1 GHz

d. 5 GHz

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19. Fuzzy Logic is a form of:

a. Hexa state logic

b. Two-valued logic

c. Binary set logic

d. Many valued logic

20. _____ involves predicting a response with meaningful magnitude, such as quantity sold, stock price, or return on investment.

a. Summarization

b. Clustering

c. All of the mentioned

d. Regression

21. Which of the following language is preferred for IoT analytics ?

a. Python

b. S

c. R

d. All of the mentioned

22. Which one is simplest form of analytics

a. Predictive

b. Descriptive

c. All of the mentioned

d. Prescriptive

23. The method by which companies analyze customer data or other types of information in an effort to identify patterns and discover relationships between different data elements is often referred to as:

a. Customer data management

b. Data mining

c. Data digging

d. None of the above

24. A collection of lines that connects several devices is called .....

a. Bus

b. Cable

c. Power line

d. Transmission Line

25. A start bit in UART communication is always:

a. 1

b. Neither of these

c. 0

26. Machine learning is

a. The selective acquisition of knowledge through the use of manual programs

b. The autonomous acquisition of knowledge through the use of manual programs

c. The selective acquisition of knowledge through the use of computer programs

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d. The autonomous acquisition of knowledge through the use of computer programs

27. HTTP resources are located by
    a. unique resource locator
    b. unique resource identifier
    c. none of the mentioned
    d. uniform resource identifier
28. What is the TCP name for a transport service access point
    a. none of the mentioned
    b. node
    c. pipe
    d. port
29. A Denial of Service attack is:
    a. Connection flooding
    b. Bandwidth flooding
    c. All of the mentioned
    d. Vulnerability attack
30. A packet sniffer is
    a. Active receiver
    b. Both of the mentioned
    c. Passive receiver
    d. None of the mentioned
31. IPSec provides security at:
    a. Physical Layer
    b. Network Layer
    c. Transport Layer
    d. Session Layer
32. WPA is a security mechanism in
    a. WiFi
    b. Cloud
    c. Bluetooth
    d. Ethernet
33. Network topology with a central hub or switch is
    a. Mesh
    b. Token ring
    c. Star

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d. Token bus

34. Internet domain name and hostname are translated into IP address by

a. Domain name system

b. Domain name database

c. Router

d. Domain information system

35. Which protocol allows user at one site to establish connection to another site and pass keystroke from local to remote host:

a. Telnet

b. FTP

c. IP

d. HTTP

36. How many times setup function runs in Arduino IDE:

a. None of the above

b. 10

c. 2

d. 1

37. How many times loop function runs in Arduino IDE:

a. 4

b. forever

c. 1

d. 5

38. What error occurs when you execute?

x = abc

a. NameError

b. SyntaxError

c. ValueError

d. TypeError

39. PWM stands for:

a. None of the above

b. Pulse Width Mode

c. Pulse With Modulation

d. Pulse Width Modulation

40. Raspbian is:

a. Assembler

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b. Language

c. Compiler

d. OS

41. CGI stands for:

a. Common Gateway Interest

b. Common Gateway Interrupt

c. Common Gate Interference

d. Common Gateway Interface

42. MQTT is:

a. Based on client-server architecture

b. Based on publish-subscribe architecture

c. Based on both of the above

d. Based on none of the above

43. What is the access point (AP) in wireless LAN?

a. none of the mentioned

b. wireless devices itself

c. both (a) and (b)

d. device that allows wireless devices to connect to a wired network

44. In wireless ad-hoc network

a. none of the mentioned

b. access point is not required

c. nodes are not required

d. access point is must

45. Which multiple access technique is used by IEEE 802.11 standard for wireless LAN?

a. ALOHA

b. CSMA/CA

c. CDMA

d. none of the mentioned

46. Which is the correct operator for power(x^y)?

a. x^y

b. x^^y

c. x**y

d. None of the mentioned

47. What is WPA?

a. wi-fi protected access

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b. wired process access

c. wired protected access

d. wi-fi process access

48. The answer of 2+3L is:

a. 5.0

b. 5L

c. 5

d. Error

49. An interconnected collection of piconet is called

a. micronet

b. scatternet

c. mininet

d. none of the mentioned

50. In a piconet, there can be up to _____ parked nodes in the net.

a. 511

b. 63

c. 255

d. 127

Course I/C

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Answer Key

1. Answer b. Secure Socket Layers and Transport Layer Security
2. Answer d. HTTP
3. Answer d. UDP
4. Answer a. Session
5. Answer a. A system designed to prevent unauthorized access
6. Answer b. Layer 3 (Network)
7. Answer d. Source and destination IP Addresses
8. Answer d. Traffic Analyzer
9. Answer c. 48 bits
10. Answer c. To test a host on the network is reachable
11. Answer c. A network protocol
12. Answer b. Virtual Network Computing
13. Answer b. Contains essential binary commands
14. Answer b. A networking communication protocol for multi-master support
15. Answer d. 4
16. Answer b. Long Term Evolution
17. Answer b. WiFi
18. Answer c. Sub 1 GHz
19. Answer d. Many valued logic
20. Answer d. Regression
21. Answer a. Python
22. Answer b. Descriptive
23. Answer b. Data mining
24. Answer a. Bus
25. Answer c. 0
26. Answer d. The autonomous acquisition of knowledge through the use of computer programs
27. Answer d. uniform resource identifier
28. Answer d. port
29. Answer c. All of the mentioned
30. Answer c. Passive receiver

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31. Answer b. Network Layer

32. Answer a. WiFi

33. Answer c. Star

34. Answer a. Domain name system

35. Answer a. Telnet

36. Answer d. 1

37. Answer b. forever

38. Answer a. NameError

39. Answer d. Pulse Width Modulation

40. Answer d. OS

41. Answer d. Common Gateway Interface

42. Answer b. Based on publish-subscribe architecture

43. Answer d. device that allows wireless devices to connect to a wired network

44. Answer b. access point is not required

45. Answer b. CSMA/CA

46. Answer c. x**y

47. Answer a. wi-fi protected access

48. Answer b. 5L

49. Answer b. scatternet

50. Answer c. 255

Course I/C

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Certificate Course – Certification on IOT
MARK SHEET

Academic Year: 2023-24 **Batch 2021-25**

Year/ Semester: III/S6

S. No.	Name of Student	Mark (50)	Out of 100
1	A AKSHAY	45	90
2	ABHID METHAR	40	80
3	ABHINANDANA K S	38	76
4	ABIN BIJU VAEGHESE	35	70
5	ADHWAITH S	48	96
6	ADITHYA KRISHNAN	35	70
7	ADITHYA KRISHNA PK	38	76
8	ADITHYAN H	35	70
9	ADWAITH ASHOK	48	96
10	AHAMMED YASEEN	48	96
11	AHANNA GEORGE	50	100
12	AJAI A M	38	76
13	AJITH SAJIMON	45	90
14	AKSHAYA SURESH	40	80
15	AKSHAY KUMAR	38	76
16	AKSON CHERIYAN	35	70
17	ALAN BIJU	48	96
18	ALAN JOSEPH	50	100
19	ALBIN K VARGHESE	38	76

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20	ALBIN RAJAN	45	90
21	ALBIN VARGHESE	40	80
22	ALPHIN JOYES	38	76
23	ALWIN T THOMAS	35	70
24	AMAL SURESH	48	96
25	AMEENA KS	35	70
26	AMITHAMOL VARGHESE	38	7
27	AMRUTHA PRADEEP	35	76
28	ANAGHA ANIL KUMAR	48	96
29	ANANDA KRISHNA K A	40	80
30	ANAND SURESH	45	90
31	ANANDU S	40	80
32	ANANTHAKRISHNAN M NAIR	38	76
33	ANN LITTA JOE	35	70
34	ARJUN JAYAKUMAR	48	96
35	ARJUN RAJEEV	35	70
36	ARJUN SABU	35	70
37	AROMAL PS	48	96
38	ASWIN SURESH	50	100
39	ATHUL KRISHNA A	38	76
40	BALAGOPAL B	40	80
41	BHAGYALAKSHMI S PRASAD	40	80
42	BICHU ANTONY	38	76
43	BIJOY OOMMEN	35	70
44	BINO THOMAS	48	96
45	DIYA PRASAD	50	100
46	DON XAVIER	38	76
47	EDWIN S GEORGE	40	80

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48	ELIZABATH SUSAN VARGHESE	45	90
49	HARI NARAYANAN.V	40	80
50	JEWEL ELIZABETH GEORGE	38	76
51	JIBIN BIJU	35	70
52	JINU TREESA ABRAHAM	48	96
53	JITHIN JACOB BYJU	48	96
54	JITHU REJI	50	100
55	JOBIN ABRAHAM	38	76
56	MIDHUN MEDAYIL	40	80

Course Coordinator

HOD CSE

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FEED BACK

	Questionnaire	Total Response	Yes	No	Strongly Agree	Agree	Disagree
	THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	50	50	0	-		-
B.	The course contents met with your expectations.	50	-	-	44	3	3
C.	The lecture sequence was well planned	50	-	-	42	4	4
D.	The contents were illustrated with	50	-	-	44	4	2
E.	The level of the course was	50	-	-	44	4	2
F.	The course contents compared with your expectations	50	-	-	42	7	1
G.	The course exposed you to new knowledge and practices	50	-	-	42	5	3
H.	Will you recommend this course to your colleagues?	50	-	-	46	4	0
A.	The lectures were clear and easy to understand	50	-	-	44	6	2
B.	The teaching aids were effectively used	50	-	-	44	6	0
C.	The course material handed out was adequate	50	-	-	46	4	0
D.	The instructors encouraged interaction and were helpful	50	-	-	46	4	0
E.	Were objectives of the course realized? Y	50	50	0	-		-
F.	Please give overall rating of the course	50					
	90% - 100%				30		
	80% - 90%				12		
	70% - 80%				8		
	60% - 70%				0		
	50% - 60%				0		
	below 50%				0		

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Course Feed Back

Course Title: Certification on IOT
Date: 3/2/24 **Venue:** _____
Name: Jibin Biju
Semester: S6
Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you?	✓	Yes		No
B. The course contents met with your expectations.	3			
C. The lecture sequence was well planned	3			
D. The contents were illustrated with	3			
E. The level of the course was	3			
F. The course contents compared with your expectations	3			
G. The course exposed you to new knowledge and practices	3			
H. Will you recommend this course to your colleagues?	3			

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand	3			
B. The teaching aids were effectively used	3			
C. The course material handed out was adequate	3			
D. The instructors encouraged interaction and were helpful	3			
E. Were objectives of the course realized?	✓			No

F. Please give overall rating of the course

90% - 100%	✓	80% - 90%	
70% - 80%		60% - 70%	
50% - 60%		below 50%	

Please comment the Strength of the course and the way it was conducted:

NIL

Please comment the Weakness of the course and the way it was conducted:

NIL

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Course Feed Back

Course Title: Certification on IOT
Date: 3/2/24 **Venue:** _____
Name: Ajay AM.
Semester: 6
Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you?	✓	Yes		No
B. The course contents met with your expectations.	3			
C. The lecture sequence was well planned	3			
D. The contents were illustrated with	3			
E. The level of the course was	3			
F. The course contents compared with your expectations	3			
G. The course exposed you to new knowledge and practices	3			
H. Will you recommend this course to your colleagues?	3			

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand	3		
B. The teaching aids were effectively used	3		
C. The course material handed out was adequate	3		
D. The instructors encouraged interaction and were helpful	3		
E. Were objectives of the course realized?	✓		No

F. Please give overall rating of the course

90% - 100%	✓	80% - 90%	
70% - 80%		60% - 70%	
50% - 60%		below 50%	

Please comment the Strength of the course and the way it was conducted:

Nil

Please comment the Weakness of the course and the way it was conducted:

Nil

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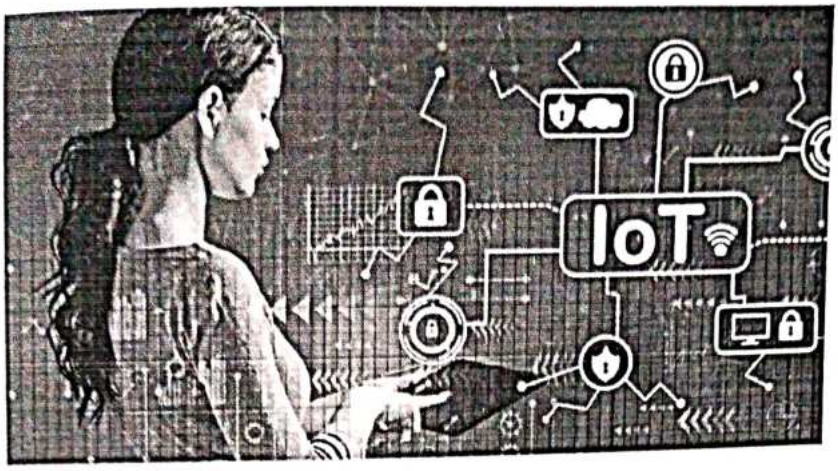

CERTIFICATION ON IOT

30 Hour Course

- ✓ Acquire Industry-Relevant Skills
- ✓ **Available with Updated Short Study Material**
- ✓ Completion Certificate Will be provided
- ✓ Interaction with Domain Expert

Resource Person

MS Renju Renjith, AP CSE
Ms Merlin Mary James, AP CSE
Ms Devigopal T, AP CSE

Date: 06-01-2024 to 03-02-2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: MS Renju Renjith, AP CSE

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Time 9: 00 AM to 5 PM
(5 Days)

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Certificate of Completion

This is to certify that Mr/Ms Alan Biju of third year B.Tech Computer Science and Engineering has successfully completed the ***"Certification on IOT"*** *for the duration of 30hours organized by the Department of Computer Science and Engineering during the academic year 2023-24.*

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CO-ORDINATOR

HOD

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Ref: MLM/CSE/CC/2023-2024 /007 Date: 13/12/23

Submitted to the Principal approval

We have proposed to conduct the certificate course on **"Certification on Robotics & Automation"** for our UG CSE students during this semester (2023-24). Tentative timings and course fees details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Explanation:

The Robotic & Automation Certification program provides a comprehensive set of knowledge and skills in Robotics & Automation. As an immersive training program it covers all the key technologies, techniques, principles and practices you need understand to play a key role on your Robotics & Automation, and to distinguish them professionally. This program also covers the Computational Geometry, Computer-aided Manufacturing , Industrial Robotics & Sensors.

Course Schedule :- 02.03.24 to 30.03.24

S.No.	Name of the course	Course instructors	Course duration	Approx. Course fee	Target students (year/branch)
1	Certification on Robotic Automation	Mr Jayakrishnan B	30 hrs	Free	II/CSE Dept.
2		Ms DeviGopal T			
3		Ms Jesteena T			

Thanking You,

Course I/C **HoD/CSE** **Principal**

Copy to:

1. CSE Department faculty members
2. CSE Department Notice Board
3. IQAC Coordinator

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Academic year 2023-24

Certification on Robotic Automation

1. Computational Geometry

6

1.1 Introduction
1.2 Static problems
1.3 Geometric Query problems
1.4 Dynamic Problems
1.5 Variations
1.6 Numerical Computational Geometry

2. Computer-aided Manufacturing

6

2.1 Overview
2.2 Machining process
2.3 Computer Integrated Manufacturing
2.4 Digital Modelling Fabrication
2.5 Flexible manufacturing system
2.6 Integrated Computer Aided Manufacturing

3. Industrial Robotics

4

3.1 Types and features
3.2 Parallel Architecture
3.3 Serial manipulators
3.4 Robot Programming & Interface

4. Sensors 5

4.1 Sensor: Contact and Proximity, Position, Velocity, Force, Tactile
4.2 Introduction to Cameras, Camera calibration
4.3 Geometry of Image formation
4.4 Vision applications in robotics.
4.5 Robot Actuation Systems

5. Robot Motion Planning

9

5.1 Configuration space
5.2 Free space
5.3 Target space
5.4 Obstacle space
5.5 Algorithms
5.6 Problem variants
5.7 Applications

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Prepared By

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Approved by

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

List of Students Enrolled for Certification on Robotic Automation

Academic Year: 2023-2024 **Batch :2022-2026**

Year: II/IV Semester

S.No	Roll No.	Name of the students
1	MLM22CS064	JEFFREY SATHEESH
2	MLM22CS065	JEMIYA ANNA JAMES
3	MLM22CS066	JESIN JOSEPH MATHEW
4	MLM22CS067	JESS MATHEW GEORGE
5	MLM22CS068	JESTIN JOSE
6	MLM22CS069	JIBIN JOY
7	MLM22CS071	JITHU KRISHNA N R
8	MLM22CS072	JOHN FRANCY
9	MLM22CS073	JOSHAN V JOHN
10	MLM22CS074	JOSHUA JOHNY
11	MLM22CS075	JOSVIN TOMY
12	MLM22CS076	JOYAL BENOY
13	MLM22CS077	JOYAL REJI
14	MLM22CS078	JYOTHILEKSHMI B T
15	MLM22CS079	KRISHNAPRASAD S
16	MLM22CS080	LEYAL SUSAN MATHEW
17	MLM22CS081	MADHAV SURESH
18	MLM22CS082	MAHIN MANOJ
19	MLM22CS083	MARTIN K SEBASTIAN

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20	MLM22CS084	MELVIN THOMAS
21	MLM22CS085	MOHAMMED HISHAM SHANAVAS
22	MLM22CS086	MUHAMMED ANSIF T M
23	MLM22CS087	MUHAMMED ASHIQ
24	MLM22CS088	MUHAMMED ASLAM K K
25	MLM22CS089	MUHAMMED SHUHAIB
26	MLM22CS090	NANDANA O
27	MLM22CS091	NANDHAKRISHNAN M
28	MLM22CS092	NANDITHA M
29	MLM22CS093	NEHA MARIA SHAJI
30	MLM22CS094	NIDAL SHAMS
31	MLM22CS095	NIRENJAN J
32	MLM22CS096	NITHIN JOSEPH
33	MLM22CS097	NIVED S
34	MLM22CS098	NOBLE S
35	MLM22CS099	PAUL S VETTOOR
36	MLM22CS100	PAVITHRA P R
37	MLM22CS101	PAVITHRA RAJESH
38	MLM22CS102	POORNIMA PRASAD
39	MLM22CS103	PRANAV CHANDRA BABU
40	MLM22CS104	RAHUL RAJAN
41	MLM22CS105	RAJ K S
42	MLM22CS106	SACHIN PREMJI
43	MLM22CS107	SAFNA SHAJAHAN
44	MLM22CS108	SAMUEL ABRAHAM THOMAS
45	MLM22CS109	SANTO JOSEPH MATHEW
46	MLM22CS110	SAYOOJ V P

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47	MLM22CS111	SHIJIN VARGHESE
48	MLM22CS112	SHINSU VARGHESE SAMUEL
49	MLM22CS113	SHOAN KURIEN JOHNSON
50	MLM22CS114	SHONE VARUGHESE MATHEW
51	MLM22CS115	SNEHIL MATHEWS SAJAN
52	MLM22CS116	SOHIL SUMAN
53	MLM22CS117	SREELAXMI V
54	MLM22CS118	STEBIN GEO SAJI
55	MLM22CS119	STEEVE C BABY
56	MLM22CS120	SURYA DAS S K
57	MLM22CS121	SUYASH SHINE
58	MLM22CS122	THARIQ REGI

Course I/C

HoD/CSE

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Certificate course Details (Robotics & Automation)
Period of Training : 02.03.24 to 30.03.24

Sl. NO	Reg.No	Name of the students	02.03.24	09.03.24	16.03.24	23.03.24	30.03.24	
1	MLM22CS064	JEFFREY SATHEESH	✓	✓	✓	✓	✓	100%
2	MLM22CS065	JEMIYA ANNA JAMES	✓	✓	A	✓	✓	80%
3	MLM22CS066	JESIN JOSEPH MATHEW	✓	✓	✓	✓	✓	100%
4	MLM22CS067	JESS MATHEW GEORGE	✓	✓	A	✓	✓	80%
5	MLM22CS068	JESTIN JOSE	✓	✓	✓	✓	A	80%
6	MLM22CS069	JIBIN JOY	✓	✓	✓	✓	A	80%
7	MLM22CS071	JITHU KRISHNA N R	✓	✓	✓	A	✓	80%
8	MLM22CS072	JOHN FRANCY	A	✓	✓	✓	✓	80%
9	MLM22CS073	JOSHAN V JOHN	✓	✓	✓	✓	✓	100%
10	MLM22CS074	JOSHUA JOHNY	A	✓	✓	✓	✓	80%
11	MLM22CS075	JOSVIN TOMY	✓	✓	✓	✓	✓	100%
12	MLM22CS076	JOYAL BENOY	✓	✓	A	✓	✓	80%
13	MLM22CS077	JOYAL REJI	✓	✓	✓	✓	✓	100%
14	MLM22CS078	JYOTHILEKSHMI B T	✓	✓	✓	✓	✓	100%
15	MLM22CS079	KRISHNAPRASAD S	A	✓	✓	✓	✓	80%

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16	MLM22CS080	LEYAL SUSAN MATHEW	×	×	×	×	a	80%
17	MLM22CS081	MADHAV SURESH	×	×	×	×	×	100%
18	MLM22CS082	MAHIN MANOJ	a	×	×	×	×	80%
19	MLM22CS083	MARTIN K SEBASTIAN	×	×	×	×	×	100%
20	MLM22CS084	MELVIN THOMAS	×	a	×	×	×	80%
21	MLM22CS085	MOHAMMED HISHAM SHANAVAS	×	×	×	×	×	100%
22	MLM22CS086	MUHAMMED ANSIF T M	×	a	×	×	×	80%
23	MLM22CS087	MUHAMMED ASHIQ	a	×	×	×	×	80%
24	MLM22CS088	MUHAMMED ASLAM K K	×	×	×	×	a	80%
25	MLM22CS089	MUHAMMED SHUHAIB	a	×	×	×	×	80%
26	MLM22CS090	NANDANA O	×	×	×	×	×	100%
27	MLM22CS091	NANDHAKRISHNA N M	×	×	a	×	×	80%
28	MLM22CS092	NANDITHA M	×	×	×	×	×	100%
29	MLM22CS093	NEHA MARIA SHAJI	×	×	×	×	×	100%
30	MLM22CS094	NIDAL SHAMS	×	×	×	a	×	80%
31	MLM22CS095	NIRENJAN J	×	×	×	×	×	100%
32	MLM22CS096	NITHIN JOSEPH	×	×	×	×	×	100%
33	MLM22CS097	NIVED S	×	×	×	×	×	100%
34	MLM22CS098	NOBLE S	×	×	×	×	×	100%
35	MLM22CS099	PAUL S VETTOOR	×	×	×	×	×	100%

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36	MLM22CS100	PAVITHRA P R	✓	✓	✓	✓	✓	100%
37	MLM22CS101	PAVITHRA RAJESH	✓	✓	✓	✓	✓	100%
38	MLM22CS102	POORNIMA PRASAD	✓	A	✓	✓	✓	80%
39	MLM22CS103	PRANAV CHANDRA BABU	✓	✓	✓	✓	✓	100%
40	MLM22CS104	RAHUL RAJAN	✓	✓	✓	✓	✓	100%
41	MLM22CS105	RAJ K S	✓	✓	✓	✓	A	80%
42	MLM22CS106	SACHIN PREMJI	✓	✓	✓	✓	✓	100%
43	MLM22CS107	SAFNA SHAJAHAN	✓	✓	✓	✓	✓	100%
44	MLM22CS108	SAMUEL ABRAHAM THOMAS	✓	✓	✓	✓	✓	100%
45	MLM22CS109	SANTO JOSEPH MATHEW	✓	✓	✓	✓	✓	100%
46	MLM22CS110	SAYOOJ V P	✓	✓	✓	✓	A	80%
47	MLM22CS111	SHIJIN VARGHESE	✓	✓	✓	✓	✓	100%
48	MLM22CS112	SHINSU VARGHESE SAMUEL	✓	✓	✓	A	✓	80%
49	MLM22CS113	SHOAN KURIEN JOHNSON	✓	✓	✓	✓	✓	100%
50	MLM22CS114	SHONE VARUGHESE MATHEW	✓	✓	✓	✓	✓	100%
51	MLM22CS115	SNEHIL MATHEWS SAJAN	A	✓	✓	✓	✓	80%
52	MLM22CS116	SOHIL SUMAN	✓	✓	✓	✓	✓	100%
53	MLM22CS117	SREELAXMI V	✓	✓	✓	✓	✓	100%
54	MLM22CS118	STEBIN GEO SAJI	✓	✓	✓	✓	✓	100%

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55	MLM22CS119	STEEVE C BABY	×	×	×	×	×	100%
56	MLM22CS120	SURYA DAS S K	×	×	×	×	a	80%
57	MLM22CS121	SUYASH SHINE	×	×	×	a	×	80%
58	MLM22CS122	THARIQ REGI	×	×	×	×	×	100%

Course I/C

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Questions for Test

1. From the following in which FMS layout robots are used as material handling system
   - A. Ladder layout
   - B. Open field layout
   - C. Loop layout
   - D. Robot centered layout

2. Drives are also known as.
   - A.Sensors
   - B.Controllers
   - C.Manipulators
   - D.Actuators

3. If the production is done according to change in various product design easily then such manufacturing system is called as flexible system.
   - A True
   - B False

4. From the following in which FMS layout robots are used as material handling system
   - A Ladder layout
   - B. Open field layout
   - C. Loop layout
   - D. Robot centered layout

5. From the following which material handling equipment is used in Robot centered layout of FMS
   - A. Industrial Robot
   - B. Conveyor systems
   - C. Rail guided vehicle system
   - D. None of the above

6. ____ is a general purpose, programmable machine possessing certain human like characteristics
   - A. Robot
   - B. Manipulator
   - C. Gripper

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D. None of the above

7. _____ is area of engineering and science which understand the different principles, structure and programming of robot

A. Mechatronics

B. Robotics

C. Aeronautics

D. None of the above

8. ____ is also known as work volume of robot

A. Work envelope

B. Speed of movement

C. Load carrying capacity

D. Precision of movement

9. The speed at which robot is capable of manipulating its end effector is known as the____.

A. Velocity of robot

B. Maximum reach

C. Speed of movement

D. Load carrying capacity

10. The capacity of robot to carry load is known as_____.

A. Load carrying capacity

B. Work envelope

C. Maximum reach

D. None of the above

11. ____ is a collection of mechanical linkage connected by joints

A. End effector

B. Gripper

C. Sensor

D. Manipulator

12. Sensors are the transducers that are used to____.

A. Measure physical quantity

B. Hold the objects

C. Fix the objects

D. None of the above

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13. From which of the following is the geometrical configuration of robot

A. Cylindrical configuration

B. Polar configuration

C. Both A& B

D. None of the above

14. Sensors which are come in contact with some surface to measured desired physical variable areknown as____

A. Non-contact sensors

B. Proximity sensors

C. Contact sensors

D. None of the above

15. From which of the following is known as contact sensor.

A. Tactile sensor

B. Proximity sensor

C. Visual sensor

D. Range detector

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Answer Key

1. Answer: D) Robot centered layouts
2. Answer: B) Controllers.
3. Answer: B) False
4. Answer: D) Robot centered layout
5. Answer: A) Industrial Robot
6. Answer: A)Robot
7. Answer: B) Robotics
8. Answer: A) Work envelop
9. Answer: C) Speed of movement
10. Answer: A) Load Carrying Capacity
11. Answer: D) Manipulator
12. Answer:A) Measure physical quantity
13. Answer C) Both A& B
14. Answer C) Contact sensors
15. Answer A) Tactile sensor

Value Added Course I/C

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FEED BACK

	Questionnaire	Total Response	Yes	No	Agree	Neutral	Disagree
	THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	58	58	0	-		-
B.	The course contents met with your expectations.	58	-	-	56		2
C.	The lecture sequence was well planned	58	-	-	58		0
D.	The contents were illustrated with	58	-	-	55		3
E.	The level of the course was	58	-	-	54		4
F.	The course contents compared with your expectations	58	-	-	56		2
G.	The course exposed you to new knowledge and practices	58	-	-	55		3
H.	Will you recommend this course to your colleagues?	58	56	2			-
A.	The lectures were clear and easy to understand	58	-	-	57		1
B.	The teaching aids were effectively used	58	-	-	56		2
C.	The course material handed out was adequate	58	-	-	58		0
D.	The instructors encouraged interaction and were helpful	58	-	-	58		0
E.	Were objectives of the course realized? Y	58	58	0	-		-
F.	Please give overall rating of the course	58					
	90% - 100%				50		
	80% - 90%				5		
	70% - 80%				3		
	60% - 70%				0		
	50% - 60%				0		
	below 50%				0		

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Course Feed Back

Course Title: Certification on Robotics & automation
Date: 30/3/24 **Venue:** _____
Name: Dona Maria Saji
Semester: IV
Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you?	✓	Yes		No
B. The course contents met with your expectations.	3			
C. The lecture sequence was well planned	3			
D. The contents were illustrated with	3			
E. The level of the course was	3			
F. The course contents compared with your expectations	3			
G. The course exposed you to new knowledge and practices	3			
H. Will you recommend this course to your colleagues?	3			

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand	3		
B. The teaching aids were effectively used	3		
C. The course material handed out was adequate	3		
D. The instructors encouraged interaction and were helpful	3		
E. Were objectives of the course realized?	✓		No

F. Please give overall rating of the course

90% - 100%	✓	80% - 90%	
70% - 80%		60% - 70%	
50% - 60%		below 50%	

Please comment the Strength of the course and the way it was conducted:

NIL

Please comment the Weakness of the course and the way it was conducted:

NIL

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Course Feed Back

Course Title: Certification on Robotics And Automation
Date: 30/3/24 **Venue:** _____
Name: Aromal K.J
Semester: S4
Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you?	✓	Yes		No
B. The course contents met with your expectations.	3			
C. The lecture sequence was well planned	3			
D. The contents were illustrated with	1			
E. The level of the course was	3			
F. The course contents compared with your expectations	3			
G. The course exposed you to new knowledge and practices	3			
H. Will you recommend this course to your colleagues?	3			

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand	1		
B. The teaching aids were effectively used	3		
C. The course material handed out was adequate	3		
D. The instructors encouraged interaction and were helpful	3		
E. Were objectives of the course realized?	✓		No

F. Please give overall rating of the course

90% - 100% ( )		80% - 90% (✓)	
70% - 80% ( )		60% - 70% ( )	
50% - 60% ( )		below 50% ( )	

Please comment the Strength of the course and the way it was conducted:

NIL

Please comment the Weakness of the course and the way it was conducted:

NIL

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CERTIFICATION ON ROBOTICS AND AUTOMATION

30 Hour Course

- ✓ Trusted by Recruiters of Semiconductor Industry
- ✓ Includes detailed notes on R&A
- ✓ **Available with updated Short Study Material**
- ✓ Completion Certificate Will be provided
- ✓ Interaction with Domain Expert

Resource Person

Mr Jayakrishnan B
Ms Devigopal T
Ms Jesteena Surendran

Date: 02-03-2024 to 30-03-2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Mr Jayakrishnan B

30 HOURSCOURSE (CERTIFICATE)

NEEDED TO BECOME CERTIFIED ROBOTICS ENGINEER

LEARN THE FUNDAMENTALS OF ROBOTICS AND AUTOMATION

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VETTIMUKAL P O
ETTUMANOOR,
KOTTAYAM
686631

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Certificate of Completion

This is to certify that ***Mr/Ms Sohil Suman*** *of second year B.Tech Computer Science and Engineering has successfully completed* ***"Certification on Robotics and Automation"*** *for the duration of 30hours organized by the Department of Computer Science and Engineering during the academic year 2023-24.*

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CO-ORDINATOR

HOD

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Ref: MLM/CSE/VAC/2023-2024 /003 Date: 13/9/23

Submitted to the Principal approval

We have proposed to conduct the certificate course on **"Android App Development"** for our UG CSE students during this semester (2023-2024). Tentative timings and course fees details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Explanation:

The Android App Development Certification program provides a comprehensive set of knowledge and skills in Android App Development. As an immersive training program it covers all the key technologies, techniques, principles and practices you need understand to play a key role on Android App Development and to distinguish them professionally. This program also covers the

Course Schedule: - 23.09.23 to 21.10.23

S.No.	Name of the course	Course instructors	Course duration	Approx. Course fee	Target students (year/branch)
1	Certification on Android App Development	Ms. Sruthy Emmanuel	30 hrs	Free	III / CSE Dept.
2		Ms Anjumol Zacharia			
3		Ms.Jinu P Sainudeen			

Thanking You,

Course I/C **HoD/CSE** **Principal**

Copy to:

1. CSE Department faculty members
2. CSE Department Notice Board
3. IQAC Coordinator

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Academic year 2023-24

18OCSC1-Certification on Android App Development

Introduction to Android 6

- What is Android?
- Setting up development environment
- Dalvik Virtual Machine & .apk file extension
- Fundamentals:
  - Basic Building blocks - Activities,Services,Broadcast Receivers & Content providers
  - UI Components - Views & notifications
  - Components for communication -Intents & Intent Filters o Android API levels (versions & version names)

Application Structure (in detail) 5

- AndroidManifest.xml
- uses-permission & uses-sdk
- Resources & R.java o Assets
- Layouts & Drawable Resources
- Activities and Activity lifecycle
- First sample Application

Emulator-Android Virtual Device 6

- Launching emulator
- Editing emulator settings
- Emulator shortcuts
- Logcat usage
- Introduction to DDMS
- Second App:- (switching between activities) - Develop an app for demonstrating the communication between Intents

Basic UI design 5

- Form widgets
- Text Fields
- Layouts
- [dip, dp, sip, sp] versus px
- Examples

Preferences 4

- SharedPreferences
- Preferences from xml
- Examples

Menu 4

- Option menu
- Context menu
- Sub menu
- menu from xml
- menu via code
- Examples

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Prepared By
Ms. Sruthy Emmanuel

Approved by

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List of Students Enrolled for Certificate course

Academic Year: 2023-2024 **Batch :2021-2025**

Year: III / V Semester

S.No	Roll No.	Name of the students
1	MLM21CS060	JITHU REJI
2	MLM21CS061	JOBIN ABRAHAM
3	MLM21CS062	JOEL ABE THOMAS
4	MLM21CS063	JOEL JOHNSON KOCHUKOIKKAL
5	MLM21CS064	JOSEPH BABU
6	MLM21CS065	KASHYAP HAREESH
7	MLM21CS066	KESIYA VARGHESE
8	MLM21CS067	KRISHNAPRIYA A M
9	MLM21CS068	LAKSHMI MOHAN
10	MLM21CS069	MANJITH MURALI
11	MLM21CS070	MEERA V NAIR
12	MLM21CS071	MILAN ABRAHAM THOMAS
13	MLM21CS072	MILTON TOM
14	MLM21CS073	MOHAMMED HUSSAIN
15	MLM21CS074	MUHAMMAD AMEERSHA
16	MLM21CS075	MUHAMMED FARIS EASA
17	MLM21CS076	MUHAMMED FIYAS
18	MLM21CS077	NADHA FATHIMA
19	MLM21CS078	NAVNEETH KRISHNAN S
20	MLM21CS079	NAVYA PAULOSE

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21	MLM21CS080	NIKHIL MATHEW
22	MLM21CS081	NIKHIL T
23	MLM21CS082	NIKSON MATHEW
24	MLM21CS083	NIRANJANA SURESH
25	MLM21CS084	PARTHICK .M. S
26	MLM21CS085	PATRIC JOE AJI
27	MLM21CS086	PRANAV H NAIR
28	MLM21CS087	PRATYUSH UNNITHAN
29	MLM21CS088	RAHUL ABRAHAM
30	MLM21CS089	RAJALEKSHMI L R
31	MLM21CS090	RENSON K ROJI
32	MLM21CS091	RESHMA JOSE
33	MLM21CS092	RESHMA RAJ
34	MLM21CS093	RIKAS MOHAMMED N
35	MLM21CS094	ROBIN ABRAHAM
36	MLM21CS095	RONEY. V. MAMMEN
37	MLM21CS097	SHAN NATESAN
38	MLM21CS098	SHANTO SHAJI
39	MLM21CS099	SHEBIN MATHEW CHACKO
40	MLM21CS100	SHEFNA HAJEEB
41	MLM21CS101	SIDHARTH GOPALA KRISHNAN
42	MLM21CS102	SIDHARTH SANTHOSH
43	MLM21CS103	SIDHARTH S KUMAR
44	MLM21CS104	SIYA MARY KURIAN
45	MLM21CS105	SONA VARGHESE
46	MLM21CS106	SOORAJ SANTHOSH
47	MLM21CS107	SRADHA SANTHOSH
48	MLM21CS108	SREEDEV N P
49	MLM21CS109	SREEHARI J

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50	MLM21CS110	SREELAKSHMI S
51	MLM21CS111	SREEPRIYA T M
52	MLM21CS112	SRUTHY SHIBU
53	MLM21CS113	STEBIN VARGHESE JOSE
54	MLM21CS114	STEEVE K SUNNY
55	MLM21CS115	SUKIL MANNIL
56	MLM21CS116	UJWAL U
57	MLM21CS117	VEENA VENUGOPAL
58	MLM21CS118	VISHNUNATH M
59	MLM21CS119	VISWAM N VISHNU
60	MLM21CS120	VYSHAK OMANAKUTTAN
61	LMLM21CS121	DEVAMRUTH V AJIKUMAR
62	LMLM21CS122	MIDHUN MEDAYIL

for Course I/C

HoD/CSE

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Certificate course on Android App Development-Attendance
Period of Training : 23.09.23 to 21.10.23

Sl. No	Reg.No	Name of the students	23.09.23	30.09.23	7.10.23	14.10.23	21.10.23	
1	MLM21CS060	JITHU REJI	✗	✗	✗	✗	A	80%
2	MLM21CS061	JOBIN ABRAHAM	✓	✓	✓	✓	✓	100%
3	MLM21CS062	JOEL ABE THOMAS	A	✓	✓	✓	✓	80%
4	MLM21CS063	JOEL JOHNSON KOCHUKOIKKAL	A	✓	✓	✓	✓	80%
5	MLM21CS064	JOSEPH BABU	✓	✓	✓	✓	✓	100%
6	MLM21CS065	KASHYAP HAREESH	✓	✓	✓	✓	✓	100%
7	MLM21CS066	KESIYA VARGHESE	✓	✓	✓	A	✓	80%
8	MLM21CS067	KRISHNAPRIYA A M	✓	✓	✓	✓	✓	100%
9	MLM21CS068	LAKSHMI MOHAN	✗	✗	✗	✗	A	80%
10	MLM21CS069	MANJITH MURALI	✗	✗	✗	✗	✗	100%
11	MLM21CS070	MEERA V NAIR	✗	A	✗	✗	✗	80%
12	MLM21CS071	MILAN ABRAHAM THOMAS	✗	✗	✗	A	✗	80%
13	MLM21CS072	MILTON TOM	✗	✗	✗	✗	✗	100%
14	MLM21CS073	MOHAMMED HUSSAIN	A	✗	✗	✗	✗	80%
15	MLM21CS074	MUHAMMAD AMEERSHA	✗	A	✗	✗	✗	80%
16	MLM21CS075	MUHAMMED FARIS EASA	A	✗	✗	✗	✗	80%
17	MLM21CS076	MUHAMMED FIYAS	✓	A	✗	✗	✗	80%

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18	MLM21CS077	NADHA FATHIMA	x	x	x	x	x	100%
19	MLM21CS078	NAVNEETH KRISHNAN S	a	x	x	x	x	80%
20	MLM21CS079	NAVYA PAULOSE	x	x	a	x	x	80%
21	MLM21CS080	NIKHIL MATHEW	x	x	x	x	a	80%
22	MLM21CS081	NIKHIL T	x	x	x	x	x	100%
23	MLM21CS082	NIKSON MATHEW	a	x	x	x	x	80%
24	MLM21CS083	NIRANJANA SURESH	x	x	a	x	x	80%
25	MLM21CS084	PARTHICK .M. S	a	x	x	x	x	80%
26	MLM21CS085	PATRIC JOE AJI	x	x	a	x	x	80%
27	MLM21CS086	PRANAV H NAIR	x	x	a	x	a	80%
28	MLM21CS087	PRATYUSH UNNITHAN	x	a	x	x	a	80%
29	MLM21CS088	RAHUL ABRAHAM	x	x	x	x	x	100%
30	MLM21CS089	RAJALEKSHMI L R	x	x	x	a	x	80%
31	MLM21CS090	RENSON K ROJI	x	x	x	x	a	80%
32	MLM21CS091	RESHMA JOSE	x	x	x	x	a	80%
33	MLM21CS092	RESHMA RAJ	x	a	x	x	x	80%
34	MLM21CS093	RIKAS MOHAMMED N	a	x	x	x	x	80%
35	MLM21CS094	ROBIN ABRAHAM	x	a	x	x	x	80%
36	MLM21CS095	RONEY. V. MAMMEN	x	x	a	x	x	80%
37	MLM21CS097	SHAN NATESAN	x	x	x	x	a	80%
38	MLM21CS098	SHANTO SHAJI	x	x	a	x	x	80%
39	MLM21CS099	SHEBIN MATHEW CHACKO	a	x	x	x	a	80%
40	MLM21CS100	SHEFNA HAJEEB	x	x	x	x	x	100%

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41	MLM21CS101	SIDHARTH GOPALA KRISHNAN	a	x	x	x	x	80%
42	MLM21CS102	SIDHARTH SANTHOSH	x	x	a	x	x	80%
43	MLM21CS103	SIDHARTH S KUMAR	a	x	x	x	a	80%
44	MLM21CS104	SIYA MARY KURIAN	x	x	a	x	x	80%
45	MLM21CS105	SONA VARGHESE	a	x	x	a	x	80%
46	MLM21CS106	SOORAJ SANTHOSH	x	x	x	x	a	80%
47	MLM21CS107	SRADHA SANTHOSH	x	x	a	x	a	80%
48	MLM21CS108	SREEDEV N P	x	x	x	a	x	80%
49	MLM21CS109	SREEHARI J	x	x	x	x	a	80%
50	MLM21CS110	SREELAKSHMI S	x	x	x	x	x	100%
51	MLM21CS111	SREEPRIYA T M	x	a	x	x	x	80%
52	MLM21CS112	SRUTHY SHIBU	x	a	x	x	x	80%
53	MLM21CS113	STEBIN VARGHESE JOSE	a	x	x	x	x	80%
54	MLM21CS114	STEEVE K SUNNY	a	x	x	x	x	80%
55	MLM21CS115	SUKIL MANNIL	x	x	x	x	x	100%
56	MLM21CS116	UJWAL U	x	x	x	x	x	100%
57	MLM21CS117	VEENA VENUGOPAL	a	x	x	x	x	80%
58	MLM21CS118	VISHNUNATH M	x	a	x	x	x	80%
59	MLM21CS119	VISWAM N VISHNU	a	x	x	x	x	80%
60	MLM21CS120	VYSHAK OMANAKUTTAN	x	a	x	x	x	80%
61	LMLM21CS121	DEVAMRUTH V AJIKUMAR	a	x	x	x	x	80%
62	LMLM21CS122	MIDHUN MEDAYIL	a	x	x	x	x	80%

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Questions for Test

1.) Android is -
- A. an operating system
- B. web browser
- C. a web server
- D. None of the above

2) Under which of the following Android is licensed?
- A. OSS
- B. Sourceforge
- C. Apache/MIT

3) For which of the following Android is mainly developed?
- A. Servers
- B. Desktops
- C.Laptops
- D. Mobile devices

4. Which of the following is the first mobile phone released that ran the Android OS?
- A. HTC Hero
- B. Google gPhone
- C. T - Mobile G1
- D. None of the above

5. Which of the following virtual machine is used by the Android operating system?
- A. JVM
- B. Dalvik virtual machine
- C. Simple virtual machine
- D. None of the above

6. Android is based on which of the following language?
- A. Java
- B. C++
- C. C
- D. None of the above

7. APK stands for -
- A. Android Phone Kit
- B. Android Page Kit
- C. Android Package Kit
- D. None of the above

8. What does API stand for?
- A. Application Programming Interface
- B. Android Programming Interface
- C. Android Page Interface
- D. Application Page Interface

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9. Which of the following converts Java byte code into Dalvik byte code?
   A. Dalvik converter
   B. Dex compiler
   C. Mobile interpretive compiler (MIC)
   D. None of the above
10. How can we stop the services in android?
   A. By using the stopSelf() and stopService() method
   B. By using the finish() method
   C. By using system.exit() method
   D. None of the above
11. What is an activity in android?
   A. android class
   B. android package
   C. A single screen in an application with supporting java code
   D. None of the above
12. How can we kill an activity in android?
   A. Using finish() method
   B. Using finishActivity(int requestCode)
   C. Both (a) and (b)
   D. Neither (a) nor (b)

13) ADB stands for -
   A. Android debug bridge
   B. Android delete bridge
   C. Android destroy bridge
   D. None of the above
14. On which of the following, developers can test the application, during developing the android applications?
   A. Third-party emulators
   B. Emulator included in Android SDK
   C. Physical android phone
   D. All of the above
15. Which of the following kernel is used in Android?
   A. MAC
   B. Windows
   C. Linux
   D. Redhat

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Answer Key

1. Answer: A) an operating system

2. Answer: C) Apache/MIT

3. Answer: C) Mobile devices

4. Answer: C) T - Mobile G1

5. Answer: B) Dalvik virtual machine

6. Answer: A) Java

7. Answer: C) Android Package Kit

8. Answer: A) Application Programming Interface

9. Answer: B) Dex compiler

10. Answer: A) By using the stopSelf() and stopService() method

11. Answer: C) A single screen in an application with supporting java code

12. Answer:C) Both (A) and (B)

13. Answer C) Android debug bridge

14. Answer C) All of the above

15. Answer C) Linux

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Certificate Course – Certification on Android App Development

MARK SHEET

Academic Year: 2023-24 **Batch 2021-2025**

S. No.	Name of Student	Mark (15)	Out of 100
1	JITHU REJI	10	66
2	JOBIN ABRAHAM	13	86
3	JOEL ABE THOMAS	11	72
4	JOEL JOHNSON KOCHUKOIKKAL	11	74
5	JOSEPH BABU	14	94
6	KASHYAP HAREESH	11	70
7	KESIYA VARGHESE	10	64
8	KRISHNAPRIYA A M	11	74
9	LAKSHMI MOHAN	12	78
10	MANJITH MURALI	11	70
11	MEERA V NAIR	14	94
12	MILAN ABRAHAM THOMAS	13	84
13	MILTON TOM	13	88
14	MOHAMMED HUSSAIN	14	94
15	MUHAMMAD AMEERSHA	11	76
16	MUHAMMED FARIS EASA	14	96
17	MUHAMMED FIYAS	14	90
18	NADHA FATHIMA	11	70
19	NAVNEETH KRISHNAN S	10	68

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20	NAVYA PAULOSE	10	64
21	NIKHIL MATHEW	11	74
22	NIKHIL T	12	78
23	NIKSON MATHEW	11	70
24	NIRANJANA SURESH	10	68
25	PARTHICK .M. S	11	72
26	PATRIC JOE AJI	12	80
27	PRANAV H NAIR	11	74
28	PRATYUSH UNNITHAN	15	98
29	RAHUL ABRAHAM	14	94
30	RAJALEKSHMI L R	13	84
31	RENSON K ROJI	12	82
32	RESHMA JOSE	14	94
33	RESHMA RAJ	13	84
34	RIKAS MOHAMMED N	13	88
35	ROBIN ABRAHAM	14	94
36	RONEY. V. MAMMEN	11	76
37	SHAN NATESAN	14	96
38	SHANTO SHAJI	14	90
39	SHEBIN MATHEW CHACKO	11	70
40	SHEFNA HAJEEB	15	100
41	SIDHARTH GOPALA KRISHNAN	13	88
42	SIDHARTH SANTHOSH	14	90
43	SIDHARTH S KUMAR	13	86
44	SIYA MARY KURIAN	11	72
45	SONA VARGHESE	11	74
46	SOORAJ SANTHOSH	14	94
47	SRADHA SANTHOSH	11	70

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48	SREEDEV N P	11	72
49	SREEHARI J	12	80
50	SREELAKSHMI S	11	74
51	SREEPRIYA T M	15	98
52	SRUTHY SHIBU	14	92
53	STEBIN VARGHESE JOSE	12	78
54	STEEVE K SUNNY	11	72
55	SUKIL MANNIL	11	74
56	UJWAL U	12	82
57	VEENA VENUGOPAL	14	94
58	VISHNUNATH M	12	78
59	VISWAM N VISHNU	11	72
60	VYSHAK OMANAKUTTAN	11	74
61	DEVAMRUTH V AJIKUMAR	12	82
62	MIDHUN MEDAYIL	11	70

Course Coordinator

HoD CSE

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FEED BACK

	Questionnaire	Total Response	Yes	No	Agree	Neutral / Disagree
	THE DESIGN OF THE COURSE					
A.	Were objectives of the course clear to you?	62	62	0	-	-
B.	The course contents met with your expectations.	62	-	-	59	3
C.	The lecture sequence was well planned	62	-	-	62	0
D.	The contents were illustrated with	62	-	-	60	2
E.	The level of the course was	62	-	-	62	0
F.	The course contents compared with your expectations	62	-	-	62	0
G.	The course exposed you to new knowledge and practices	62	-	-	60	2
H.	Will you recommend this course to your colleagues?	62	59	3		
A.	The lectures were clear and easy to understand	62	-	-	60	2
B.	The teaching aids were effectively used	65	-	-	62	0
C.	The course material handed out was adequate	62	-	-	62	0
D.	The instructors encouraged interaction and were helpful	62	-	-	62	0
E.	Were objectives of the course realized? Y	62	62	0	-	-
F.	Please give overall rating of the course	62				
	90% - 100%				48	
	80% - 90%				10	
	70% - 80%				4	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

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Course Feed Back

Course Title: Android app development
Date: 21/10/23 **Venue:** _____
Name: Jobin Abraham
Semester: V
Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? [✓] Yes [ ] No

B. The course contents met with your expectations. [3.]

C. The lecture sequence was well planned [3.]

D. The contents were illustrated with [3.]

E. The level of the course was [3.]

F. The course contents compared with your expectations [3.]

G. The course exposed you to new knowledge and practices [3.]

H. Will you recommend this course to your colleagues? [3.]

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand [3.]

B. The teaching aids were effectively used [3.]

C. The course material handed out was adequate [3.]

D. The instructors encouraged interaction and were helpful [3]

E. Were objectives of the course realized? [✓] [ ] No

F. Please give overall rating of the course

'90% - 100% (✓) 80% - 90% ( )

70% - 80% ( ) 60% - 70% ( )

50% - 60% ( ) below 50% ( )

Please comment the Strength of the course and the way it was conducted:

Please comment the Weakness of the course and the way it was conducted:

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Course Feed Back

Course Title: Advanced App Development
Date: 21/10/23 **Venue:** _____
Name: Meera V Nair
Semester: V
Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you?	✓	Yes		No
B. The course contents met with your expectations.	3			
C. The lecture sequence was well planned	3			
D. The contents were illustrated with	3			
E. The level of the course was	3			
F. The course contents compared with your expectations	3			
G. The course exposed you to new knowledge and practices	3			
H. Will you recommend this course to your colleagues?	3			

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand	3			
B. The teaching aids were effectively used	3			
C. The course material handed out was adequate	3			
D. The instructors encouraged interaction and were helpful	1			
E. Were objectives of the course realized?	✓			No

F. Please give overall rating of the course

90% - 100% (✓ 100)		80% - 90% ( )	
70% - 80% ( )		60% - 70% ( )	
50% - 60% ( )		below 50% ( )	

Please comment the Strength of the course and the way it was conducted:

Please comment the Weakness of the course and the way it was conducted:

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30 Hour Course

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- ✓ Expert mentorship & guidance
- ✓ Available with updated Short Study Material
- ✓ Industry-recognized certification
- ✓ Interaction with Domain Expert

Resource Person

Ms .Sruthy Emmanuel
Ms. Anjumol Zacharia
Ms. Chintu Maria Thomas

Date: 23-09-2023 to 21-10-2023

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Ms Sruthy Emmanuel

30 Hours Course (Certificate)

Unlock Your Potential in Mobile App Development

Enhance career prospects

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Mangalam Hills,
Vettimukal P O
Ettumanoor, Kottayam
686631

Time 9: 00 AM to 5 PM
(5 Days)

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Certificate of Completion

This is to certify that Mr/Ms Joseph Babu of third year B.Tech Computer Science and Engineering has successfully completed ***"Android App Devolopment "*** *for the duration of 30hours organized by the Department of Computer Science and Engineering during the academic year 2023-24.*

CO-ORDINATOR

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Ref: MLM/CSE/CC/2023-2024 /006 Date:13/12/23

Submitted to the Principal approval

We have proposed to conduct the certificate course on **"Certification on Basics of Java"** for our UG CSE students during this semester (2023-24). Tentative timings and course fees details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Explanation:

Certification in Java Programming provides a comprehension on basic concepts in java, OOPs concepts, web development and database integeration.This course will empower you to write robust, scalable, and efficient Java code.

Course Schedule: - 6/1/24 to 3/2/24

S.No.	Name of the course	Course instructors	Course duration	Approx. Course fee	Target students (year/branch)
1	**Certification on Basics of java**	Ms Roja Thomas Ms Chintu Maria Ms Renu S	30 hrs	Free	S2 /CSE

Thanking You,

Course I/C 13/12/23
Ms Roja Thomas

HoD/CSE

Principal

Copy to:

1. CSE Department faculty members
2. Department File
3. IQAC Coordinator

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Academic year 2023-24

DETAILED SYLLABUS

1. **Java Fundamentals**
   - 1.1 Features of Java
   - 1.2 OOPs concepts
   - 1.3 Java virtual machine
   - 1.4 Reflection byte codes
   - 1.5 Byte code interpretation
   - 1.6 Data types, variable, arrays, expressions, operators, and control structures
   - 1.7 Objects and classes

2. **Java Classes**
   - 2.1 Abstract classes
   - 2.2 Static classes
   - 2.3 Inner classes
   - 2.4 Packages
   - 2.5 Wrapper classes
   - 2.6 Interfaces
   - 2.7 This
   - 2.8 Super
   - 2.9 Access control

3. **Exception handling**
   - 3.1 Exception as objects
   - 3.2 Exception hierarchy
   - 3.3 Try catch finally
   - 3.4 Throw, throws

4. **IO package & Multi threading**
   - 4.1 Input streams
   - 4.2 Output streams
   - 4.3 Object serialization
   - 4.4 Deserialization
   - 4.5 Sample programs on IO files
   - 4.6 Filter and pipe streams
   - 4.7 Thread Life cycle
   - 4.8 Multi threading advantages and issues
   - 4.9 Simple thread program
   - 4.10 Thread synchronization

5. **GUI & Database Connectivity**
   - 5.1 Introduction to AWT programming
   - 5.2 Layout and component managers

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5.3 Event handling
5.4 Applet class Applet life-cycle
5.5 Swing components – JApplet, JButton, JFrame, etc
5.6 JDBC architecture
5.7 Establishing connectivity and working with connection interface
5.8 Working with statements
5.9 Creating and executing SQL statements
5.10 Working with Result Set

Prepared By

13/12/23

Approved by

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List of Students Enrolled for Certificate course –Certification on java

Academic Year: 2023-24 **Batch :2023-2027**

Year/ Semester: I/II

S.NO	REG NO	NAME OF THE STUDENTS
1	MLM23CS005	ABHISHEK B
2	MLM23CS066	GOWRI S PREM
3	MLM23CS067	HIBA FATHIMA SHAJAHAN
4	MLM23CS068	JAYAKRISHNAN M.G
5	MLM23CS069	JEFF SAJI
6	MLM23CS070	JEFY JOJO
7	MLM23CS071	JERIN JOSEPH
8	MLM23CS072	JERIN KURUVILLA
9	MLM23CS073	JIBIN BENNY
10	MLM23CS074	JITHU THOMAS
11	MLM23CS075	JOEL JOHN
12	MLM23CS076	JOEL JOSHY
13	MLM23CS077	JOEL THOMAS
14	MLM23CS078	JOHNS JOSEPH
15	MLM23CS079	JOYEL JAMES
16	MLM23CS080	JUBIN JIJI GEORGE
17	MLM23CS081	JUMIYA JALAL
18	MLM23CS082	JYOTHIKA VENU
19	MLM23CS083	JYOTHISHKUMAR A R
20	MLM23CS084	KHADEEJA REJI

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21	MLM23CS085	KRISHNENDHU J
22	MLM23CS086	LAKSHMI ANILKUMAR
23	MLM23CS087	LEKSHMI K R
24	MLM23CS088	LIA JOBY
25	MLM23CS089	MANU KRISHNA
26	MLM23CS090	MATHEWS TESS CHACKO
27	MLM23CS091	MEENAKSHI J
28	MLM23CS092	MELBIN SCARIA THOMAS
29	MLM23CS094	MOHAMMED BASID
30	MLM23CS096	NAKSHATHRA A PILLAI
31	MLM23CS098	NANDAN DILEEP
32	MLM23CS099	NATHANIEL BINU MATHEW
33	MLM23CS100	P AKHILJITH
34	MLM23CS101	PARVATHI P
35	MLM23CS102	POOJA AJAY
36	MLM23CS103	RESHMI RAMESH
37	MLM23CS104	SACHU JAMES
38	MLM23CS105	SANDRA SANTHOSH
39	MLM23CS106	SANJAY SAJEEV S
40	MLM23CS107	SAYAHNA S BABU
41	MLM23CS108	SELBIN THOMAS
42	MLM23CS109	SHAHANA BANU E. S
43	MLM23CS110	SIDHARTH P P
44	MLM23CS111	SONA SOJAN
45	MLM23CS112	SONIA M THOMAS
46	MLM23CS113	SREERAG S
47	MLM23CS114	SUBIN SAJAN

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48	MLM23CS115	SUHAILA NAZEER
49	MLM23CS116	SYDHARTH A S
50	MLM23CS117	UMAR DHAHEEN A
51	MLM23CS118	UNNIKRISHNAN R
52	MLM23CS119	VARSHA KS
53	MLM23CS120	VIDHYA K. B
54	MLM23CS121	VINAYAK S
55	MLM23CS122	VISHAL S NAIR
56	MLM23CS123	VISHAL V
57	MLM23CS124	VR ROMIN
58	MLM23CS125	YADAV BINU
59	MLM23CS126	ZIYAN SHIHAB
60	MLM23CS016	AGNASS GEORGE
61	MLM23CS017	AHAMMED FAWAZ
62	MLM23CS018	AISWARYA MADHU
63	MLM23CS019	AKASH ANIL
64	MLM23CS020	AKASH V SANTHOSH

Course I/C 13/12/23

for HoD/CSE

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Certificate course On Java Attendance
Period of Training : 6/1/24 to 3/2/24

S.N O	Reg.No	Name of the students	6/1/24	13/1/24	20/1/24	27/1/24	3/2/24		
1	MLM23CS005	ABHISHEK B	✓	✓	✓	✓	A	80%	
2	MLM23CS066	GOWRI S PREM	✓	✓	✓	✓	✓	100%	
3	MLM23CS067	HIBA FATHIMA SHAJAHAN	✓	✓	✓	✓	✓	100%	
4	MLM23CS068	JAYAKRISHNAN M.G	✓	✓	✓	✓	✓	100%	
5	MLM23CS069	JEFF SAJI	✓	A	✓	✓	✓	80%	
6	MLM23CS070	JEFY JOJO	✓	✓	✓	✓	✓	100%	
7	MLM23CS071	JERIN JOSEPH	✓	✓	✓	✓	✓	100%	
8	MLM23CS072	JERIN KURUVILLA	✓	✓	✓	✓	✓	100%	
9	MLM23CS073	JIBIN BENNY	✓	✓	✓	✓	✓	100%	
10	MLM23CS074	JITHU THOMAS	✓	✓	✓	✓	✓	100%	
11	MLM23CS075	JOEL JOHN	✓	✓	✓	✓	✓	100%	
12	MLM23CS076	JOEL JOSHY	✓	✓	✓	✓	✓	100%	
13	MLM23CS077	JOEL THOMAS	✓	✓	✓	✓	✓	100%	
14	MLM23CS078	JOHNS JOSEPH	✓	✓	✓	✓	✓	100%	
15	MLM23CS079	JOYEL JAMES	✓	✓	✓	✓	✓	100%	
16	MLM23CS080	JUBIN JIJI GEORGE	✓	✓	✓	A	✓	~~100%~~ 80%	
17	MLM23CS081	JUMIYA JALAL	✓	A	✓	✓	✓	80%	
18	MLM23CS082	JYOTHIKA VENU	✓	✓	✓	✓	✓	100%	
19	MLM23CS083	JYOTHISHKUMAR A R	✓	✓	A	✓	✓	80%	
20	MLM23CS084	KHADEEJA REJI	✓	✓	✓	✓	✓	100%	

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21	MLM23CS085	KRISHNENDHU J	✓	✓	✓	✓	✓	100%	
22	MLM23CS086	LAKSHMI ANILKUMAR	✓	✓	✓	✓	✓	80%	
23	MLM23CS087	LEKSHMI K R	✓	✓	✓	✓	✓	100%	
24	MLM23CS088	LIA JOBY	✓	✓	✓	✓	✓	80%	
25	MLM23CS089	MANU KRISHNA	✓	✓	✓	✓	✓	100%	
26	MLM23CS090	MATHEWS TESS CHACKO	✗	✗	✗	✗	✓	80%	
27	MLM23CS091	MEENAKSHI J	✗	✓	✗	✗	✗	80%	
28	MLM23CS092	MELBIN SCARIA THOMAS	✗	✗	✗	✓	✗	80%	
29	MLM23CS094	MOHAMMED BASID	✗	✗	✓	✗	✗	80%	
30	MLM23CS096	NAKSHATHRA A PILLAI	✗	✗	✗	✗	✗	100%	
31	MLM23CS098	NANDAN DILEEP	✗	✓	✗	✗	✗	80%	
32	MLM23CS099	NATHANIEL BINU MATHEW	✗	✗	✓	✗	✗	80%	
33	MLM23CS100	P AKHILJITH	✗	✗	✗	✓	✗	80%	
34	MLM23CS101	PARVATHI P	✓	✗	✗	✗	✗	80%	
35	MLM23CS102	POOJA AJAY	✗	✓	✗	✗	✗	80%	
36	MLM23CS103	RESHMI RAMESH	✗	✗	✓	✗	✗	80%	
37	MLM23CS104	SACHU JAMES	✗	✗	✗	✗	✗	100%	
38	MLM23CS105	SANDRA SANTHOSH	✗	✓	✗	✗	✗	80%	
39	MLM23CS106	SANJAY SAJEEV S	✗	✓	✗	✗	✗	80%	
40	MLM23CS107	SAYAHNA S BABU	✗	✗	✓	✗	✗	80%	
41	MLM23CS108	SELBIN THOMAS	✗	✗	✗	✗	✗	100%	
42	MLM23CS109	SHAHANA BANU E. S	✗	✓	✗	✗	✗	80%	

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43	MLM23CS110	SIDHARTH P P	✓	✓	✓	✓	✓	100%	
44	MLM23CS111	SONA SOJAN	✓	✓	✓	✓	✓	100%	
45	MLM23CS112	SONIA M THOMAS	✓	✓	✓	✓	✓	80%	
46	MLM23CS113	SREERAG S	✓	✓	✓	✓	✓	100%	
47	MLM23CS114	SUBIN SAJAN	✓	✓	✓	✓	✓	80%	
48	MLM23CS115	SUHAILA NAZEER	✓	✓	✓	✓	✓	100%	
49	MLM23CS116	SYDHARTH A S	✓	✓	✓	✓	✓	100%	
50	MLM23CS117	UMAR DHAHEEN A	✓	✓	✓	✓	✓	80%	
51	MLM23CS118	UNNIKRISHNAN R	✓	✓	✓	✓	✓	100%	
52	MLM23CS119	VARSHA KS	✓	✓	✓	✓	✓	100%	
53	MLM23CS120	VIDHYA K. B	✓	✓	✓	✓	✓	100%	
54	MLM23CS121	VINAYAK S	✓	✓	✓	✓	✓	100%	
55	MLM23CS122	VISHAL S NAIR	✓	✓	✓	✓	✓	80%	
56	MLM23CS123	VISHAL V	✓	✓	✓	✓	✓	100%	
57	MLM23CS124	VR ROMIN	✓	✓	✓	✓	✓	100%	
58	MLM23CS125	YADAV BINU	✓	✓	✓	✓	✓	100%	
59	MLM23CS126	ZIYAN SHIHAB	✓	✓	✓	✓	✓	100%	
60	MLM23CS016	AGNASS GEORGE	✓	✓	✓	✓	✓	80%	
61	MLM23CS017	AHAMMED FAWAZ	✓	✓	✓	✓	✓	100%	
62	MLM23CS018	AISWARYA MADHU	✓	✓	✓	✓	✓	80%	
63	MLM23CS019	AKASH ANIL	✓	✓	✓	✓	✓	100%	
64	MLM23CS020	AKASH V SANTHOSH	✓	✓	✓	✓	✓	100%	

Course I/C

13/12/23

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Questions for Test

1) What is the difference between an Inner Class and a Sub-Class?
2) What are the various access specifiers for Java classes?
3) What's the purpose of Static methods and static variables?
4) What is a singleton class? Give a practical example of its usage.
5) What are Loops in Java? What are three types of loops?
6) What is the difference between double and float variables in Java?
7) What is Final Keyword in Java? Give an example.
8) What is ternary operator? Give an example.
9) Can we declare a class as Abstract without having any abstract method?
10) Does Importing a package imports its sub-packages as well in Java?
11) Is it compulsory for a Try Block to be followed by a Catch Block in Java for Exception handling?
12) When the constructor of a class is invoked?
13) What's the difference between an array and Vector?
14) What is multi-threading?
15) . When a lot of changes are required in data, which one should be a preference to be used? String or StringBuffer?
16) How we can execute any code even before main method?
17) How objects of a class are created if no constructor is defined in the class?
18) A person says that he compiled a java class successfully without even having a main method in it? Is it possible?
19) Can a dead thread be started again?
20) What's the difference between comparison done by equals method and == operator?

Course I/C 13/12/25

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Certificate Course – Certification on JAVA

MARK SHEET

Academic Year: 2022-23 **Batch 2022-2026**

S. No.	Name of Student	Mark (20)	Out of 100
1	ABHISHEK B	20	100
2	GOWRI S PREM	17	85
3	HIBA FATHIMA SHAJAHAN	15	75
4	JAYAKRISHNAN M.G	14	70
5	JEFF SAJI	17	85
6	JEFY JOJO	16	80
7	JERIN JOSEPH	13	65
8	JERIN KURUVILLA	16	80
9	JIBIN BENNY	19	95
10	JITHU THOMAS	18	90
11	JOEL JOHN	20	100
12	JOEL JOSHY	16	80
13	JOEL THOMAS	16	80
14	JOHNS JOSEPH	16	80
15	JOYEL JAMES	15	75
16	JUBIN JIJI GEORGE	19	95
17	JUMIYA JALAL	18	90
18	JYOTHIKA VENU	18	90
19	JYOTHISHKUMAR A R	17	85

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20	KHADEEJA REJI	16	80
21	KRISHNENDHU J	14	70
22	LAKSHMI ANILKUMAR	17	85
23	LEKSHMI K R	16	80
24	LIA JOBY	13	65
25	MANU KRISHNA	16	80
26	MATHEWS TESS CHACKO	19	95
27	MEENAKSHI J	18	90
28	MELBIN SCARIA THOMAS	20	100
29	MOHAMMED BASID	14	70
30	NAKSHATHRA A PILLAI	17	85
31	NANDAN DILEEP	16	80
32	NATHANIEL BINU MATHEW	13	65
33	P AKHILJITH	16	80
34	PARVATHI P	19	95
35	POOJA AJAY	18	90
36	RESHMI RAMESH	20	100
37	SACHU JAMES	20	100
38	SANDRA SANTHOSH	19	95
39	SANJAY SAJEEV S	18	90
40	SAYAHNA S BABU	18	90
41	SELBIN THOMAS	18	90
42	SHAHANA BANU E. S	17	85
43	SIDHARTH P P	16	80
44	SONA SOJAN	13	65
45	SONIA M THOMAS	16	80
46	SREERAG S	19	95

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47	SUBIN SAJAN	18	90
48	SUHAILA NAZEER	20	100
49	SYDHARTH A S	14	70
50	UMAR DHAHEEN A	16	80
51	UNNIKRISHNAN R	13	65
52	VARSHA KS	16	80
53	VIDHYA K. B	19	95
54	VINAYAK S	18	90
55	VISHAL S NAIR	20	100
56	VISHAL V	17	85
57	VR ROMIN	16	80
58	YADAV BINU	13	65
59	ZIYAN SHIHAB	16	80
60	AGNASS GEORGE	19	95
61	AHAMMED FAWAZ	18	90
62	AISWARYA MADHU	14	70
63	AKASH ANIL	16	80
64	AKASH V SANTHOSH	13	65

Course I/C

HOD / CSE

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Course Feed Back

Course Title: Certification on Basics of Java
Date: 31/2/24 **Venue:** _____
Name: Jagoki S Prem
Semester: II
Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you?	✓	Yes		No
B. The course contents met with your expectations.	3			
C. The lecture sequence was well planned	3			
D. The contents were illustrated with	3			
E. The level of the course was	3			
F. The course contents compared with your expectations	3			
G. The course exposed you to new knowledge and practices	3			
H. Will you recommend this course to your colleagues?	3			

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand	3		
B. The teaching aids were effectively used	3		
C. The course material handed out was adequate	3		
D. The instructors encouraged interaction and were helpful	3		
E. Were objectives of the course realized?	✓		No

F. Please give overall rating of the course

90% - 100% (100%)		80% - 90% ( )	
70% - 80% ( )		60% - 70% ( )	
50% - 60% ( )		below 50% ( )	

Please comment the Strength of the course and the way it was conducted:

Nil

Please comment the Weakness of the course and the way it was conducted:

Nil

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Course Feed Back

Course Title: Certification on Basics of Java
Date: 3/2/24 **Venue:** _____
Name: Vishal V
Semester: II
Branch: CSE

Fill the Questionnaires to make the course better by responding with 1,2, or 3 where 1 and 3 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you?	✓	Yes		No
B. The course contents met with your expectations.	3			
C. The lecture sequence was well planned	3			
D. The contents were illustrated with	3			
E. The level of the course was	3			
F. The course contents compared with your expectations	3			
G. The course exposed you to new knowledge and practices	3			
H. Will you recommend this course to your colleagues?	3			

THE CONDUCT OF COURSE

A. The lectures were clear and easy to understand	3			
B. The teaching aids were effectively used	3			
C. The course material handed out was adequate	3			
D. The instructors encouraged interaction and were helpful	3			
E. Were objectives of the course realized?	✓			No

F. Please give overall rating of the course

90% - 100%	(✓ 99%)	80% - 90%	( )
70% - 80%	( )	60% - 70%	( )
50% - 60%	( )	below 50%	( )

Please comment the Strength of the course and the way it was conducted:

Please comment the Weakness of the course and the way it was conducted:

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

FEED BACK

	Questionnaire	Total Response	Yes	No	Agree	Neutral	Disagree
	THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	58	58	0	-		-
B.	The course contents met with your expectations.	58	-	-	47	8	3
C.	The lecture sequence was well planned	58	-	-	47	8	3
D.	The contents were illustrated with	58	-	-	52	5	1
E.	The level of the course was	58	-	-	50	7	1
F.	The course contents compared with your expectations	58	-	-	50	6	2
G.	The course exposed you to new knowledge and practices	58	-	-	55	2	1
H.	Will you recommend this course to your colleagues?	58	-	-	52	3	3
A.	The lectures were clear and easy to understand	58	-	-	47	10	1
B.	The teaching aids were effectively used	58	-	-	48	8	2
C.	The course material handed out was adequate	58	-	-	50	6	2
D.	The instructors encouraged interaction and were helpful	58	-	-	50	7	1
E.	Were objectives of the course realized? Y	58	51	0	-		-
F.	Please give overall rating of the course						
	90% - 100%				42		
	80% - 90%				8		
	70% - 80%				8		
	60% - 70%				0		
	50% - 60%				0		
	below 50%				0		

Course I/C

HOD / CSE

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CERTIFICATION ON JAVA

30 Hour Course

- ✓ Build solid foundation on fundamentals of JAVA
- ✓ Includes web Development ,Database integration and hands on projects
- ✓ **Available with Updated Short Study Material**
- ✓ Completion Certificate Will be provided
- ✓ Interaction with Domain Expert

Resource Person

Ms.Roja Thomas, AP CSE
Ms.Chintu Maria Thomas, AP CSE
Ms. Renu S, AP CSE

Date: 06-01-2024 to 03-02-2024

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विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Ms.Roja Thomas, AP CSE

DEPT. OF COMPUTER SCIENCE & ENGG. ETTUMANOOR - 686 631 MANGALAM COLLEGE OF ENGINEERING

30 Hours Course (Certificate)

Needed to become a Verified Java Programmer

Learn the fundamentals of Java

Become 1 among the trained Engineer

MANGALAM COLLEGE OF ENGINEERING

Mangalam Hills,
Vettimukal P O
Ettumanoor, Kottayam
686631

Time 9: 00 AM to 5 PM
(5 Days)

MANGALAM COLLEGE OF ENGINEERING

Certificate of Completion

This is to certify that Mr/Ms ***Pooja Ajay*** *of first year B.Tech Computer Science and Engineering has successfully completed* ***"Certification on JAVA"*** *for the duration of 30hours organized by the Department of Computer Science and Engineering during the academic year 2023-24.*

CO-ORDINATOR

HOD

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Electrical and Electronics Engineering

Date: 01/11/2023

Circular

The faculty members along with IQAC Coordinator and Placement Officer are requested to assemble for a meeting at 11:00 amon 08/11/2023 in HoD Cabin.

Agenda:

1. Review of KTUuniversity Curriculum and Syllabus
2. Review of gaps identified
3. Suggestions for Add on / Certificate course during academic Year 2023-2024
4. Suggestions to the bridge the gap

Copy to:

1. Principal
2. EEE Department faculty members
3. Placement Officer
4. IQAC Coordinator

HoD / EEE

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Date: 09/11/2023

Minutes of Meeting

All the faculty members of EEE, IQAC coordinator and Placement officer were present in the meeting conducted on 09/11/2023 at EEEHoD Cabin to finalize the add on course / Certificate course and the activities like Guest Lecture to be offered for the current academic year to bridge the gap identified in the Curriculum.

After analyzing the feedback received from various stakeholders like students, faculty, Alumni and Employers, the gap in the Curriculum prescribed by KTU is identified. Further the discussion is held on selection of Add on course/Certificate course and identification of Guest lectures on par with the Standards of premier institutes and Industry expectations. Finalized the following add on courses/Certificate course and guest lectures for the Academic Year 2023-2024.

Details of Add on Courses/Certificate course:

SI.No	Name of Certificate Courses	Year/ Semester	Total No of Hours	Date of Commencement	Faculty Coordinator
1	LaTex for Beginners	IV/VII	30	18/11/2023	Ms. Jolly George
2	Proteus PCB Designing	III/V	30	18/11/2023	Ms. Sreekala V M
3	Energy Management	III/V	30	23/12/2023	Dr. Honey Baby
4	Solar Power Plant Designing	III/VI	30	27/01/2024	Ms. Aiswarya Chandran
5	Research paper writing	IV/VII	30	23/12/2023	Ms. Sreekala V M

The faculty members will be initiated at the earliest to design the curriculum for the specified Add on course/Certificate course after getting approval from the Principal.

HoD- EEE

From

Ettumanoor
11/11/2022

Head of the Department,
Electrical and Electronics Engineering,
Mangalam College of Engineering,
Ettumanoor.

.To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members for Add on course/Certificate Course-Reg.

The department meeting is convened on 08/11/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024. We along with IQAC coordinator and Placement Officer framed the following add-on course/Certificate Courses:

SI.No.	Name of Certificate Course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	La Tex for Beginners	IV/VII	30	Ms. Jolly George
2	Proteus PCB Designing	III/V	30	Ms. Sreekala V M
3	Energy Management	III/V	30	Dr. Honey Baby
4	Solar Power Plant Designing	III/VI	30	Ms. Aiswarya Chandran
5	Research paper writing	IV/VII	30	Ms. Sreekala V M

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-EEE

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Electrical and Electronics Engineering

Circular

Ref: MLM/ EEE / Certificate Course / Circular / 2023-24/ 01 **15.11.2023**

The Department of Electrical and Electronics Engineering is planned to conduct a certificate course for fourth year students. So it is informed to the students to enroll their names for the Composite Materials course which will held on this year. Students are asked to enroll their names to their respective class advisor on or before 16.11.2023. The course syllabus is attached.

Name of the Course : LaTex for Beginners

Course Duration : 18/11/2023 to 16/12/2023**(Saturdays)(5 days)**

Time Duration : 09.00 AM to 04.00 PM(6 hours per day)

Subject Handling Faculty : Ms. Jolly George, AP/EEE

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LaTeX For Beginners

CERTIFICATE COURSE
ON
LATEX FOR BEGINNERS

- ✓ To create understanding of the LaTeX
- ✓ To understanding the fundamentals of Scilab and Utilization.
- ✓ Development of proficiency in English skills and communication skills.
- ✓ Documentation Structure and Formatting.

Course Duration: 18-11-2023 to 16-12-2023

विश्वं शास्त्रे प्रतिष्ठितम्।

Co Ordinator: Ms. Jolly George

AP Electrical & Electronics Engineering

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VISION

To excel as a premier department in education and research, support our students to shape their dreams of becoming employable committed engineering professionals.

MISSION

Relentlessly strive to create vibrant learning environment, provide state of the art laboratory facilities and actively engage in research and live up to high moral and ethical standards.

MANGALAM COLLEGE OF ENGINEERING
Mangalam Hills,
Vettimukal P.O
Ettumanoor,
Kottayam
686631

Time 09: 00 AM to 3.30PM

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Electrical and Electronics Engineering

1.	Academic Year	: 2023-2024
2.	Tile of the Course	: **LaTex for Beginners**
3.	Objective of the Course	:To create understanding of the LaTeX, To understand the fundamentals of Scilab and Utilization, Development of Proficiency in English and Communication skills
4.	Prerequisite	: Nil
5.	Requirement	: S7 class room : Computer lab for practical class
6.	Beneficiary	: S7Students
7.	Date and Duration of the Course	: 18/11/2023 to 16/12/2023(30 Hours)
8.	Proposed Timing	: 09.00 AM to 04.00 PM**(6 hours per every Saturday)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Ms. Jolly George/ AP (EEE)
11.	Course Registration Fees	:Nil
12.	Contents of Courses	:Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: Offline

COURSE COORDINATOR **HOD/EEE**

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CERTIFICATE COURSE

LaTex for Beginners

Course Objective:

- To expose the students to the basic conceptsdocumentation and its importance.
- To give Working knowledge of Latex typesetting language.
- Student should use Latex file to define document class and layout options.
- Student should use various methods to either create or import graphics into Latex document.
- Student should use tabular and array environments within Latex documents.

Course Outcomes:

- Student knows and how to install Latex software.
- Student learns to write equations, matrix and tables.
- Student learn to quote the references, equation references, citations.
- Student lists the figures, tables and generating index.

S.NO.	CONTENT	INSTRUCTIONAL HOURS
	Section 1	
1	Introduction and Application	1
2	Installation of the software LaTeX and basic MITEX	2
3	Understanding Latex compilation Basic Syntax	2
4	Page Layout – Titles, Abstract Chapters, Sections, References, Equation references, citation.	3
5	Classes: article, book, report, beamer, slides, IEEE tran.	2
6	List making environments Table of contents, Generating new commands	2
7	Errors and Error handling	1
8	Font Effects: Coloured Text, Font Sizes, Lists, Comments & Spacing, Special Characters	2
	Section 2	
10	Figure handling numbering and List of figures with Practical examples	2
11	Tables and Practical examples	2
12	List of tables and Generating index.	1
13	Writing equations, Matrix, Mathematical Equations and numbering methods	2
14	Mathematical Symbols and format	2
15	Practical on numbering and without numbering format	1
16	Inserting References: Introduction, The BibTeXle	1
17	Inserting the bibliography, Citing, Styles.	2
18	Practical examples	2
	Total Hours	=30

Recommended Books:

1. Diller, Latex Line by Line, published by Wiley.
2. Introduction to Latex by Tobias Oetiker.
3. Patrick Daly. Natural Sciences Citations and References,2006
4. Michael Doenes. Short Math Guide for Latex.

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

List of Students Enrolled for Certificate course – :LaTex for Beginners

Academic Year: 2023-2024 **Batch 2020-2024**

Year: IV/VII Semester

S.No	Register No.	Name of the students
1	MLM20EE001	ABHIJITH N SHENOY
2	MLM20EE002	ABIN MATHEW
3	MLM20EE003	AKASH VARMA
4	MLM20EE004	ALISHYA PHILIP
5	MLM20EE005	ALSHIN ANSARI
6	MLM20EE007	ANANDESHWER E R
7	MLM20EE008	ANANDHU PRAVEEN
8	MLM20EE009	ARATHI SIBI
9	MLM20EE010	ASHIK K R
10	MLM20EE011	ASWIN KUMAR K S
11	MLM20EE013	GIBU K THOMAS
12	MLM20EE015	JEFIN P JOSE
13	MLM20EE016	JUBY JOSEPH
14	MLM20EE017	JUSTIN PETER
15	MLM20EE018	LINTO MATHEW P JOHN
16	MLM20EE019	MANAF NIZAR
17	MLM20EE020	MIDHUN S BABU
18	MLM20EE021	MOHAMAD SHA K
19	MLM20EE023	SEBASTAIN K CHACKO
20	MLM20EE025	SUBIN M JOHN
21	MLM20EE027	VISHNU A S

Course Coordinator **HOD/EEE**

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Attendance of Certificate course – LaTex for Beginners

Academic Year:2023-2024 **Batch :2020-2024**

Year: IV/VII Semester

S.No	Register No.	Name of the students	18/11/23	25/11/23	02/12/23	09/12/23	16/12/23	Total Attendance
1	MLM20EE001	ABHIJITH N SHENOY	✓	✓	✓	✓	✓	100
2	MLM20EE002	ABIN MATHEW	✓	✓	✓	✓	✓	100
3	MLM20EE003	AKASH VARMA	✓	✓	✓	✓	✓	100
4	MLM20EE004	ALISHYA PHILIP	✓	✓	✓	✓	✓	100
5	MLM20EE005	ALSHIN ANSARI	✓	✓	✓	✓	✓	100
6	MLM20EE007	ANANDESHWER E R	✓	✓	✓	✓	✓	100
7	MLM20EE008	ANANDHU PRAVEEN	✓	✓	✓	✓	✓	100
8	MLM20EE009	ARATHI SIBI	✓	✓	✓	✓	✓	100
9	MLM20EE010	ASHIK K R	✓	✓	✓	✓	✓	100
10	MLM20EE011	ASWIN KUMAR K S	✓	✓	✓	✓	✓	100
11	MLM20EE013	GIBU K THOMAS	✓	✓	✓	✓	✓	100
12	MLM20EE015	JEFIN P JOSE	✓	✓	a	✓	✓	80
13	MLM20EE016	JUBY JOSEPH	✓	✓	✓	✓	✓	100
14	MLM20EE017	JUSTIN PETER	✓	✓	✓	✓	✓	100
15	MLM20EE018	LINTO MATHEW P JOHN	✓	✓	✓	✓	✓	100
16	MLM20EE019	MANAF NIZAR	✓	✓	a	✓	✓	80
17	MLM20EE020	MIDHUN S BABU	✓	✓	✓	✓	✓	100
18	MLM20EE021	MOHAMAD SHA K	✓	✓	✓	✓	✓	100
19	MLM20EE023	SEBASTAIN K CHACKO	✓	✓	✓	✓	✓	100
20	MLM20EE025	SUBIN M JOHN	✓	✓	✓	✓	✓	100
21	MLM20EE027	VISHNU A S	✓	✓	✓	✓	✓	100

Course Coordinator **HOD/EEE**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

CERTIFICATE COURSE – LaTex for Beginners

Date: 18.12.2023 **Time: 0.30Hrs**

Class: IV YEAR EEE **Max. Marks: 20**

PART – A

Answer all the questions **20 * 1 = 20 Marks**

1. In LaTeX, the ..... command can be sued to add the italic effect to the text.
   (a) \textbf (c) \textit
   (b) \emph (d) All of these
2. In LaTeX, the ..... command can be used to Superscripts the text.
   (a) \textsuperscript (c) \textsubscript
   (b) \fixltx2e (d) None of these
3. In LaTeX, square root of a number X is denoted using the command.....{x}.
   (a) \square (c) Squareroot
   (b) \sqrt (d) Sqroot
4. Most LaTexdistriubution software includes .....and some additional software in them.
   (a) TeX (c) SciTE
   (b) LaTeX (d) Ubuntu
5. LaTeX can produce output in different file.....
   (a) arrangements (c) formats
   (b) editors (d) software's
6. ..... command is used to define the document's title in LaTeX.
   (a) \title (c) \author
   (b) \date (d) \document
7. ..... command is used to specify the author(s) of the document.
   (a) \title (c) \author
   (b) \date (d) \document
8. Both Tex and LaTeX use the file extension .....
   (a) .text (c) .tex
   (b) .txe (d) .latex
9. LaTeX has a command called ..... that produces the popular PDF format files.
   (a) PDFtex (c) pdflatex
   (b) PDF (d) latexpdf
10. LaTeX commands start with a ....character followed by the command name.
    (a) / (forward slash) (c) %(percentage)
    (b) \ (backslash) (d) ^ (caret)
11. To insert a break in lines in LaTeX use, ... at the end of each line except the last line in the paragraph.
    (a) \\ (c) ||
    (b) // (d) !!
12. Which of the following characters is not a reserved character in LaTaX ?
    (a) # (c) &
    (b) ! (d) $
13. In LaTeX, the ..... character marks the beginning of a command.
    (a) # (c) %
    (b) @ (d) $

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14. In LaTeX, the default alignment of formulas and equation is .....
    (a) Left
    (b) Center
    (c) Right
    (d) Justified
15. In LaTeX, ... package contains the advanced math extensions for LaTeX originally developed for the American mathematical society.
    (a) geometry
    (b) setspace
    (c) amsmath
    (d) color
16. In LaTeX, ... package adds support for colored text.
    (a) easylist
    (b) setspace
    (c) listing
    (d) color
17. In LaTeX, ...package is used for page layout tasks
    (a) geometry
    (b) setspace
    (c) easylist
    (d) scolor
18. In LaTeX, the main content of a book has a hierarchical structure, where a book is divided into .....
    (a) Chapters
    (b) Parts
    (c) Sections
    (d) Subsections
19. In LaTeX, the ..... command can be used to add the bold effect to the text.
    (a) \textbf
    (b) \emph
    (c) \textit
    (d) All of these
20. A well-formatted table of contents (TOC) is generated automatically from the elements title by LaTeX when it encounters the command.....
    (a) \TOC
    (b) \tableOC
    (c) \tableofcontents
    (d) \toContents

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CERTIFICATE COURSE –LaTex for Beginners

Answers:

1	C
2	A
3	B
4	A
5	C
6	A
7	C
8	C
9	C
10	B
11	A
12	B
13	C
14	B
15	C
16	D
17	A
18	B
19	A
20	C

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Certificate course – LaTex for Beginners

Mark Sheet

Academic Year: 2023-2024 **Batch 2020-2024**

Year: IV/VII Semester

S.No	Reg. No.	Name of the students	Marks (20)	Out of 100
1.	MLM20EE001	ABHIJITH N SHENOY	20	100
2.	MLM20EE002	ABIN MATHEW	14	70
3.	MLM20EE003	AKASH VARMA	15	75
4.	MLM20EE004	ALISHYA PHILIP	18	90
5.	MLM20EE005	ALSHIN ANSARI	17	85
6.	MLM20EE007	ANANDESHWER E R	19	95
7.	MLM20EE008	ANANDHU PRAVEEN	15	75
8.	MLM20EE009	ARATHI SIBI	14	70
9.	MLM20EE010	ASHIK K R	19	95
10.	MLM20EE011	ASWIN KUMAR K S	16	80
11.	MLM20EE013	GIBU K THOMAS	17	85
12.	MLM20EE015	JEFIN P JOSE	18	90
13.	MLM20EE016	JUBY JOSEPH	15	75
14.	MLM20EE017	JUSTIN PETER	20	100
15.	MLM20EE018	LINTO MATHEW P JOHN	19	95
16.	MLM20EE019	MANAF NIZAR	19	95
17.	MLM20EE020	MIDHUN S BABU	20	100
18.	MLM20EE021	MOHAMAD SHA K	17	85
19.	MLM20EE023	SEBASTAIN K CHACKO	16	85
20.	MLM20EE025	SUBIN M JOHN	15	75
21.	MLM20EE027	VISHNU A S	16	80

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Consolidated Report for the Certificate Course - LaTex for Beginners

Academic Year: 2023-2024 **Batch 2020-2024**

Year: IV/VII Semester

Name of the Activity	: Certificate Course
Title of the Activity	: LaTex for Beginners
Staff Incharges	: Ms. Jolly George AP/EEE
Place of the Activity	: Dept. of EEE CAD LAB Mangalam College of Engineering.Ettumanoor.
No. of Participants	: 21
No. of Qualified	: 21
Name & Designation of Expert	: Ms. Jolly George AP/EEE
Objective of the Activity	To expose the students to the basic concepts documentation and its importance andto give Working knowledge of Latex typesetting language.
Outcome of the Activity	: Students understood how to frame report and thesis, Improved their proficiency in English and communication skill

HoD-EEE

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Certificate course - Students Feedback

Course Name: LaTex for Beginners

Academic Year: 2023-2024

Course/Branch: B.Tech/EEE **Year/Semester:** IV/VII

Student Name: Juby Joseph **Reg. No:**

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course improve your documentation skills?

1	2	3	4 ✓

2. Does the course improve your communication skills?

1	2	3	4 ✓

3. Have you learnt any modern tools through this course?

1	2	3	4 ✓

4. Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?

1	2	3	4 ✓

5. Did the courses enable to build your future career?

1	2	3	4 ✓

6. Rate the depth of knowledge about the courses.

1	2	3	4 ✓

7. Are the courses providing good balance between theory and application?

1	2	3	4 ✓

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Certificate course - Students Feedback Analysis

S. No	Parameters	Average
1.	Does this course improve your documentation skills?	3.7
2.	Does the course improve your communication skills?	3.8
3.	Have you learnt any modern tools through this course?	3.6
4.	Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?	3.7
5.	Did the courses enable to build your future career?	3.7
6.	Rate the depth of knowledge about the courses.	3.8
7.	Are the courses providing good balance between theory and application?	3.6

Course Coordinator **HOD/EEE**

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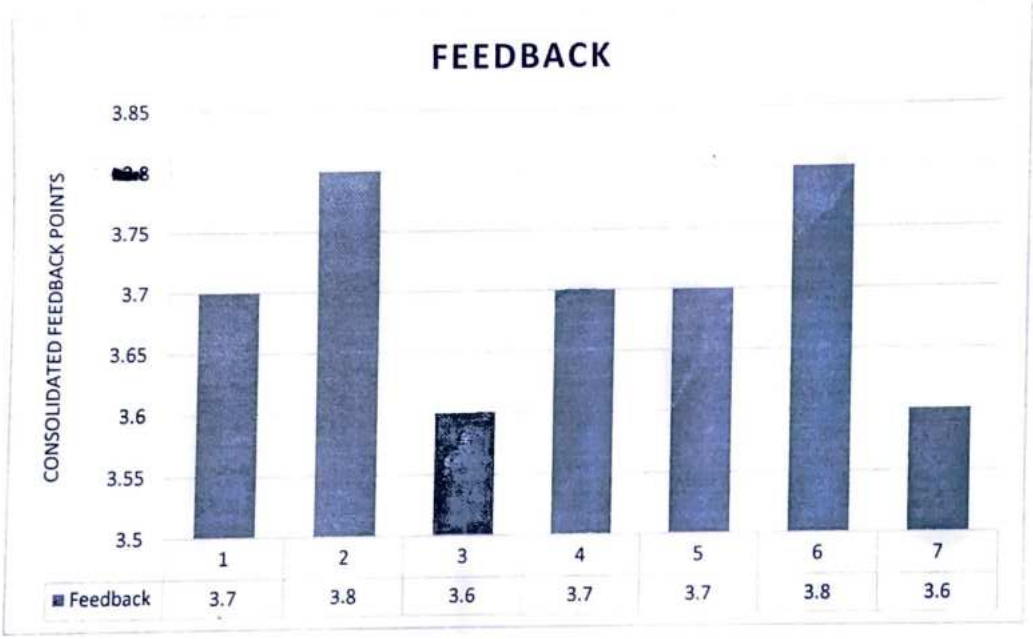
Certificate course - Students Feedback Analysis

LaTex for Beginners



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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

This is to certify that ***AKASH VARMA*** *ofFourth year B.TechElectrical andElectronics Engineering has successfully completed the certificate course on* ***"La Tex for Beginners"*** *for the duration of 30 hours organized by the Department of Electrical [illegible] Engineering during the academic year 2023-24.*

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ETTUMANOOR - 686 631

CO-ORDINATOR

PRINCIPAL

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

This is to certify that ***ASHIK K R*** *of Fourth year B.TechElectrical andElectronics Engineering has successfully completed the certificate course on* ***"La Tex for Beginners"*** *for the duration of 30 hours organized by the Department of Electrical [illegible] the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

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Certificate of Completion

This is to certify that ***SUBIN M JOHN*** *of Fourth year B.TechElectrical andElectronics Engineering has successfully completed the certificate course on* ***"La Tex for*** [illegible] *of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

[illegible] PRINCIPAL

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Electrical and Electronics Engineering

Circular

Ref: MLM/ EEE / Certificate Course / Circular / 2023-24/ 02 **15.11.2023**

The Department of Electrical and Electronics Engineering is planned to conduct a certificate course for third year students. So it is informed to the students to enroll their names for the Composite Materials course which will held on this year. Students are asked to enroll their names to their respective class advisor on or before 16.11.2023. The course syllabus is attached.

Name of the Course : Proteus PCB Designing

Course Duration : 18/11/2023 to 16/12/2023 **(Saturdays)(5 days)**

Time Duration : 09.00 AM to 04.00 PM(6 hours per day)

Subject Handling Faculty : Ms. Sreekala V M , AP/EEE

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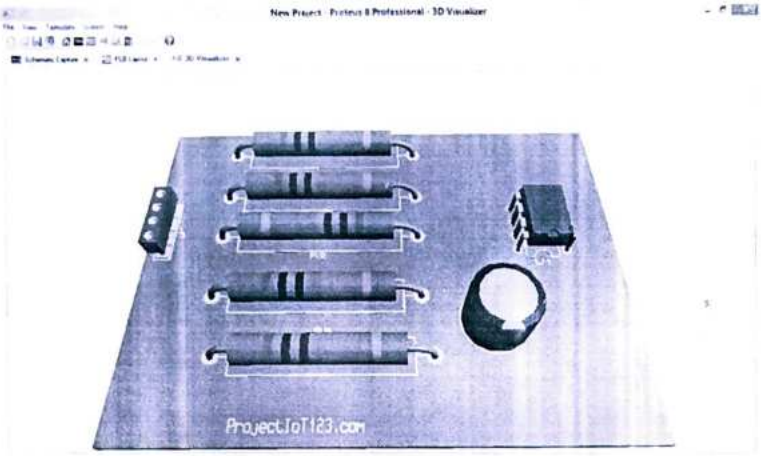

CERTIFICATE COURSE
ON

PROTEUS PCB DESIGNING

Course Content

- ✓ Introduction to PCB Designing.
- ✓ Proteus Software Familiarity.
- ✓ PCB Design Workflow,
- ✓ To Design an Integral Part of Each Electronics part.

Course Duration: 18-11-2023 to 16-12-2023

विश्वं शास्त्रे प्रतिष्ठितम्।

Co Ordinator: Ms. Sreekala V M

AP Electrical & Electronics Engineering

VISION

To excel as a premier department in education and research, support our students to shape their dreams of becoming employable committed engineering professionals

MISSION

Relentlessly strive to create vibrant learning environment, provide state of the art laboratory facilities and actively engage in research and live up to high moral and ethical standards

MANGALAM COLLEGE OF ENGINEERING
Mangalam Hills,
Vettimukal P O
Ettumanoor,
Kottayam
686631

Time 9.00AM to 4.00PM

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Electrical and Electronics Engineering

1.	Academic Year	: 2023-2024
2.	Tile of the Course	: **Proteus PCB Designing**
3.	Objective of the Course	:To understand designing of PCB using software,To designing an integral part of each electronics products
4.	Prerequisite	: NIL
5.	Beneficiary	: S5Students
6.	Date and Duration of the Course	: 18/11/2023 to 16/12/2023 **(Saturdays)** **(5 days)**
7.	Proposed Timing	: 09.00 AM to 04.00 PM(6 hours per day)
8.	No of Hours Required	: 30 Hours
9.	Internal Resources	: Ms. Sreekala V M, AP/EEE
10.	Course Registration Fees	:Nil
11.	Contents of Courses	:Enclosed Separately
12.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in practical evaluation
13.	Venue	: CAD Lab for practical class and S5 Class room

COURSE COORDINATOR

HOD/EEE

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CERTIFICATE COURSE

Proteus PCB Designing

Course Objective:

- This is a basic course for designing of PCB using software. PCB (Printed Circuit Board) designing is an integral part of each electronics products and this program is designed to make students capable to design their own projects PCB up to industrial grade.

Course Outcomes:

- Student knows PCB designing and how to install Proteus software.
- Student learn to design electronic circuits.
- Student learn to simulate the circuit with Proteus softwaare.

S.NO.	CONTENT	INSTRUCTIONAL HOURS
	Section 1	
1	Introduction and Application	1
2	What is PCB, Types of PCBs: Single Sided (Single Layer), Multi-Layer (Double Layer), PCB Materials	2
3	Creating a Project	2
4	Planning, Keyboard shortcuts, display options etc	2
5	Components selection and connection in Proteus	3
6	Selection of Controllers	2
7	Scopes, meters and measurement equipment	1
8	Design verification and connections	3
	Section 2	
9	Practical section for basic simpler circuits	2
10	Single Phase Half controlled converter with R load	2
11	Single Phase fully controlled bridge converter with R and RL loads	2
12	Three Phase half controlled bridge converter with R□load	2
13	Single Phase AC Voltage Controller with R and RL Loads	2
14	Single phase Inverter with PWM control	1
15	Single Phase series inverter with R and RL loads	1
16	Buck and Boost converter	2
	Total Hours	=30

Recommended Books:

1. Proteus (Design Software) by Lambert M. Surhone, Miriam T. Timpledon, Susan F. Marseken, VDM Publishing, 2010.

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

List of Students Enrolled for Certificate course – :Proteus PCB Designing

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/V Semester

S.No	Roll No.	Name of the students
1.	MLM21EE001	ABHIN SANTH P
2.	MLM21EE002	ADONE SHINCE
3.	MLM21EE003	AISWARYA A S
4.	MLM21EE004	AMAL LALACHAN
5.	MLM21EE005	ANJANA SANTHOSH
6.	MLM21EE006	ANTONY JOSEPH
7.	MLM21EE007	ATHUL C V
8.	MLM21EE008	CHRISTO JOSEPH
9.	MLM21EE010	GANESH KUMAR K S
10.	MLM21EE011	GAUTHAM KRISHNA K S
11.	MLM21EE012	GEO SUNNY
12.	MLM21EE013	HARIKRISHNAN K R
13.	MLM21EE014	JOHN ALBIN LIJAN
14.	MLM21EE015	JOYAL JOMON
15.	MLM21EE017	KANNAN BABU
16.	MLM21EE018	MUHAMMED IRFAN
17.	MLM21EE019	NELSON E S
18.	MLM21EE021	SACHU BINU
19.	MLM21EE022	SANDRA SATHEESH
20.	MLM21EE023	SANJAY K S
21.	LMLM21EE024	ABHINAV P.B
22.	LMLM21EE025	AKHIL RAJ
23.	LMLM21EE026	JACOB THOMAS
24.	LMLM21EE027	THOMAS SEBASTIAN

Course Coordinator **HOD/EEE**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Attendance of Certificate course – Proteus PCB Designing

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/V Semester

S.No	Register No.	Name of the students	18/11/23	25/11/23	02/12/23	09/12/23	16/12/23	Total Attendance
1	MLM21EE001	ABHIN SANTH P	✓	✓	✓	✓	✓	100
2	MLM21EE002	ADONE SHINCE	✓	✓	A	✓	✓	80
3	MLM21EE003	AISWARYA A S	✓	✓	✓	✓	✓	100
4	MLM21EE004	AMAL LALACHAN	✓	✓	✓	✓	✓	100
5	MLM21EE005	ANJANA SANTHOSH	✓	✓	✓	✓	✓	100
6	MLM21EE006	ANTONY JOSEPH	✓	✓	✓	✓	✓	100
7	MLM21EE007	ATHUL C V	✓	✓	✓	A	✓	80
8	MLM21EE008	CHRISTO JOSEPH	✓	✓	✓	✓	✓	100
9	MLM21EE010	GANESH KUMAR K S	✓	✓	✓	✓	✓	100
10	MLM21EE011	GAUTHAM KRISHNA K S	✓	✓	✓	✓	✓	100
11	MLM21EE012	GEO SUNNY	✓	✓	✓	✓	✓	100
12	MLM21EE013	HARIKRISHNAN K R	✓	✓	✓	✓	✓	100
13	MLM21EE014	JOHN ALBIN LIJAN	✓	✓	✓	✓	✓	100
14	MLM21EE015	JOYAL JOMON	✓	✓	✓	✓	✓	100
15	MLM21EE017	KANNAN BABU	✓	✓	✓	✓	✓	100
16	MLM21EE018	MUHAMMED IRFAN	✓	✓	✓	✓	✓	100
17	MLM21EE019	NELSON E S	✓	A	✓	✓	✓	80
18	MLM21EE021	SACHU BINU	✓	✓	✓	✓	✓	100
19	MLM21EE022	SANDRA SATHEESH	✓	✓	✓	✓	✓	100
20	MLM21EE023	SANJAY K S	✓	✓	✓	✓	✓	100
21	LMLM21EE024	ABHINAV P.B	✓	✓	✓	✓	✓	100
22	LMLM21EE025	AKHIL RAJ	✓	✓	✓	✓	✓	100
23	LMLM21EE026	JACOB THOMAS	✓	✓	✓	✓	✓	100
24	LMLM21EE027	THOMAS SEBASTIAN	✓	✓	✓	✓	✓	100

Course Coordinator **HOD/EEE**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

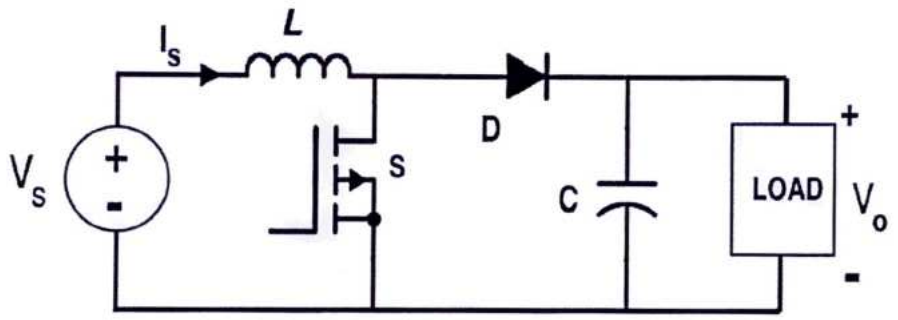
CERTIFICATE COURSE – Proteus PCB Designing

Date: 22/01/24 **Time: 0.30Hrs**

Class: III YEAR EEE **Max. Marks: 20**

PART – A

Q1. Design a Boost converter controlled by Arduino Uno module in proteus software and also write the program for the controlling of boost switch in Arduino software and upload it in the proteus.



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Answers:

PROGRAM

```
int p=1;
int pwmpin=9;
void setup()
{
setPwmFrequency(pwmpin, 1);
analogWrite(pwmpin,p);
//Serial.begin(9600);//SERIAL COMMUNICATION NOT //NEEDED
//Serial.println("HAII");
//delay(5000);delay(5000);
}
void loop()
{

int a=analogRead(A2);
delay(1);
//Serial.println(a);
//Serial.print("P=");
//Serial.println(p);

if(a>220)
{
  p=p-1;
analogWrite(pwmpin,p);
if(p<0)p=0;
}
if (a<205 )//&& a>150
{
  p=p+1;
  if(p>220)p=220;
analogWrite(pwmpin,p);
}
}

void setPwmFrequency(int pin, int divisor) {
  byte mode;
if(pin == 5 || pin == 6 || pin == 9 || pin == 10) {
    switch(divisor) {
      case 1: mode = 0x01; break;
      case 8: mode = 0x02; break;
      case 64: mode = 0x03; break;
      case 256: mode = 0x04; break;
      case 1024: mode = 0x05; break;
      default: return;
    }
if(pin == 5 || pin == 6) {
      TCCR0B = TCCR0B & 0b11111000 | mode;
    } else {
      TCCR1B = TCCR1B & 0b11111000 | mode;
```

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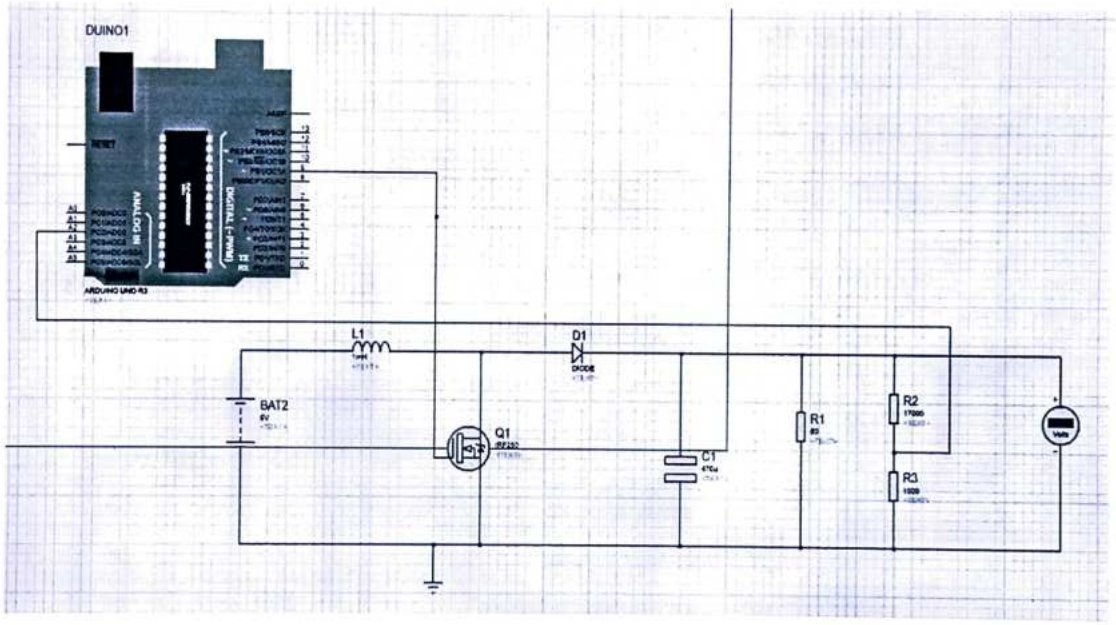
```
  }
 } else if(pin == 3 || pin == 11) {
  switch(divisor) {
   case 1: mode = 0x01; break;
   case 8: mode = 0x02; break;
   case 32: mode = 0x03; break;
   case 64: mode = 0x04; break;
   case 128: mode = 0x05; break;
   case 256: mode = 0x06; break;
   case 1024: mode = 0x7; break;
   default: return;
  }
  TCCR2B = TCCR2B & 0b11111000 | mode;
 }
}
```



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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate course – Proteus PCB Designing
Mark Sheet

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/V Semester

S.No	Reg. No.	Name of the students	Marks (20)	Out of 100
1.	MLM21EE001	ABHIN SANTH P	20	100
2.	MLM21EE002	ADONE SHINCE	14	70
3.	MLM21EE003	AISWARYA A S	15	75
4.	MLM21EE004	AMAL LALACHAN	18	90
5.	MLM21EE005	ANJANA SANTHOSH	17	85
6.	MLM21EE006	ANTONY JOSEPH	19	95
7.	MLM21EE007	ATHUL C V	15	75
8.	MLM21EE008	CHRISTO JOSEPH	14	70
9.	MLM21EE010	GANESH KUMAR K S	19	95
10.	MLM21EE011	GAUTHAM KRISHNA K S	16	80
11.	MLM21EE012	GEO SUNNY	17	85
12.	MLM21EE013	HARIKRISHNAN K R	18	90
13.	MLM21EE014	JOHN ALBIN LIJAN	15	75
14.	MLM21EE015	JOYAL JOMON	20	100
15.	MLM21EE017	KANNAN BABU	19	95
16.	MLM21EE018	MUHAMMED IRFAN	19	95
17.	MLM21EE019	NELSON E S	20	100
18.	MLM21EE021	SACHU BINU	17	85
19.	MLM21EE022	SANDRA SATHEESH	16	85
20.	MLM21EE023	SANJAY K S	15	75
21.	LMLM21EE024	ABHINAV P.B	16	80
22.	LMLM21EE025	AKHIL RAJ	16	80
23.	LMLM21EE026	JACOB THOMAS	17	80
24.	LMLM21EE027	THOMAS SEBASTIAN	17	80

Course Coordinator **HOD/EEE**

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Consolidated Report for the Certificate Course - Proteus PCB Designing

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/VSemester

Name of the Activity	: Certificate Course
Title of the Activity	: Proteus PCB Designing
Staff Incharges	: Ms.Sreekala V M
Place of the Activity	: Dept. of EEE S5 classroom and CAD Lab
No. of Participants	: 24
No. of Qualified	: 24
Name & Designation of Expert	:Ms. Sreekala V M, AP/EEE
Objective of the Activity	:This program is designed to make students capable to design their own projects PCB up to industrial grade
Outcome of the Activity	: Students were able to design basic converters and their controlling networks in Proteus

HoD-EEE

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Certificate course - Students Feedback

Course Name: Proteus PCB Designing

Academic Year: 2023-2024

Course/Branch: B.Tech/EEE **Year/Semester:** III/V

Student Name: Joyal Joman **Reg. No:**

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course improve your technical skills?

1	2	3	4 ✓

2. Does the course improve your practical exposure?

1	2	3	4 ✓

3. Have you learnt any modern tools through this course?

1	2	3 ✓	4

4. Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?

1	2	3	4 ✓

5. Did the courses enable to build your future career?

1	2	3	4 ✓

6. Rate the depth of knowledge about the courses.

1	2	3	4 ✓

7. Are the courses providing good balance between theory and application?

1	2	3	4 ✓

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Certificate course - Students Feedback Analysis

S. No	Parameters	Average
1.	Does this course improve your technical skills?	3.7
2.	Does the course improve your practical exposure?	3.8
3.	Have you learnt any modern tools through this course?	3.6
4.	Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?	3.7
5.	Did the courses enable to build your future career?	3.7
6.	Rate the depth of knowledge about the courses.	3.8
7.	Are the courses providing good balance between theory and application?	3.6

Course Coordinator **HOD/EEE**

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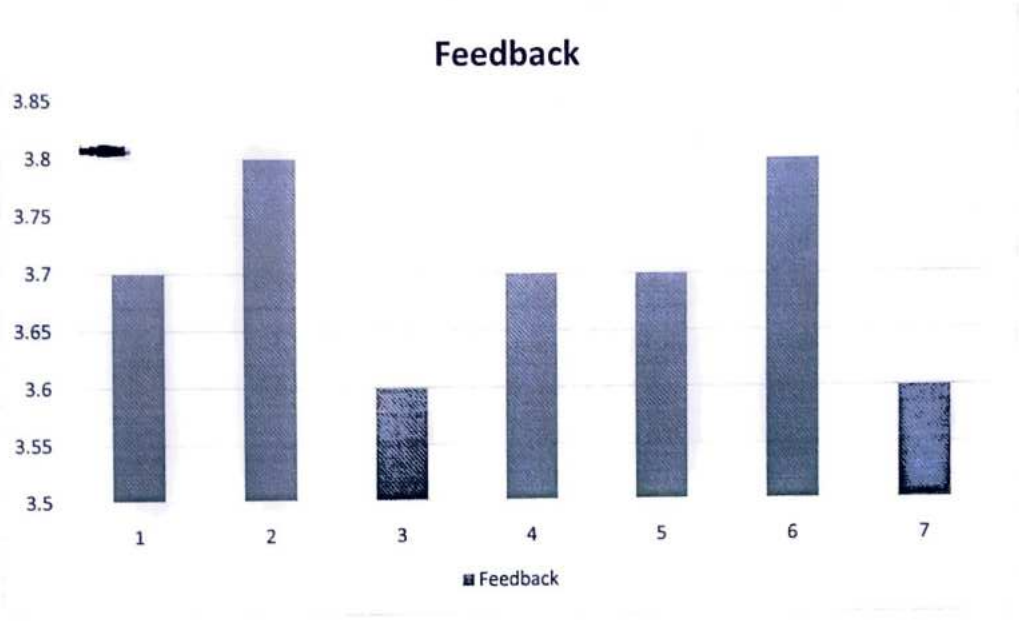
Certificate course - Students Feedback Analysis

Proteus PCB Designing



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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

This is to certify that NELSON. E. S *of Third year B.Tech Electrical and Electronics Engineering has successfully completed the certificate course on "**Proteus PCB Designing**" for the duration of 30 hours organized by the Department of Electrical and Electronics Engineering during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

This is to certify that **ADONE SHINCE** *of Third year B.TechElectrical andElectronics Engineering has successfully completed the certificate course on* ***"Proteus PCB Designing"*** *for the duration of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

*This is to certify that **AISWARYA A S** of Third year B.TechElectrical andElectronics Engineering has successfully completed the certificatecourse on **"Proteus PCB Designing"**for the duration of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

CO-ORDINATOR

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Electrical and Electronics Engineering

Circular

Ref: MLM/ EEE / Certificate Course / Circular / 2023-24/ 03 **15.12.2023**

The Department of Electrical and Electronics Engineering is planned to conduct a certificate course for third year students. So, it is informed to the students to enroll their names for the Energy Management course which will held on this year. Students are asked to enroll their names to their respective class advisor on or before 18.12.2023. The course syllabus is attached.

Name of the Course : Energy Management

Course Duration : 23/12//2023 to 20/01/2024**(Saturdays)(5 days)**

Time Duration : 09.00 AM to 04.00 PM(6 hours per day)

Subject Handling Faculty : Dr. Honey Baby, HoD (EEE)

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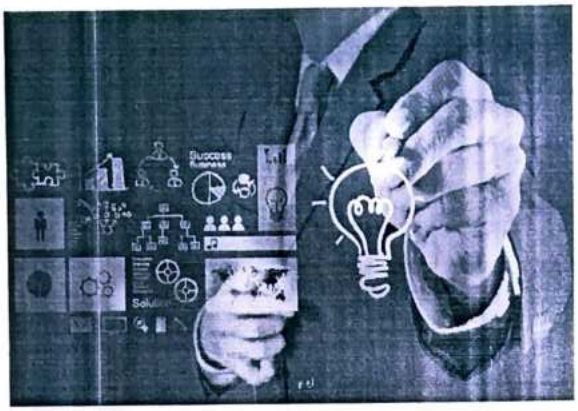

CERTIFICATE COURSE
ON

ENERGY MANAGEMENT

Course Content

- ✓ Understanding of various Energy Systems.
- ✓ Data Analysis for Energy Optimization.
- ✓ Energy Auditing and Monitoring.
- ✓ Integration of Renewable Energy.

Course Duration: 23-12-2023 to 20-01-2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Co Ordinator:Dr. Honey Baby,

HOD, Electrical & Electronics Engineering

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VISION

To excel as a premier department in education and research, support our students to shape their dreams of becoming employable committed engineering professionals

MISSION

Relentlessly strive to create vibrant learning environment, provide state of the art laboratory facilities and actively engage in research and live up to high moral and ethical standards

MANGALAM COLLEGE OF ENGINEERING

Mangalam Hills.
Vettimukal P O
Ettumanoor,
Kottayam
686631

Time 9.00AM to 4.00PM

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Electrical and Electronics Engineering

1.	Academic Year	: 2023-2024
2.	Tile of the Course	: Energy Management
3.	Objective of the Course	: To impart basic knowledge to the students about current energy scenario, energy conservationand management.
4.	Prerequisite	: Nil
5.	Requirement	: S5 class room
6.	Beneficiary	: S5$tudents
7.	Date and Duration of the Course	: 23/12/2023 to 20/01/2024 (30 Hours)
8.	Proposed Timing	: 09.00 AM to 04.00 PM**(6 hours per every Saturday)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Dr. Honey Baby, HoD (EEE)
11.	Course Registration Fees	:Nil
12.	Contents of Courses	:Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: Online

COURSE COORDINATOR **HOD/EEE**

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ADD-ON COURSE

Energy Management

Course Objective:

- To impart basic knowledge to the students about current energy scenario, energy conservation, audit and management. To inculcate among the student's systematic knowledge and skill about assessing the energy efficiencyand energy management.

Course Outcomes:

- Students will be able to apply the knowledge of the subject to calculate the efficiency of various thermal utilities.
- Students will be able to design suitable energy monitoring system to analyze and optimize the energy consumption in an organization.
- Students will be able to improve the thermal efficiency by designing suitable systems for heat recovery and co-generation.
- Students will be able to carry out the cost- benefit analysis of various investment alternatives for meeting the energy needs of the organization.

S.NO.	CONTENT	INSTRUCTIONAL HOURS
	Section 1	
1	Commercial and Non-commercial energy, primary energy resources, commercial energy production, final energy consumption,	2
2	Indian energy scenario, Sectoral energy consumption (domestic, industrial and other sectors), energy needs of growing economy, energy intensity, long term energyscenario, energy pricing, Energy security,	2
3	Energy conservation and its importance, energy strategy for the future, Energy Conservation Act 2001 and its features..	1
4	Electricity basics - Direct Current and Alternative Currents, electricity tariff, Thermal Basics-fuels, thermal energy contents of fuel, temperature and pressure, heat capacity, sensible and latent heat, evaporation, condensation, steam, moist air and humidity and heat transfer.	3
5	Calculation of heat loss - heat gain, estimation of annual heating & cooling loads, factors that influence thermal performance, analysis of existing buildings setting up an energy management programme and use management - electricity saving techniques	4
6	Definition, energy audit, need, types of energy audit. Energy management (audit) approach-understanding energy costs, 3.1 Bench marking, energy performance, matching energy use to requirement, maximizing system efficiencies, optimizing the input energy requirements, fuel and energy substitution, energy audit instruments and metering	4
7	Investment-need, appraisal and criteria, financial analysis techniques simple payback period, return on investment, net	3

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	present value, internal rate of return, cash flows, risk and sensitivity analysis; financing options, energy performance contracts and role of Energy Service Companies (ESCOs)	
	Section 2	
10	Defining monitoring & targeting, elements of monitoring & targeting, data and information-analysis, techniques – energy consumption, production, cumulative sum of differences (CUSUM), Energy Management Information Systems (EMIS)	4
11	Energy efficiency in thermal utilities like boilers, furnaces, pumps and fans, compressors, cogeneration (steam and gas turbines), heat exchangers, lighting system, Motors belts and drives, refrigeration system.	4
12	Heat recovery from ventilation, air co-generation of heat and electricity, heat recovery and bottoming cycles	3
	Total Hours	=40

Recommended Books:

1. W. F. Kenny, Energy Conservation in Process Industry.
2. Amlan Chakrabarti, Energy Engineering and Management, Prentice Hall India 2011.
3. CB Smith, Energy Management Principles, Pergamon Press, New York
4. Handouts New Delhi, Bureau of energy efficiency.

List of Students Enrolled for Add-on course –:Energy Management

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/V Semester

S.No	Roll No.	Name of the students
1.	MLM21EE001	ABHIN SANTH P
2.	MLM21EE002	ADONE SHINCE
3.	MLM21EE003	AISWARYA A S
4.	MLM21EE004	AMAL LALACHAN
5.	MLM21EE005	ANJANA SANTHOSH
6.	MLM21EE006	ANTONY JOSEPH
7.	MLM21EE007	ATHUL C V
8.	MLM21EE008	CHRISTO JOSEPH
9.	MLM21EE010	GANESH KUMAR K S
10.	MLM21EE011	GAUTHAM KRISHNA K S
11.	MLM21EE012	GEO SUNNY
12.	MLM21EE013	HARIKRISHNAN K R
13.	MLM21EE014	JOHN ALBIN LIJAN
14.	MLM21EE015	JOYAL JOMON
15.	MLM21EE017	KANNAN BABU
16.	MLM21EE018	MUHAMMED IRFAN
17.	MLM21EE019	NELSON E S
18.	MLM21EE021	SACHU BINU
19.	MLM21EE022	SANDRA SATHEESH
20.	MLM21EE023	SANJAY K S
21.	LMLM21EE024	ABHINAV P.B
22.	LMLM21EE025	AKHIL RAJ
23.	LMLM21EE026	JACOB THOMAS
24.	LMLM21EE027	THOMAS SEBASTIAN

Course Coordinator **HOD/EEE**

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Attendance of Certificate course – Energy Management

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/V Semester

S.No	Register No.	Name of the students	23/12/23	30/12/23	06/01/24	13/01/24	20/01/24	Total Attendance
1	MLM21EE001	ABHIN SANTH P	✓	✓	✓	✓	✓	100
2	MLM21EE002	ADONE SHINCE	✓	✓	✓	✓	✓	100
3	MLM21EE003	AISWARYA A S	✓	✓	✓	✓	✓	100
4	MLM21EE004	AMAL LALACHAN	✓	✓	✓	✓	✓	100
5	MLM21EE005	ANJANA SANTHOSH	✓	a	✓	✓	✓	80
6	MLM21EE006	ANTONY JOSEPH	✓	✓	✓	✓	✓	100
7	MLM21EE007	ATHUL C V	✓	✓	✓	✓	✓	100
8	MLM21EE008	CHRISTO JOSEPH	✓	✓	✓	✓	✓	100
9	MLM21EE010	GANESH KUMAR K S	✓	✓	✓	a	✓	80
10	MLM21EE011	GAUTHAM KRISHNA K S	✓	✓	✓	✓	✓	100
11	MLM21EE012	GEO SUNNY	✓	✓	✓	✓	✓	100
12	MLM21EE013	HARIKRISHNAN K R	✓	✓	✓	✓	✓	100
13	MLM21EE014	JOHN ALBIN LIJAN	✓	✓	✓	✓	✓	100
14	MLM21EE015	JOYAL JOMON	✓	✓	✓	✓	✓	100
15	MLM21EE017	KANNAN BABU	✓	✓	✓	a	✓	80
16	MLM21EE018	MUHAMMED IRFAN	✓	✓	✓	✓	✓	100
17	MLM21EE019	NELSON E S	✓	✓	✓	✓	✓	100
18	MLM21EE021	SACHU BINU	✓	✓	✓	✓	✓	100
19	MLM21EE022	SANDRA SATHEESH	✓	✓	✓	✓	✓	100
20	MLM21EE023	SANJAY K S	✓	✓	✓	✓	✓	100
21	LMLM21EE024	ABHINAV P.B	✓	✓	✓	✓	✓	100
22	LMLM21EE025	AKHIL RAJ	✓	✓	✓	✓	✓	100
23	LMLM21EE026	JACOB THOMAS	✓	✓	✓	✓	✓	100
24	LMLM21EE027	THOMAS SEBASTIAN	✓	✓	✓	✓	✓	100

Course Coordinator **HOD/EEE**

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CERTIFICATE COURSE – ENERGY MANAGEMENT

Date: 22/01/24 **Time: 0.30Hrs**
Class: III YEAR EEE
Max. Marks: 20

PART – A

Answer all the questions **20 * 1 = 20 Marks**

Q.no 1. CFC stands for_____
A :Chloro Fluro Carbons
B : Carbon Fluorine Carbon
C : Compact Fluro Carbons
D : Concentric Fluro Carbons

Q.no 2. Which of the following is not green house gas?
A : Carbon-dioxide
B : methane
C : Nitrous oxide
D : Hydrogen

Q.no 3. Over all efficiency of Gas turbine type cogeneration system is
A : 70 – 85
B : 60 – 80
C : 75-85
D : 84-92

Q.no 4. What is COP?
A : Conference of Parties
B : Coefficient of Pollution
C : Coalition of Parties
D : Convention of People

Q.no 5. Which technique takes care of time value of money in evaluation?
A : payback period
B : IRR
C : NPV
D : Both (b) & (c)

Q.no 6. Which country emits maximum CO2?
A : Australia
B : Iceland
C : Norway
D : USA

Q.no 7. Capillary wick is a part of
A : heat pump
B : heat wheel
C : heat pipe
D : regenerator

Q.no 8. In a no load test of a 3-phase induction motor, the measured power by the wattmeter consists of:
A : core loss
B : copper loss

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C : core loss, windage & friction loss
D : stator copper loss, iron loss, windage & friction loss

Q.no 9. The principles of energy management do not involve the following
A : Procure all the energy needed at the lowest possible price
B : Manage energy use at highest energy efficiency
C : Use the most appropriate technology
D : Release untreated hot flue gases to atmosphere

Q.no 10. How energy conservation measures are classified?
A : Low cost – high return
B : Medium cost – medium return
C : High cost – high return
D : all the above

SET 2 of Energy audit and management MCQs
Q.no 11. What is ESCO?
A : Energy saving company
B : Energy sourcing company
C : Energy service company
D : Energy section of company

Q.no 12. For coal fired system, the flame length is influenced by
A : moisture
B : volatile matter
C : ash content
D : fixed carbon

Q.no 13. Sensitivity analysis is an assessment of _____
A : profits
B : losses
C : Risk
D : all

Q.no 14. If 30,000 kcal of heat is removed from a room every hour then the refrigeration tonnage will be nearly equal to
A : 30 TR
B : 15 TR
C : 10 TR
D : 100 TR

Q.no 15. Which one of the following is a high temperature heat recovery device?
A : Regenerator
B : Heat pump
C : Heat wheel
D : Heat pipe

Q.no 16. The device used to upgrade a lower pressure steam to a higher pressure steam is called
A : heat pump
B :thermo compressor
C : heat pipe
D : heat wheel

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Q.no 17. What is the reduction in distribution loss if the current flowing through the distribution line is reduced by 10%?
A : 0.1
B : 0.81
C : 0.19
D : None of the above

Q.no 18. If the speed of a reciprocating pump is reduced by 50 %, the head
A : is reduced by 25%
B : is reduced by 50%
C : is reduced by 75%
D : remains same

Q.no 19. The monitor and control of energy management system is done by using
A: MATLAB
B: SCADA
C: AUTO - CAED
D: All of these

Q.no 20. The energy strategies of companies have the principle of
A: restoring and preserving the environment
B: reducing wastes and pollutants
C: educating the people about energy conservation
D: all of these

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CERTIFICATE COURSE –Energy Management

Answers:

1	A
2	D
3	A
4	A
5	D
6	D
7	C
8	D
9	D
10	D
11	C
12	B
13	C
14	C
15	A
16	B
17	C
18	D
19	B
20	D

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Certificate course – Energy Management

Mark Sheet

Academic Year: 2023-2024 Batch 2021-2025

Year: III/V Semester

S.No	Reg. No.	Name of the students	Marks (20)	Out of 100
1.	MLM21EE001	ABHIN SANTH P	20	100
2.	MLM21EE002	ADONE SHINCE	14	70
3.	MLM21EE003	AISWARYA A S	15	75
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5.	MLM21EE005	ANJANA SANTHOSH	17	85
6.	MLM21EE006	ANTONY JOSEPH	19	95
7.	MLM21EE007	ATHUL C V	15	75
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21.	LMLM21EE024	ABHINAV P.B	16	80
22.	LMLM21EE025	AKHIL RAJ	16	80
23.	LMLM21EE026	JACOB THOMAS	17	80
24.	LMLM21EE027	THOMAS SEBASTIAN	17	80

Course Coordinator

HOD/EEE

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Consolidated Report for the certificateCourse –Energy Management

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/V Semester

Name of the Activity	: Add-on Course
Title of the Activity	: Energy Management
Staff Incharges	: Dr. Honey Baby, HoD (EEE)
Place of the Activity	: S5 CLASS ROOM, Dept. of EEE Mangalam College of Engineering.Ettumanoor.
No. of Participants	: 24
No. of Qualified	: 24
Name & Designation of Expert	: Dr. Honey Baby, HoD (EEE)
Objective of the Activity	To impart basic knowledge to the students about current energy scenario, energy conservation, audit and management. To inculcate among the student's systematic knowledge and skill about assessing the energy efficiency, energy auditing and energy management.

HoD-EEE

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Certificate course - Students Feedback

Course Name: Energy Management

Academic Year: 2023-24

Course/Branch: B.Tech/EEE **Year/Semester:** III/V

Student Name: Athul C.V **Reg. No:**

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course taught you to calculate the efficiency of various thermal utilities?

1	2	3	4 ✓

2. Does the course give you an idea about how to design suitable energy monitoring system?

1	2	3	4 ✓

3. Are you now able to optimize the energy consumption in your home?

1	2	3 ✓	4

4. Is the syllabus covered fundamentalsenergy audit methods?

1	2	3	4 ✓

5. Are you now able to carry out the cost- benefit analysis of various investment alternatives for meeting the energy needs of the organization.?

1	2	3	4 ✓

6. Did the courses enable to build your future career?

1	2	3	4 ✓

7. Rate the depth of knowledge about the courses.

1	2	3	4 ✓

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Certificate course - Students Feedback Analysis

S. No	Parameters	Average
1.	Does this course taught you to calculate the efficiency of various thermal utilities?	3.8
2.	Does the course give you an idea about how to design suitable energy monitoring system?	3.5
3.	Are you now able to optimize the energy consumption in your home?	3.8
4.	Is the syllabus covered fundamentalsenergy audit methods?	3.6
5.	Are you now able to carry out the cost- benefit analysis of various investment alternatives for meeting the energy needs of the organization.?	3.6
6.	Did the courses enable to build your future career?	3.8
7.	Rate the depth of knowledge about the courses.	4

Course Coordinator

HOD/EEE

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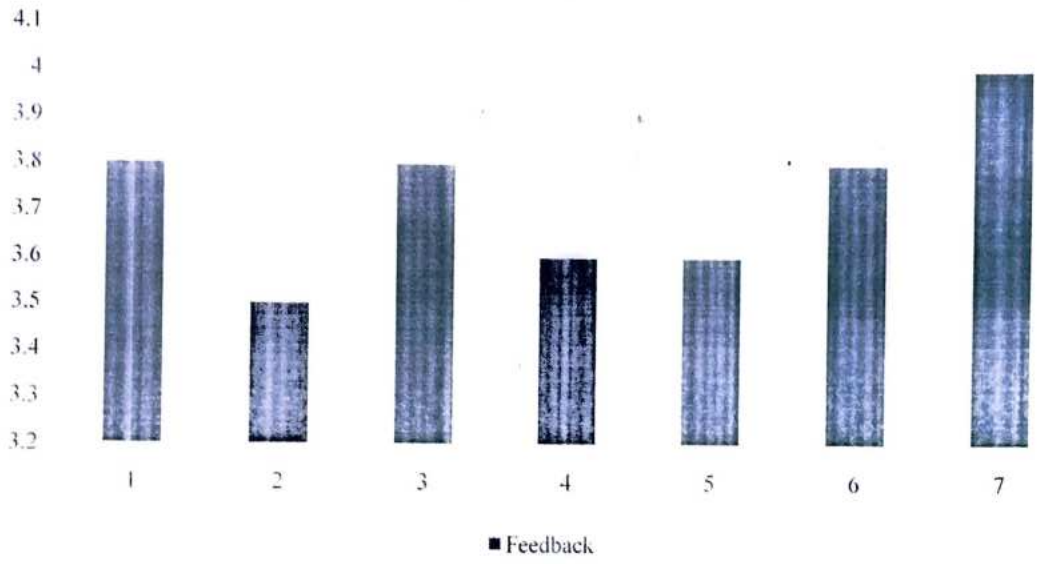
Certificate course - Students Feedback Analysis

Energy Management



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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

This is to certify that ***AKHIL RAJ*** *ofThird year B.TechElectrical andElectronics Engineering has successfully completed the certificate course on* ***"ENERGY MANAGEMENT"*** *for the duration of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

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CO-ORDINATOR

PRINCIPAL

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

This is to certify that ***GAUTHAM KRISHNA K S****of Third yearB.TechElectrical andElectronics Engineering has successfully completed the certificate course on "****ENERGY MANAGEMENT****"for the duration of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

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CO-ORDINATOR

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

*This is to certify that **AISWARYA A S** of Third year B.TechElectrical andElectronics Engineering has successfully completed the certificate course on **"ENERGY MANAGEMENT"**for the duration of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

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CO-ORDINATOR

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Electrical and Electronics Engineering

Circular

Ref: MLM/ EEE / Certificate Course / Circular / 2023-24/04 **15.12.2023**

The Department of Electrical and Electronics Engineering is planned to conduct a certificate course for third year students. So, it is informed to the students to enroll their names for the Solar Power Plant Designing course which will held on this year. Students are asked to enroll their names to their respective class advisor on or before 18.12.2023. The course syllabus is attached.

Name of the Course : Solar Power Plant Designing

Course Duration : 27/01/2024- 24/02/2024**(Saturdays)(5 days)**

Time Duration : 09.00 AM to 05.00 PM(6 hours per day)

Subject Handling Faculty : Ms. Aiswarya Chandran, Assistant Professor/EEE

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CERTIFICATE COURSE
ON

SOLAR POWER PLANT DESIGNING

Course Content

- ✓ To create understanding of the Solar Power Plant.
- ✓ working of solar power plant and its design
- ✓ To understand the fundamentals of Energy Generation using Solar.

Course Duration: 27-01-2024 to 24-02-2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Co Ordinator: Dr. Aiswarya Chandran

Assistant Professor- Electrical & Electronics Engineering

VISION

To excel as a premier department in education and research, support our students to shape their dreams of becoming employable committed engineering professionals.

MISSION

Relentlessly strive to create vibrant learning environment, provide state of the art laboratory facilities and actively engage in research and live up to high moral and ethical standards

MANGALAM COLLEGE OF ENGINEERING
Mangalam Hills,
Vettimukal P O
Ettumanoor, Kottayam
686631

Time 09.00 AM to 4.00PM

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Electrical and Electronics Engineering

1.	Academic Year	: 2023-2024
2.	Tile of the Course	: **Solar Power Plant Designing**
3.	Objective of the Course	:To create understanding of the Solar Power Plant, To understand the fundamentals of Energy Generation using Solar, working of solar power plant and its design
4.	Prerequisite	: Nil
5.	Requirement	: Class room for theory class. : Computer lab for practical class.
6.	Beneficiary	: S6Students
7.	Date and Duration of the Course	: 27/01/2024- 24/02/2024 **(Saturdays)(5 days)**
8.	Proposed Timing	: 09.00 AM to 05.00 PM(6 hours per day)
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Ms. Aiswarya Chandran , AP/EEE
11.	Course Registration Fees	:Nil
12.	Contents of Courses	:Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: S6 class room

COURSE COORDINATOR **HOD/EEE**

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CERTIFICATE COURSE

Solar Power Plant Designing

Course Objective:

- To expose the students different types of solar power plant, selection of location and technology
- To give Working solar power plant.
- Student will be able to design solar power plant

Course Outcomes:

- Student will be able to describe different types of solar power plant, selection of location and technology.
- Student will be able to describe the working of solar power plant.
- Student will be able to design solar power plant.

S.NO.	CONTENT	INSTRUCTIONAL HOURS
	Section 1	
1	Introduction and Application	1
2	Types of Solar Power Plant	1
3	selection of site and shadow analysis	1
4	Selection of PV module technology	1
5	Selection of PV module (cells and BOM) and sizing	1
6	Inverters Selection and Sizing (Grid Connection and Off Grid)	1
7	Connection of PV Module(Series and Parallel Circuit)	1
	Section 2	
8	Preparation of single line diagram and plant array layout .	2
9	Solar Power Plant String Combiner Box/ ACDB/ MDB/Metering cubical	1
10	Solar power plant HT switchgear selection and sizing	2
11	Selection and sizing of AC and DC Cable	2
12	Selection and sizing of AC /DC Side Earthing	1
	Section 3	
13	Solar Power Plant Substation and switchyard	2
14	Selection and sizing Lightening Protection (LA)	1
15	System Losses of Solar Power Plant	1
16	Solar Power System Yield Performance(Energy Guarantee)	1
17	Smart Grid/Net Metering	2
	Total Hours	=21

- Recommended Books:

1. Solar Power Plants Fundamentals Technology SystemsEconomics by C.-J.Winter,Rudolf L. Sizmann, Lorin L. Vant-Hull , Springer
2. Fundamentals and Applications of Renewable Energy,by Mehmet Kanoglu (Author), Yunus A. Cengel (Author), John M. Cimbala (Author)
3. A Practical Guide for Total Engineering of MW capacity Solar PV Power Project, A.S.Kapur

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

List of Students Enrolled for Certificate course – : Solar Power Plant Design

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/VI Semester

S.No	Roll No.	Name of the students
1.	MLM21EE001	ABHIN SANTH P
2.	MLM21EE002	ADONE SHINCE
3.	MLM21EE003	AISWARYA A S
4.	MLM21EE004	AMAL LALACHAN
5.	MLM21EE005	ANJANA SANTHOSH
6.	MLM21EE006	ANTONY JOSEPH
7.	MLM21EE007	ATHUL C V
8.	MLM21EE008	CHRISTO JOSEPH
9.	MLM21EE010	GANESH KUMAR K S
10.	MLM21EE011	GAUTHAM KRISHNA K S
11.	MLM21EE012	GEO SUNNY
12.	MLM21EE013	HARIKRISHNAN K R
13.	MLM21EE014	JOHN ALBIN LIJAN
14.	MLM21EE015	JOYAL JOMON
15.	MLM21EE017	KANNAN BABU
16.	MLM21EE018	MUHAMMED IRFAN
17.	MLM21EE019	NELSON E S
18.	MLM21EE021	SACHU BINU
19.	MLM21EE022	SANDRA SATHEESH
20.	MLM21EE023	SANJAY K S
21.	LMLM21EE024	ABHINAV P.B
22.	LMLM21EE025	AKHIL RAJ
23.	LMLM21EE026	JACOB THOMAS
24.	LMLM21EE027	THOMAS SEBASTIAN

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Course Coordinator **HOD/EEE**

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Attendance of Certificate course – Solar Power Plant Design

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/VI Semester

S.No	Register No.	Name of the students	27/01/24	3/02/24	10/02/24	17/02/24	24/02/24	Total Attendance
1	MLM21EE001	ABHIN SANTH P	✓	✓	✓	✓	✓	100
2	MLM21EE002	ADONE SHINCE	✓	✓	✓	✓	✓	100
3	MLM21EE003	AISWARYA A S	✓	✓	✓	✓	✓	100
4	MLM21EE004	AMAL LALACHAN	✓	✓	✗	✓	✓	100
5	MLM21EE005	ANJANA SANTHOSH	✓	✓	✓	✓	✓	100
6	MLM21EE006	ANTONY JOSEPH	✓	✓	✓	✓	✓	100
7	MLM21EE007	ATHUL C V	O	✓	✓	✓	✓	80
8	MLM21EE008	CHRISTO JOSEPH	✓	✓	✓	✓	✓	100
9	MLM21EE010	GANESH KUMAR K S	✓	✓	✓	O	✓	80
10	MLM21EE011	GAUTHAM KRISHNA K S	✓	✓	✓	✓	✓	100
11	MLM21EE012	GEO SUNNY	✓	✓	✓	✓	✓	100
12	MLM21EE013	HARIKRISHNAN K R	✓	✓	✓	✓	✓	100
13	MLM21EE014	JOHN ALBIN LIJAN	✓	✓	✓	✓	✓	100
14	MLM21EE015	JOYAL JOMON	✓	O	✓	✓	✓	80
15	MLM21EE017	KANNAN BABU	✓	✓	✓	✓	✓	100
16	MLM21EE018	MUHAMMED IRFAN	✓	✓	✓	✓	✓	100
17	MLM21EE019	NELSON E S	✓	✓	✓	✓	✓	100
18	MLM21EE021	SACHU BINU	✓	✓	✓	✓	✓	100
19	MLM21EE022	SANDRA SATHEESH	✓	✓	✓	✓	✓	100
20	MLM21EE023	SANJAY K S	✓	✓	✓	✓	✓	100
21	LMLM21EE024	ABHINAV P.B	✓	✓	✓	✓	✓	100
22	LMLM21EE025	AKHIL RAJ	✓	✓	✓	✓	✓	100
23	LMLM21EE026	JACOB THOMAS	✓	✓	✓	✓	✓	100
24	LMLM21EE027	THOMAS SEBASTIAN	✓	✓	✓	✓	✓	100

Course Coordinator **HOD/EEE**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

CERTIFICATE COURSE – Solar Power Plant Design

Date: 27.02.2024 **Time: 0.15 Hrs**
Class: III YEAR EEE **Max. Marks: 15**

PART – A

Answer all the questions **15 * 1 = 15 Marks**

1. In solar cells _____ material is used.
   (a) Copper (c) Silver
   (b) Silicon (d) None of the above
2. The range of solar cell efficiency is
   (a) 55% (c) 5-10%
   (b) 10-15% (d) 5-10%
3. In how many ways we can harness solar energy?
   (a) One way (c) Two way
   (b) Three way (d) four way
4. How much voltage does a single solar cell produce?
   (a) 1V (c) 2V
   (b) 3V (d) .5V
5. The types of solar cells based on the crystal structure are _____
   (a) Single Crystal (c) Poly crystalline
   (b) Amorphous (d) All the above
6. A combination of solar panels connected together is known as _____
   (a) Cell (c) Array
   (b) AJB (d) String
7. The output of the solar cell is of the order.
   (a) .05W (c) 1W
   (b) .5W (d) 15W
8. In a solar collector, why is the transparent cover provide for?.
   (a) Protect the collector from dust.
   (b) Reduce the heat losses from collector beneath toatmosphere
   (c) Transmit solar radiation only
   (d) All of the above
9. The solar constant value is _____?
   (a) 1327W/m^2 (c) 1500W/m^2
   (b) 1366W/m^2 (d) 1300W/m^2
10. Photovoltaic cell or solar cell converts.....
    (a) Thermal energy into electricity (c) Solar radiation into thermal energy
    (b) Electromagnetic radiation directly into electricity (d) Solar radiation into kinetic energy
11. Full form of FF in the solar field is _____
    (a) Form factor (c) Fill Factor
    (b) Flip Flop (d) Fire Factor
12. A module in a solar panel refers to.
    (a) Series arrangement of solar cells (c) Series and parallel arrangement of solar cells
    (b) Parallel arrangement of solar cells (d) None of the above
13. All the electricity produced by the solar panels is produced as:
    (a) AC (c) both AC & DC
    (b) DC (d) None of the above

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14. To meet the current rating batteries are connected in
    (a) Series
    (b) Series -Parallel
    (c) Parallel
    (d) None of the above
15. Rating of battery in
    (a) Volt
    (b) Watt-hour
    (c) Ampere
    (d) Ampere hour

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CERTIFICATE COURSE –Solar Power Plant Design

Answers:

1	A
2	C
3	A
4	C
5	C
6	C
7	B
8	A
9	B
10	C
11	B
12	C
13	D
14	A
15	B
16	A
17	C
18	C
19	A
20	B

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate course – Solar Power Plant Design

Mark Sheet

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III/VI Semester

S.No	Reg. No.	Name of the students	Marks (20)	Out of 100
1.	MLM21EE001	ABHIN SANTH P	20	100
2.	MLM21EE002	ADONE SHINCE	14	70
3.	MLM21EE003	AISWARYA A S	15	75
4.	MLM21EE004	AMAL LALACHAN	18	90
5.	MLM21EE005	ANJANA SANTHOSH	17	85
6.	MLM21EE006	ANTONY JOSEPH	19	95
7.	MLM21EE007	ATHUL C V	15	75
8.	MLM21EE008	CHRISTO JOSEPH	14	70
9.	MLM21EE010	GANESH KUMAR K S	19	95
10.	MLM21EE011	GAUTHAM KRISHNA K S	16	80
11.	MLM21EE012	GEO SUNNY	17	85
12.	MLM21EE013	HARIKRISHNAN K R	18	90
13.	MLM21EE014	JOHN ALBIN LIJAN	15	75
14.	MLM21EE015	JOYAL JOMON	20	100
15.	MLM21EE017	KANNAN BABU	19	95
16.	MLM21EE018	MUHAMMED IRFAN	19	95
17.	MLM21EE019	NELSON E S	20	100
18.	MLM21EE021	SACHU BINU	17	85
19.	MLM21EE022	SANDRA SATHEESH	16	85
20.	MLM21EE023	SANJAY K S	15	75
21.	LMLM21EE024	ABHINAV P.B	16	80
22.	LMLM21EE025	AKHIL RAJ	16	80
23.	LMLM21EE026	JACOB THOMAS	17	80
24.	LMLM21EE027	THOMAS SEBASTIAN	17	80

Course Coordinator **HOD/EEE**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Consolidated Report for the Certificate Course - Solar Power Plant Design

Academic Year: 2023-2024 **Batch 2021-25**

Semester: VI

Name of the Activity	: Certificate Course
Title of the Activity	: Solar Power Plant Design
Staff Incharges	: Ms. Aiswarya Chandran
Place of the Activity	: Dept. of EEE Mangalam College of Engineering. Ettumanoor.
No. of Participants	: 24
No. of Qualified	: 24
Name & Designation of Expert	: Ms. Aiswarya Chandran , Assistant Professor/EEE
Objective of the Activity	To expose the students to the basic concepts of electrical energy generation using solar energy, its working and design
Outcome of the Activity	: Students understood how to select various components, design the solar power plant

HoD-EEE

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate course - Students Feedback

Course Name: Solar Power Plant Design

Academic Year: 2023-24

Course/Branch: B.Tech/EEE **Year/Semester:** III/VI

Student Name: Kannan Babu **Reg. No:**

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course improve your documentation skills?

1	2	3	4 ✓

2. Does the course improve your communication skills?

1	2	3	4 ✓

3. Have you learnt any modern tools through this course?

1	2	3	4 ✓

4. Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?

1	2	3	4 ✓

5. Did the courses enable to build your future career?

1	2	3	4 ✓

6. Rate the depth of knowledge about the courses.

1	2	3	4 ✓

7. Are the courses providing good balance between theory and application?

1	2	3	4 ✓

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate course - Students Feedback Analysis

S. No	Parameters	Average
1.	Does this course improve your documentation skills?	4
2.	Does the course improve your communication skills?	3.8
3.	Have you learnt any modern tools through this course?	3.9
4.	Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?	3.95
5.	Did the courses enable to build your future career?	3.9
6.	Rate the depth of knowledge about the courses.	3.8
7.	Are the courses providing good balance between theory and application?	3.9

Course Coordinator **HOD/EEE**

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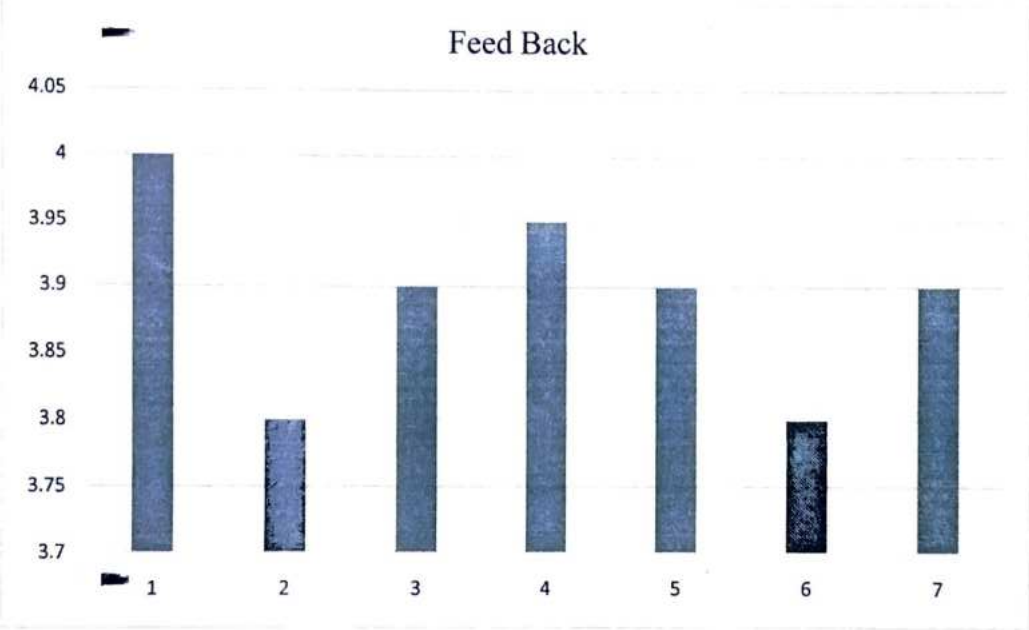
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate course - Students Feedback Analysis

Solar Power Plant Design



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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

This is to certify that ***NELSON E S*** *of Third year B.TechElectrical andElectronics Engineering has successfully completed the certificate course on* ***"Solar Power Plant Designing"*** *for the duration of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

CO-ORDINATOR

PRINCIPAL

PRINCIPAL
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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

This is to certify that ***ADONE SHINCE*** *of Third year B.TechElectrical andElectronics Engineering has successfully completed the certificate course on* ***"Solar Power Plant Designing"*** *for the duration of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

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CO-ORDINATOR

PRINCIPAL

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

This is to certify that ***AISWARYA A S*** *of Third year B.TechElectrical andElectronics Engineering has successfully completed the certificatecourse on* ***"Solar Power Plant Designing"*** *for the duration of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

CO-ORDINATOR

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Electrical and Electronics Engineering

Circular

Ref: MLM/ EEE / Certificate Course / Circular / 2023-24/05 **15.12.2023**

The Department of Electrical and Electronics Engineering is planned to conduct a certificate course for fourth year students. Soit is informed to the students to enroll their names for the Research paper writing course which will held on this year. Students are asked to enroll their names to their respective class advisor on or before 18.12.2023. The course syllabus is attached.

Name of the Course : Research paper writing

Course Duration : 23/12//2023 to 20/01/2024 **(Saturdays)(5 days)**

Time Duration : 09.00 AM to 04.00 PM(6 hours per day)

Subject Handling Faculty : Ms. Sreekala V M, Assistant professor , EEE

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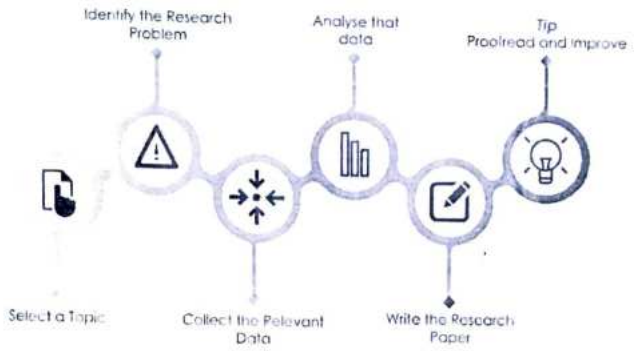
RESEARCH PAPER WRITING



CERTIFICATE COURSE
ON

RESEARCH PAPER WRITING

Course Content

- ✓ To Create Understanding of Writing.
- ✓ Understanding Publishing of Papers.

Course Duration: 23-12-2023 to 20-01-2024

विश्वं शास्त्रे प्रतिष्ठितम्।

Co Ordinator: Ms. Sreekala V M

AP Electrical & Electronics Engineering

VISION

To excel as a premier department in education and research, support our students to shape their dreams of becoming employable committed engineering professionals.

MISSION

Relentlessly strive to create vibrant learning environment, provide state of the art laboratory facilities and actively engage in research and live up to high moral and ethical standards

MANGA' M COLLEGE
OF EN INEERING
Mar lam Hills,
Ve ukal P O
Ettuma r, Kottayam
6631

Time 09 1 to 4.00 PM

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Electrical and Electronics Engineering

1.	Academic Year	: 2023-2024
2.	Tile of the Course	: **Research paper writing**
3.	Objective of the Course	:To create understanding of writing and publishing research papers
4.	Prerequisite	: Nil
5.	Requirement	: S7 class room :
6.	Beneficiary	: S7Students
7.	Date and Duration of the Course	: 23/12//2023 to 20/01/2024 **(Saturdays)(5 days)**
8.	Proposed Timing	: 09.00 AM to 04.00 PM(6 hours per day)
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Ms. Sreekala V M (AP, EEE)
11.	Course Registration Fees	:Nil
12.	Contents of Courses	:Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: Online

COURSE COORDINATOR **HOD/EEE**

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Ettumanoor

CERTIFICATE COURSE

Research paper writing

Course Objective:

- Learn how to properly and efficiently conduct a research project, especially for scientific research
- To write a research paper outline.
- to use citations and references
- to write a conclusion for a research paper..
- to prepare paper using Latex.

Course Outcomes:

- Student knows how to conduct research project.
- Student learns toolsto write equations, matrix and tables.
- Student learn to quote the references, equation references, citations.
- Student knows to use Latex

S.NO.	CONTENT	INSTRUCTIONAL HOURS
	Section 1	
1	Introduction and Application	1
2	Determine the purpose of the paper. .	2
3	Refine your research question	2
4	Page Layout – Titles, Abstract Chapters, Sections, References, Equation references, citation.	3
5	Selecting proper journal	3
	Section 2	
6	Tools for drawing figures	3
7	Preparation of Tables	1
8	Writing equations, Matrix, Mathematical Equations and numbering methods	2
9	Mathematical Symbols and format	1
10	Inserting the bibliography, Citing, Styles.	1
11	Introduction to Latex	2
	Total Hours	=20

Recommended Books:

1. Research Methodology by Kothari.
2. Research Methodology byPaneer Selvam
3. Michael Doenes. Short Math Guide for Latex.

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

List of Students Enrolled for Certificate course – :Research paper writing

Academic Year: 2023-2024 **Batch 2020-2024**

Year: IV/VII Semester

S.No	Register No.	Name of the students
1	MLM20EE001	ABHIJITH N SHENOY
2	MLM20EE002	ABIN MATHEW
3	MLM20EE003	AKASH VARMA
4	MLM20EE004	ALISHYA PHILIP
5	MLM20EE005	ALSHIN ANSARI
6	MLM20EE007	ANANDESHWER E R
7	MLM20EE008	ANANDHU PRAVEEN
8	MLM20EE009	ARATHI SIBI
9	MLM20EE010	ASHIK K R
10	MLM20EE011	ASWIN KUMAR K S
11	MLM20EE013	GIBU K THOMAS
12	MLM20EE015	JEFIN P JOSE
13	MLM20EE016	JUBY JOSEPH
14	MLM20EE017	JUSTIN PETER
15	MLM20EE018	LINTO MATHEW P JOHN
16	MLM20EE019	MANAF NIZAR
17	MLM20EE020	MIDHUN S BABU
18	MLM20EE021	MOHAMAD SHA K
19	MLM20EE023	SEBASTAIN K CHACKO
20	MLM20EE025	SUBIN M JOHN
21	MLM20EE027	VISHNU A S

Course Coordinator **HOD/EEE**

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Attendance of Certificate course – Research paper writing

Academic Year:2023-2024 **Batch 2020-2024**

Year: IV/VII Semester

S.No	Register No.	Name of the students	23/12/23	30/12/23	06/01/24	13/01/24	20/01/24	Total Attendance
1	MLM20EE001	ABHIJITH N SHENOY	✓	✓	✓	✓	✓	100
2	MLM20EE002	ABIN MATHEW	✓	✓	✓	✓	✓	100
3	MLM20EE003	AKASH VARMA	✓	✓	✓	✓	✓	100
4	MLM20EE004	ALISHYA PHILIP	✓	✓	a	✓	✓	80
5	MLM20EE005	ALSHIN ANSARI	✓	✓	✓	✓	✓	100
6	MLM20EE007	ANANDESHWER E R	✓	✓	✓	✓	✓	100
7	MLM20EE008	ANANDHU PRAVEEN	✓	✓	✓	a	✓	80
8	MLM20EE009	ARATHI SIBI	✓	✓	✓	✓	✓	100
9	MLM20EE010	ASHIK K R	✓	✓	✓	✓	✓	100
10	MLM20EE011	ASWIN KUMAR K S	✓	✓	✓	✓	✓	100
11	MLM20EE013	GIBU K THOMAS	✓	✓	✓	✓	✓	100
12	MLM20EE015	JEFIN P JOSE	✓	✓	✓	✓	✓	100
13	MLM20EE016	JUBY JOSEPH	✓	✓	✓	✓	✓	100
14	MLM20EE017	JUSTIN PETER	✓	a	✓	✓	✓	80
15	MLM20EE018	LINTO MATHEW P JOHN	✓	✓	✓	✓	✓	100
16	MLM20EE019	MANAF NIZAR	✓	✓	✓	✓	✓	100
17	MLM20EE020	MIDHUN S BABU	✓	✓	✓	✓	✓	100
18	MLM20EE021	MOHAMAD SHA K	✓	✓	✓	✓	✓	100
19	MLM20EE023	SEBASTAIN K CHACKO	✓	✓	✓	✓	✓	100
20	MLM20EE025	SUBIN M JOHN	✓	✓	✓	✓	a	80
21	MLM20EE027	VISHNU A S	✓	✓	✓	✓	✓	100

Course Coordinator **HOD/EEE**

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CERTIFICATE COURSE –Research paper writing

Date: 22-01-24
Class: II YEAR EEE

Time: 0.30Hrs
Max. Marks: 20

PART – A

Answer all the questions **20 * 1 = 20 Marks**

Write a research paper in IEEE format not exceeding 6 papers

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CERTIFICATE COURSE –Research paper writing

Answers: should contain

Introduction (5 marks)

Materials and Methods (5 marks)

Result and Discussion (5 marks)

References (5 marks)

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Consolidated Report for the Certificate Course - Research paper writing

Academic Year: 2023-2024 **Batch 2020-2024**

Year: IV/VII Semester

Name of the Activity	: Certificate Course
Title of the Activity	: Research paper writing
Staff Incharges	: Ms. Sreekala V M, AP/EEE
Place of the Activity	: Dept. of EEE CAD LAB Mangalam College of Engineering.Ettumanoor.
No. of Participants	: 21
No. of Qualified	: 21
Name & Designation of Expert	: Ms. Sreekala V M, AP/EEE
Objective of the Activity	To expose the students to the basic concepts in research paper writing
Outcome of the Activity	: Students understood how to write research paper

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate course – Research paper writing
Mark Sheet

Academic Year: 2023- 2024 **Batch 2020-2024**

Year: IV/VII Semester

S.No	Reg. No.	Name of the students	Marks (20)	Out of 100
1.	MLM20EE001	ABHIJITH N SHENOY	20	100
2.	MLM20EE002	ABIN MATHEW	14	70
3.	MLM20EE003	AKASH VARMA	15	75
4.	MLM20EE004	ALISHYA PHILIP	18	90
5.	MLM20EE005	ALSHIN ANSARI	17	85
6.	MLM20EE007	ANANDESHWER E R	19	95
7.	MLM20EE008	ANANDHU PRAVEEN	15	75
8.	MLM20EE009	ARATHI SIBI	14	70
9.	MLM20EE010	ASHIK K R	19	95
10.	MLM20EE011	ASWIN KUMAR K S	16	80
11.	MLM20EE013	GIBU K THOMAS	17	85
12.	MLM20EE015	JEFIN P JOSE	18	90
13.	MLM20EE016	JUBY JOSEPH	15	75
14.	MLM20EE017	JUSTIN PETER	20	100
15.	MLM20EE018	LINTO MATHEW P JOHN	19	95
16.	MLM20EE019	MANAF NIZAR	19	95
17.	MLM20EE020	MIDHUN S BABU	20	100
18.	MLM20EE021	MOHAMAD SHA K	17	85
19.	MLM20EE023	SEBASTAIN K CHACKO	16	85
20.	MLM20EE025	SUBIN M JOHN	15	75
21.	MLM20EE027	VISHNU A S	16	80

Course Coordinator **HOD/EEE**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate course - Students Feedback

Course Name: Research paper writing

Academic Year: 2023-2024

Course/Branch: B.Tech/EEE **Year/Semester:** IV/VII

Student Name: Vishnu A.S **Reg. No:**

Feedback Rate: Excellent 4, Good 3, Moderate 2, Poor 1 (Tick any one)

1. Does this course improve your documentation skills?

1	2	3	4 ✓

2. Does the course improve your communication skills?

1	2	3	4 ✓

3. Have you learnt any modern tools through this course?

1	2	3	4 ✓

4. Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?

1	2	3	4 ✓

5. Did the courses enable to build your future career?

1	2	3	4 ✓

6. Rate the depth of knowledge about the courses.

1	2	3	4 ✓

7. Are the courses providing good balance between theory and application?

1	2	3	4 ✓

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Certificate course - Students Feedback Analysis

S. No	Parameters	Average
1.	Does this course improve your documentation skills?	3.7
2.	Does the course improve your communication skills?	3.8
3.	Have you learnt any modern tools through this course?	3.6
4.	Is the syllabus covered fundamentals, advanced topics and ensures balance between theory & applications?	3.7
5.	Did the courses enable to build your future career?	3.7
6.	Rate the depth of knowledge about the courses.	3.8
7.	Are the courses providing good balance between theory and application?	3.6

Course Coordinator **HOD/EEE**

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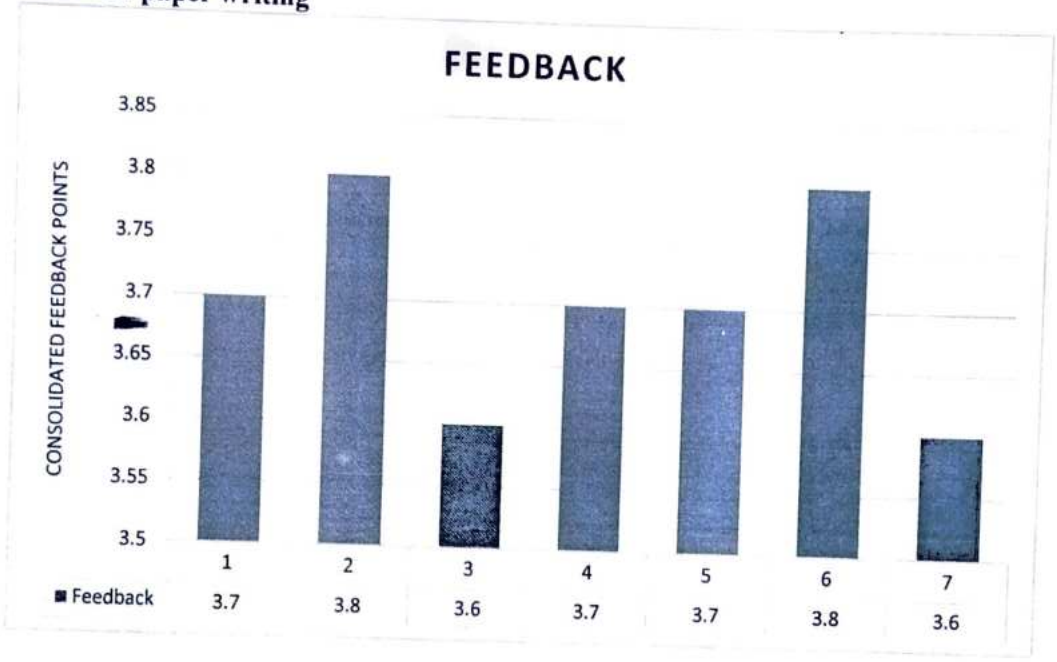
Certificate course - Students Feedback Analysis

Research paper writing



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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

This is to certify that ***AKASH VARMA*** *ofFourth year B.TechElectrical andElectronics Engineering has successfully completed the certificate course on* ***"RESEARCH PAPER WRITING"****for the duration of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

CO-ORDINATOR

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Certificate of Completion

*This is to certify that **ASHIK K R** of Fourth year B.TechElectrical andElectronics Engineering has successfully completed the certificate course on **"RESEARCH PAPER WRITING"** for the duration of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

CO-ORDINATOR

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Certificate of Completion

This is to certify that ***SUBIN M JOHN*** *of Fourth year B.TechElectrical andElectronics Engineering has successfully completed the certificate course on* ***"RESEARCH PAPER WRITING"*** *for the duration of 30 hours organized by the Department of Electrical andElectronics Engineering during the academic year 2023-24.*

CO-ORDINATOR

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DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE
Academic Year: 2023-2024
List of Students Enrolled – REVIT

Sl No.	Name of Student
1	APSARA O B
2	ARATHI P S
3	ARATHY SHAJI
4	ARDRA AJITH
5	ARJUN SURESH
6	ARJUN V S
7	ASHWIN P VINOD
8	ATHUL KRISHNA S
9	ANUGRAHA S SURESH
10	ATHULYA LAL
11	CHRISTEENA JEEMON
12	DHANASHYAM BINO
13	JAYAKRISHNAN P G
14	JITHIN K S
15	JOEL P PAUL
16	JOYEL BENNY
17	KEVIN ANTONY
18	KRISHNA PRIYA V
19	LITTO K M
20	MAHUL MAHENDRA
21	M ARATHY
22	MUHSINA NASRIN S
23	NANDAKUMAR P C
24	NANDANA SAJI
25	NAVYA KRISHNAN R
26	SAMBHU P DAS
27	SANGEETHA REJIMON
28	SARAH ELIZABETH GEOGY
29	SREEPARVATHI P
30	SREYES M B

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Ernakulam

Course Coordinator

HOD/CE

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DEPARTMENT OF CIVIL ENGINEERING

Circular

Ref: MLM/ CE/ Certificate Course / Circular / 2023-24/ 09.02.2024

The Department of Civil Engineering is planned to conduct a certificate course for students. So it is informed to the students to enroll their names for the REVITcourse which will start on 09.03.2023. Students are asked to enroll their names to their respective class advisor on or before 07.04.2023. The course syllabus is attached.

Name of the Course	REVIT
Course Duration	09.03.2023 -07.04.2023
Time Duration	9:00 AM-04:00 PM

COURSE COORDINATOR

HOD

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ERNAKULAM

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

Circular

Ref: MLM/ CE/ Certificate Course / Circular / 2023-24/ 09.02.2024

The Department of Civil Engineering is planned to conduct a certificate course for students. So it is informed to the students to enroll their names for the REVITcourse which will start on 09.03.2023. Students are asked to enroll their names to their respective class advisor on or before 07.04.2023. The course syllabus is attached.

Name of the Course	REVIT
Course Duration	09.03.2023 -07.04.2023
Time Duration	9:00 AM-04:00 PM

COURSE COORDINATOR

DEPARTMENT OF CIVIL ENGINEERING * MANGALAM COLLEGE OF ENGINEERING * ETTUMANOOR KERALA - 686 631

HOD

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From

Head of the Department,
Civil Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 09/02/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

S.No	Name of Add on Course	Year	Total No of Hours	Faculty Coordinator
1	REVIT	2023	60Hrs	Dr.K.Arunkumar

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-CE

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CERTIFICATE COURSE

Course Details

1.	Academic Year	2023-2024
2.	Tile of the Course	REVIT
3.	Objective of the Course	
4.	Prerequisite	Nil
5.	Requirement	Seminar Hall, Computer LAB
6.	Beneficiary	B. Tech Students
7.	Date and Duration of the Course	09.03.2023 to 07.04.2023(60Hours)
8.	Proposed Timing	9:00AM to 04:00 PM
9.	No of Hours Required	60 Hours
10.	Internal Resources	Mr. Abhijithkumar A N AP (CE)
11.	Course Registration Fees	Nil
12.	Contents of Courses	Enclosed Separately
13.	Credits and Certification	Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	Seminar Hall, Computer Lab

COURSE COORDINATOR

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Course Name: REVIT
SYLLABUS

Total hours: 60hrs

Module 1

Overview of BIM- From AutoCad to Revit - Bidirectional Association - Parametric Relationships - Analytical vs. Physical Models - Three Major Elements (Model/View/Annotation)**User Interface and Common Tools**- Menu Bar - Tool Bar - Design Bar - Options Bar - Status Bar/Mouse Tool Tips - Type Selector - Ending a Command - Object Snaps - TAB Key - Editing (Move/Copy/Rotate/Array/Mirror) Viewing the Building Model.

Module 2

Working with Building Elements- Element Categories - Element Families - Element Properties (Options Bar) - Type Properties - Instance Properties - Loading Families - Catalog vs. Non-Catalog Family Libraries - Component vs. System Families**Floor Framing**- Structural Beams - Type Selector (Load if Necessary) - Geometry Offset (Element Property) - Select Work Plane - Usage - Place Individually (Chain in Options Bar) - Place by Grid (Need Structural Columns) - Cantilever Moment Symbol (Element Property) - Beam Systems - Pick Supports vs. Lines - Beam Direction Reset Structural Beams SystemCreating Floor Decks and Slabs.

Module 3

Creating Walls- Wall Types - Wall Categories - Wall Usage - Creating Wall Types - Options Bar - Location Line for Placement and Editing - Modify Wall Profile - Add Openings - Attach Top/Bottom of Wall Creating Foundations - Continuous Footings and Pilasters - Isolated Footings and Grade Beam Slab-on-Grade - Edge Condition Creating an Elevator Pit - Using Wall and Foundation Slab - Elevator Pit (Solid/Void Extrusion) **Creating Views**-More View PropertiesView Range - Underlay - Visibility Graphics vs. Object Styles Creating Floor Plans - Creating Enlarged Plans (Duplicate/Crop Box) - Duplicate with Detailing vs. Duplicate (Annotation is View Specific) Creating Elevations and Sections.

Module 4

Documentation Component Tags- Adding Tags Individually (Drafting Menu Bar) - Adding Leader with Free End (Options Bar) - Tag All Not Tagged (Drafting Menu Bar) - Creating New Tags (Family Based – Edit Family in Options Bar) Dimensions, Elevation Symbols, and Text - Creating New Dimension Types - Placing by Individual Reference (Options Bar) - Placing by Entire Wall (Options Bar) - Edit Witness Line Location - Aligned vs. Linear - Temporary Dimension Settings (Settings>Temporary Dimensions) - Spot Elevation Symbols (Drafting>Spot Dimension) - Creating New Text Type - Add/Remove Leader.

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Course Name: REVIT

Model Questions

1.The Word "Revit" stands for_____

a)Revise Elements b)**Revise Instantly** c)Revise views.

2.Revit was developed in the year_____

a)1982 b)**1999** c)2002 d)1986.

3.The File extension for Revit is_____

a).rte b).**rvt** c).rsp d) .rfa.

4.Revit is a product of _____

a)**Autodesk** b) Revit Technology c) Graphisoft.

5.Revit is mainly based on _____

a)Drafting b)Designing c)**Modelling.**

6.The inbuilt options in Revit are stored as _____

a)Libraries b)**Families** c) Elements.

7.The first company who developed Revit was _____

a)**Charles River Software** b) Autodesk c)Benteley.

8.The dimension displayed while creating elements are known as _____

a)Temporary Dimension b)**Listening Dimension** c)Spot Dimension.

9.The main feature in Revit is _____

a) Views of Section & Elevation b)**Parametric Change** c)Annotations & Text.

10.The model graphics styles are of _____

a)Wireframe b)Hidden c)Shading d)**All the above**

11. In Revit which helps to switch over from one to another view _____

a)Design bar b)**Project Browser** c)Options bar d) Control bar.

12.The template file in Revit has an file extension of _____

a).rvt b).rte c).rfa d).rpl.

13.Thecustomisation of virtual models can be made using _____

a) Families b)**Massing** c)Edit Profile.

14.The height of the wall can be given in _____

a) Options bar b)Instance Properties c)**Both a&b**

15.The instance properties changes is applied for _____

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a)**Only selected Wall** b) All the wall c)Default changes.

16.The thickness of an element can be given in _____

a)Instance Properties b)**Type Properties**

17.The option used to move an object without stretching is _____

a)Constrain b)**Disjoin** c)Drag d) Copy.

18.The Elevation views are to be displayed for creating _____

a)Floor plan b)**Levelsc**) Ceiling plan d)3d view .

19.The Assign Layer option in Revit is applied to an Wall element in _____

a)Instance properties b) Duplicate c)**Type property** d) all the above.

20.The creation of Roof is applied in _____ View.

a)**Sketch view** b) Plan Region c) Floor plan d)3d



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Attendance of Certificate Course – REVIT

Academic Year: 2023-2024

S. No.	Name of Student	9/03/24	13/03/24	16/03	17/03/24	23/03	24/03/24	26/03	31/03	6/4/24	7/4/24	
1	Apsara O B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
2	Arathi P S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	80
3	ArathyShaji	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
4	ArdraAjith	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	80
5	Arjun Suresh	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
6	Arjun V S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
7	Ashwin P Vinod	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
8	Athul Krishna S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
9	Anugraha S Suresh	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
10	ATHULYA LAL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	70
11	CHRISTEENA JEEMON	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
12	DHANASHYAM BINO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
13	JAYAKRISHNAN P G	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
14	JITHIN K S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
15	JOEL P PAUL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
16	JOYEL BENNY	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
17	KEVIN ANTONY	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	80
18	KRISHNA PRIYA V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
19	LITTO K M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100

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20	MAHUL MAHENDRA											100
21	M ARATHY											100
22	MUHSINA NASRIN S											100
23	NANDAKUMAR P C											100
24	NANDANA SAJI											100
25	NAVYA KRISHNAN R											100
26	SAMBHU P DAS											100
27	SANGEETHA REJIMON											100
28	SARAH ELIZABETH GEOGY											100
29	SREEPARVATHI P											80
30	SREYES M B											100

Course Coordinator

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CERTIFICATE COURSE

Consolidated Feedback REVIT

Academic Year: 2023-2024

Questionnaire		Total Response	Yes	No	Strongly Agree	Disagree
THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	30	29	0	-	-
B.	The course contents met with your expectations.	30	-	-	28	2
C.	The lecture sequence was well planned	30	-	-	29	1
D.	The contents were illustrated with	30	-	-	30	0
E.	The level of the course was	30	-	-	30	0
F.	The course contents compared with your expectations	30	-	-	30	0
G.	The course exposed you to new knowledge and practices	30	-	-	26	4
H.	Will you recommend this course to your colleagues?	30	-	-	27	3
I.	The lectures were clear and easy to understand	30	-	-	30	0
J.	The teaching aids were effectively used	30	-	-	30	0
K.	The course material handed out was adequate	30	-	-	28	2
L.	The instructors encouraged interaction and were helpful	30	-	-	30	0
M.	Were objectives of the course realized? Y	30	30	0	-	-
N.	Please give overall rating of the course	30	30	0	-	-
	90% - 100%				23	
	80% - 90%				7	
	70% - 80%				0	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator

HOD

DEPARTMENT OF CIVIL ENGINEERING
MANGALAM COLLEGE OF ENGINEERING
ETTUMANOOR
KERALA - 686 631

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Ettumanoor

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

Certificate Course – REVIT

MARK SHEET

Academic Year: 2022-2023

S. No.	Name of Student	Mark (20)	Out of 100
1	Apsara O B	18	90
2	Arathi P S	16	80
3	Arathy Shaji	15	75
4	Ardra Ajith	14	70
5	Arjun Suresh	19	95
6	Arjun V S	14	70
7	Ashwin P Vinod	15	75
8	Athul Krishna S	14	70
9	Anugraha S Suresh	19	95
10	Athulya Lal	19	95
11	Christeena Jeemon	20	100
12	Dhanashyam Bino	15	75
13	Jayakrishnan P G	18	90
14	Jithin K S	16	80
15	Joel P Paul	15	75
16	Joyel Benny	14	70
17	Kevin Antony	19	95
18	Krishna Priya V	20	100
19	Litto K M	15	75
20	Mahul Mahendra	18	90
21	M Arathy	16	80
22	Muhsina Nasrin S	15	75
23	Nandakumar P C	14	70
24	Nandana Saji	19	95
25	Navya Krishnan R	14	70
26	Sambhu P Das	15	75
27	Sangeetha Rejimon	14	70
28	Sarah Elizabeth Geogy	19	95
29	Sreeparvathi P	16	80
30	Sreyes M B	19	95

Course Coordinator

HoD

PRINCIPAL
MANGALAM COLLEGE OF ENGINEER

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
Ministry of Micro, Small and Medium Enterprises
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
Government of India Society
भारत सरकार की सोसाइटी
Foundry Nagar, Agra-282 006 (U.P.)
फाउन्ड्री नगर, आगरा-282 006 (उ.प्र.)

PPDC

Reg. No : 185377

प्रमाण-पत्र

Certificate

This is to certify that

Arathi P S

D/o Sudheesh Kumar M P

has successfully completed the training

on

REVIT

from 09.03.2023 to 07.04.2023 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

DATE : May 07, 2024
PLACE : AGRA

No. PPDC/Trg./OSP/2023-24/23587

PRINCIPAL
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Ettumanoor

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
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Government of India Society
भारत सरकार की सोसाइटी
Foundry Nagar, Agra-282 006 (U.P.)
फाउन्ड्री नगर, आगरा-282 006 (उ.प्र.)

PPDC

Reg. No : 185400

प्रमाण-पत्र

Certificate

This is to certify that

Navya Krishnan

D/o Krsihnan

has successfully completed the training

on

REVIT

from 09.03.2023 to 07.04.2023 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

MSME-TDC (PPDC) AGRA

DATE : May 07, 2024
PLACE : AGRA

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23610

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

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Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No : 185402

प्रमाण-पत्र

Certificate

This is to certify that

Sangeetha Rejimon

D/o Rejimon

has successfully completed the training

on

REVIT

from 09.03.2023 to 07.04.2023 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

DATE : May 07, 2024
PLACE : AGRA

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING

No. PPDC/Trg./OSP/2023-24/23612

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

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Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा-282 006 (उ.प्र.)

PPDC

Reg. No : 185392

प्रमाण-पत्र

Certificate

This is to certify that

Kevin Antony

S/o Antony

has successfully completed the training

on

REVIT

from 09.03.2023 to 07.04.2023 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

MSME-TDC (PPDC) AGRA

DATE : May 07, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

No. PPDC/Trg./OSP/2023-24/23602

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

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Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा-282 006 (उ.प्र.)

PPDC

Reg. No : 185323

प्रमाण-पत्र

Certificate

This is to certify that

Anumol

D/o Reji Krishnan A K

has successfully completed the training

on

REVIT

from 09.03.2023 to 07.04.2023 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

MSME-TDC (PPDC) AGRA

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

DATE : May 07, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23533

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

List of Students Enrolled for Certificate course – BIM

Academic Year: 2023-2024

Sl No.	Name of Student
1	ABHIJITH R
2	ABHIJITH SHINOJI
3	ABHINAV ANANDAN
4	ABHIRAMI JAYAKUMAR
5	ABHISHEK
6	ABIN SABU
7	ADHARSH M PRADEEP
8	ADHULDEV MADHU
9	ADITHYALAKSHMI S
10	AJAY PRAKASH
11	AJITH KM
12	AKHILA SANTHOSH
13	ALBEY JOSEPH
14	ALEENA PRASAD
15	ALEENA V. M.
16	ALTHAF TA
17	AMRITHA BABY
18	ANAND PUSHPARAJ
19	ANUSHA S
20	ANUSREE K S
21	APARNA REVI
22	MUHAMMED ANEES
23	NANDANA P
24	NANDHANA VENU
25	NIJO J ZACHARIAH

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	PARVATHY. P. BIJU
27	PARVATHY RAJEEV
28	RION JOHN POVIL
29	SALMAN SULFIKAR
30	SANDRA VARGHESE
31	SAYANA SANTHOSH
32	SHALU BOSE
33	SREELEKSHMI R
34	SREENATH V R

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Ettumanoor

Course Coordinator

HOD/CE

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

Department of Civil Engineering

Circular

Ref: MLM/ CE/ Certificate Course / Circular / 2023-24/ 15.08.2023

The Department of Civil Engineering is planned to conduct a certificate course for students. So it is informed to the students to enroll their names for the BIM course which will start on 22.08.2023. Students are asked to enroll their names to their respective class advisor on or before 30.08.2023. The course syllabus is attached.

Name of the Course : BIM

Course Duration : 02.09.2023 -8.10.2023

Time Duration : 9:00 AM-04:00 PM

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DEPARTMENT OF CIVIL ENGINEERING

Department of CivilEngineering

1.	Academic Year	: 2023-2024
2.	Tile of the Course	: BIM
3.	Objective of the Course	:
4.	Prerequisite	: Nil
5.	Requirement	: Seminar Hall, Computer LAB
6.	Beneficiary	: BtechStudents
7.	Date and Duration of the Course	:02.09.2023 to 08.10.2023(60Hours)
8.	Proposed Timing	: 9:00AM to 04:00 PM
9.	No of Hours Required	: 60 Hours
10.	Internal Resources	: Mr. Abhijithkumar A N AP (CE)
11.	Course Registration Fees	:Nil
12.	Contents of Courses	:Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: Seminar Hall, Computer Lab

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MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

COURSE COORDINATOR

HOD

From

Head of the Department,
Civil Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 15/08/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

S.No	Name of Add on Course	Year	Total No. of Hours	Course-Incharge
1	BIM	2023	60Hrs	Dr.P.Swaminathan

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-CE

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

Course Name: BIM

SYLLABUS

REVIT ARCHITECTURE- Overview of the Revit interface General drawing tools AutoCAD file import, Unit setting, levels and grids working with a project, Navigation between Views, Drawing and modifying Walls, Plastering, Skirting and Dado, Wall sweep and wall revel, Working with Curtain wall, Adding, loading & creating Doors and Windows, Wall opening, Drawing and modifying structural element-Footing, Column, Beam, Slab Creating Floors &Roof, Site Design & modifying Topo surfaces, Structural Tools raming plans and elevations, Creating building sections, Cleaning up Wall and Roof intersections, Creating Stairs, Ramps, Lifts, Railings, Adding furniture and fixtures to a project Creating interior elevations, Managing Views, Annotating construction documents, Adding tags and working with schedules Massing studies, Create Family using Forms, Working with schedules, Working in Work set for team collaboration, Using links and groups, Sheet composition, Advanced modeling tools, annotating and view setup, Space planning & are aanalysis, Visualization, perspectives & creating Walk throughs Creating custom templates Custom Walls, Roofs & sections, Creating specific Families, BIM management

REVIT STRUCTURE - Introduction to the Autodesk Revit software, Basic drawing and editing tools, setting up levels and grids, working with views, starting a structural project based on a linked architectural model, Adding structural columns and walls, Adding foundations and structural slabs, Structural reinforcement, Beams, trusses, and framing systems, Construction documents, Annotating construction documents, Detailing, Scheduling, Project Team Collaboration, Revit MEP, BIM Modelling, Introduction MEP, Design Revit MEP, Graphical User Interface, Ribbon Quick Access, Toolbar andOptionsBar, Properties Palette View, Control Bar Status Bar and Info Centre User Interface, Control Menus and Settings, Keyboard Shortcuts, Worksharing Link, Revit Shared Coordinates, Controlling Visibility, Copy/Monitor Link CAD, Family Creation.

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DEPARTMENT OF CIVIL ENGINEERING

Course Name: BIM

Model Questions

1. What is Building Information Modeling (BIM)?

   a) A civil engineering concepts
   b) A 3D model-based process used in architecture, engineering, and construction (AEC)
   c) A type of building construction
   d) A software program for 2D drafting

2. What is one key component of BIM?

   a) Digital representations of the physical and functional characteristics of a facility
   b) Physical prototypes of the building in miniature size
   c) Construction equipment monitoring
   d) General architectural design

3. What is the primary goal of BIM?

   a) Increase collaboration and integration throughout the building lifecycle
   b) Simplify the process of 2D drafting
   c) Reduce the need for physical modeling
   d) Provide detailed renderings for a project's stakeholders

4. How does BIM improve coordination among stakeholders?

   a) By automating stakeholder reports
   b) By eliminating the need for stakeholder involvement during design phase
   c) By providing individual models for each stakeholder
   d) By allowing all stakeholders to work on a single, shared model

5. Which of these is not a benefit of using BIM?

   a) Improves project timelines and cost estimation
   b) Minimizes errors and enhances collaboration
   c) Facilitates more accurate, rapid, and feasible visualization
   d) Reduces the need for project documentation

6. What is a 'parametric' quality of a BIM model?

   a) The model size and complexity can be adjusted based on the project's budget
   b) Changing one part of the model will automatically update the rest of the model to accommodate this change
   c) The model can be transferred from one software to another without data loss
   d) The 3D model can be broken down into 2D components for printing

7. What level of the BIM maturity model is associated with fully integrated and collaborative processes?

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a) Level 3
b) Level 0
c) Level 1
d) Level 2

8. Which software is largely used to perform BIM?

a) Adobe Illustrator
b) Microsoft Excel
c) Final Cut Pro
d) Autodesk Revit

9. Which of the following is an advanced use of BIM beyond visualization and clash detection?

a) Moving the model to different angles for better views
b) Quantity Take-off (QTO)
c) Creating a 3D model from 2D drawings
d) Applying textures and colors to the model

10. Which stage in the lifecycle of a construction project does BIM impact the most?

a) Final handover stage
b) Demolition stage
c) Initial concept stage
d) Design and construction stages

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DEPARTMENT OF CIVIL ENGINEERING

Attendance of Certificate Course –BIM

Academic Year: 2023-2024 (SEPT-OCT)

S. No.	Name of Student	02/09/23	03/09/23	09/09/23	10/09/23	16/09/23	17/09	23/09	24/09	07/10	08/10	
1	ABHIJITH R	P	P	P	P	P	P	P	P	P	P	100
2	ABHIJITH SHINOJI	P	P	P	P	P	P	P	P	P	P	100
3	ABHINAV ANANDAN	P	P	P	P	P	P	P	P	P	P	100
4	ABHIRAMI JAYAKUMAR	P	P	A	A	P	P	P	P	P	P	80
5	ABHISHEK	P	P	P	P	P	P	P	P	P	P	100
6	ABIN SABU	P	P	P	P	P	P	P	P	P	P	100
7	ADHARSHM PRADEEP	P	P	P	P	P	P	P	P	P	P	100
8	ADHULDEV MADHU	P	P	P	P	P	P	P	P	P	P	100
9	ADITHYA LAKSHMIS	P	P	P	P	P	P	P	P	P	P	100
10	AJAY PRAKASH	P	P	A	A	A	P	P	P	P	P	70
11	AJITH K M	P	P	P	P	P	P	P	P	P	P	100
12	AKHILA SANTHOSH	P	P	P	P	P	P	P	P	P	P	100
13	ALBEY JOSEPH	P	P	P	P	P	P	P	P	P	P	100
14	ALEENA PRASAD	P	P	P	P	P	P	P	P	P	P	100
15	ALEENA V.M.	P	P	P	P	P	P	P	P	P	P	100
16	ALTHAF TA	P	P	P	P	P	P	P	P	P	P	100
17	AMRITH A BABY	P	P	P	P	P		A	A	P	P	80
18	ANAND PUSHPARAJ	P	P	P	P	P	P	P	P	P	P	100
19	ANUSHA S	P	P	P	P	P	P	P	P	P	P	100

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DEPARTMENT OF CIVIL ENGINEERING

20	ANUSREE K S											100
21	APARNA REVI											100
22	MUHAMMED ANEES											100
23	NANDANA P											100
24	NANDHANA VENU											100
25	NIJO JZACHARIAH											70
26	PARVATHY.P.BIJU											100
27	PARVATHY RAJEEV											100
28	RION JOHN POVIL											100
29	SALMAN SULFIKAR											100
30	SANDRA VARGHESE											100
31	SAYANA SANTHOSH											100
32	SHALU BOSE											70
33	SREELEKSHMI R											100
34	SREENATH V R											100

Course Coordinator

HoD CE

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DEPARTMENT OF CIVIL ENGINEERING

Academic Year: 2023-2024

Course Name –BIM

MARK SHEET

S. No.	Name of Student	Mark (20)	Out of 100
1	ABHIJITH R	19	95
2	ABHIJITH SHINOJI	14	70
3	ABHINAV ANANDAN	19	95
4	ABHIRAMI JAYAKUMAR	14	70
5	ABHISHEK	19	95
6	ABIN SABU	14	70
7	ADHARSH M PRADEEP	15	75
8	ADHULDEV MADHU	14	70
9	ADITHYALAKSHMI S	19	95
10	AJAY PRAKASH	19	95
11	AJITH KM	20	100
12	AKHILA SANTHOSH	15	75
13	ALBEY JOSEPH	18	90
14	ALEENA PRASAD	16	80
15	ALEENA V. M.	15	75
16	ALTHAF TA	18	90
17	AMRITHA BABY	16	80
18	ANAND PUSHPARAJ	15	75
19	ANUSHA S	14	70
20	ANUSREE K S	19	95
21	APARNA REVI	14	70
22	MUHAMMED ANEES	15	75
23	NANDANA P	15	75
24	NANDHANA VENU	14	70
25	NIJO J ZACHARIAH	19	95
26	PARVATHY. P. BIJU	19	95
27	PARVATHY RAJEEV	20	100
28	RION JOHN POVIL	19	95
29	SALMAN SULFIKAR	14	70
30	SANDRA VARGHESE	19	95
31	SAYANA SANTHOSH	14	70
32	SHALU BOSE	19	95
33	SREELEKSHMI R	19	95
34	SREENATH V R	14	70

Course Coordinator

HoD

DEPARTMENT OF CIVIL ENGINEERING ★ MANGALAM COLLEGE OF ENGG ★ ETTUMANOOR KERALA - 686 631

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DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE

Consolidated Feedback: BIM

Academic Year: 2023-2024

	Questionnaire	Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A.	Were objectives of the course clear to you?	34	34	0	-	-
B.	The course contents met with your expectations.	34	-	-	30	4
C.	The lecture sequence was well planned	34	-	-	32	2
D.	The contents were illustrated with	34	-	-	32	2
E.	The level of the course was	34	-	-	31	3
F.	The course contents compared with your expectations	34	-	-	31	3
G.	The course exposed you to new knowledge and practices	34	-	-	30	4
H.	Will you recommend this course to your colleagues?	34	-	-	32	2
I.	The lectures were clear and easy to understand	34	-	-	32	
J.	The teaching aids were effectively used	34	-	-	32	2
K.	The course material handed out was adequate	34	-	-	31	3
L.	The instructors encouraged interaction and were helpful	34	-	-	31	3
M.	Were objectives of the course realized? Y	34	34	0	-	-
N.	Please give overall rating of the course				26	
	90% - 100%				6	
	80% - 90%				2	
	70% - 80%				0	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator

HOD

DEPARTMENT OF CIVIL ENGINEERING
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KERALA - 686 631

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MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
Ministry of Micro, Small and Medium Enterprises
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
Government of India Society
भारत सरकार की सोसाइटी
Foundry Nagar, Agra-282 006 (U.P.)
फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Reg. No :185428

प्रमाण-पत्र

Certificate

This is to certify that

Nandana P

D/o Jijesh Kumar P

has successfully completed the training

on

BUILDING INFORMATION MODEL (BIM)

from 02.09.2023 to 08.10.2023 (60hrs)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
ETTUMANOOR

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23638

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
Ministry of Micro, Small and Medium Enterprises
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
Government of India Society
भारत सरकार की सोसाइटी
Foundry Nagar, Agra-282 006 (U.P.)
फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Reg. No :185437

प्रमाण-पत्र

Certificate

This is to certify that

Shalu Bose

S/o Shajan Bose

has successfully completed the training

on

BUILDING INFORMATION MODEL (BIM)

from 02.09.2023 to 08.10.2023 (60hrs)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23647

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
Ministry of Micro, Small and Medium Enterprises
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
Government of India Society
भारत सरकार की सोसाइटी
Foundry Nagar, Agra-282 006 (U.P.)
फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Reg. No :185433

प्रमाण-पत्र

Certificate

This is to certify that

Rion John Povil

S/o John P J

has successfully completed the training

on

BUILDING INFORMATION MODEL (BIM)

from 02.09.2023 to 08.10.2023 (60hrs)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23643

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

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भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No : 185432

प्रमाण-पत्र

Certificate

This is to certify that

Parvathy Rajeev

D/o D Rajeev

has successfully completed the training

on

BUILDING INFORMATION MODEL (BIM)

from 02.09.2023 to 08.10.2023 (60hrs)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23642

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Reg. No :185430

प्रमाण-पत्र

Certificate

This is to certify that

Nijo J Zacharia

S/o Zacharia Joseph

has successfully completed the training

on

BUILDING INFORMATION MODEL (BIM)

from 02.09.2023 to 08.10.2023 (60hrs)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024

PLACE : AGRA

(SACHIN RAJPAL)

PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23640

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

List of Students Enrolled for Certificate course –PRIMAVERA

Academic Year: 2023-2024

Sl No.	Name of Student
1	Abhijith Jayan
2	Abhijith M A
3	Abhijith P
4	Abhijith Ram
5	Abhimanyu Sanalkumar
6	Abhiram Chandran
7	Abhishek N M
8	Achu Vijayan
9	Afida Anwar
10	Aiswarya Lakshmy
11	Ajmal Fizel
12	Akshay M S
13	Akshaya Biju
14	Anakha Satheesh
15	Anamika S
16	Anchal S
17	Anjali K S
18	Anjima VM
19	Anujith M Venugopal
20	Anumol R
21	Anvitha P K
22	Apsara O B
23	Arathi P S

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	Arathy Shaji
25	Ardra Ajith
26	Kevin Antony
27	Krishna Priya V
28	Litto K M
29	Mahul Mahendra
30	M Arathy
31	Muhsina Nasrin S
32	Nandakumar P C
33	Nandana Saji
34	Navya Krishnan R
35	Sambhu P Das
36	Sangeetha Rejimon
37	Sarah Elizabeth Geogy
38	Sreeparvathi P

Course Coordinator

HOD/CE

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Ettumanoor

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

Circular

Ref: MLM/ CE/ Certificate Course / Circular / 2023-24/ 09.09.2023

The Department of Civil Engineering is planned to conduct a certificate course for students. So it is informed to the students to enroll their names for the PRIMAVERAcourse which will start on 16.09.2023. Students are asked to enroll their names to their respective class advisor on or before 15.10.2023. The course syllabus is attached.

Name of the Course	PRIMEVERA
Course Duration	16.09.2023 -15.10.2023
Time Duration	9:00 AM-04:00 PM

COURSE COORDINATOR

HOD

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

From

Head of the Department,
Civil Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 09/09/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

S.No	Name of Add on Course	Year	Total No of Hours	Faculty Coordinat..
1	PRIMAVERA	2023	60Hrs	Dr.P.Swaminathan

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD/CE

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

1.	Academic Year	2023-2024
2.	Tile of the Course	PRIMAVERA
3.	Objective of the Course	
4.	Prerequisite	Nil
5.	Requirement	Seminar Hall, Computer LAB
6.	Beneficiary	BtechStudents
7.	Date and Duration of the Course	16.09.2023 to 15.10.2023(60Hours)
8.	Proposed Timing	9:00AM to 04:00 PM
9.	No of Hours Required	60 Hours
10.	Internal Resources	Mr. Abhijithkumar A N AP (CE)
11.	Course Registration Fees	Nil
12.	Contents of Courses	Enclosed Separately
13.	Credits and Certification	Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	Seminar Hall, Computer Lab

COURSE COORDINATOR

HOD

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Ettumanoor

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

Attendance of Certificate Course – PRIMAVERA

Academic Year: 2023-2024

S. No.	Name of Student	16/09/23	17/09/23	23/09/23	24/09/23	30/09/23	1/10/23	7/10/23	8/10/23	14/10/23	15/10/23	
1	AbhijithJayan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
2	Abhijith M A	✓	✓	✓	✓	✓	✓	✓	✓	a	a	80
3	Abhijith P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
4	Abhijith Ram	✓	✓	✓	✓	a	a	✓	✓	✓	✓	80
5	Abhimanyu Sanalkumar	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
6	AbhiramChandran	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
7	Abhishek N M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
8	AchuVijayan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
9	Afida Anwar	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
10	AiswaryaLakshmy	✓	✓	a	a	a	✓	✓	✓	✓	✓	70
11	AjmalFizel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
12	Akshay M S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
13	AkshayaBiju	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
14	AnakhaSatheesh	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
15	AnamikaS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
16	Anchal S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
17	Anjali K S	✓	a	✓	✓	✓	✓	✓	✓	✓	✓	80
18	Anjima VM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
19	AnujithM Venugopal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100

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DEPARTMENT OF CIVIL ENGINEERING

20	Anumol R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
21	Anvitha P K	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
22	Apsara O B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
23	Arathi P S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
24	ArathyShaji	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
25	ArdraAjith	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
26	Kevin Antony	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
27	Krishna Priya V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
28	Litto K M	✓	a	✓	✓	✓	✓	✓	✓	a	✓	80
29	MahulMahendra	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
30	M Arathy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
31	MuhsinaNasrin S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
32	Nandakumar P C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
33	NandanaSaji	a	a	✓	✓	✓	✓	✓	✓	✓	✓	80
34	Navya Krishnan R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
35	Sambhu P Das	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
36	SangeethaRejimon	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
37	Sarah Elizabeth Geogy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
38	Sreeparvathi P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100

Course Coordinator

HoD CE

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

Course Name: PRIMAVERA P6

SYLLABUS **Total hours: 60hrs**

MODULE1

Introduction Main skills Planning Engineer Responsibilities Planning Main Skills The Content Of Project Management Plan How to read and understand Primavera Time Schedule Project Cash flow and Manpower Histogram Shop Drawings Tracking Log Materials Procurement Tracking Log Weekly / Monthly ReportsExcel Fundamentals For Planning Engineers Excel Fundamentals for Planning Engineers Create Activity List with what you learned

MODULE 2

Oracle Primavera Fundamentals Primavera Step by Step Download and Setup - Create Activity List And Cost Loading Create Activity List and Cost Loading - Create Schedule Time Frame In Primavera Create WBS and Activity codes in primavera Import activity list from Excel to Primavera Estimate the activities duration in Primavera Link Activities and define activities relationships in Primavera Add the cost to each activity in the schedule - Add-Shop-Drawings-And-Materials-Time-Schedule Add shop drawings to the time schedule Add materials submittals, approvals, procurement and link them to activities Create shop drawing -and-procurement tracking log .

MODULE 3

Estimate Manpower - Manpower Loading Sheet Estimate the Manpower Create resource loading sheet on excel Standard Labor Productivity rates How to import Manpower from Excel to primavera, Review A Primavera Time Schedule How to review a primavera time schedule for contractor and client

MODULE 4

Create Cash Flow And Manpower Histogram How to create Cash Flow How to create Man Power Histogram ,Create Baseline, Payment Certificate And Update The Schedule Create baseline, Payment Certificate and update the schedule, Samples Of Projects, Templates And Reports Installing And Managing Primavera P6 Databases Installing and Managing Primavera P6 Databases

IQAC

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Course Name: PRIMAVERA P6

Model Questions

1. What is the difference between free float, and total float, and what is the difference between Float and Slack?

Float and slack are two different words with the same meaning.

- **Free Float:** the amount of time, an activity can be delayed without delaying the successor activity
- **Total Float:** the amount of time, an activity can be delayed without delaying the project finish date.

2. What is a constraint in primavera?

Constraints in primavera are to fix the start or finish date as per the following options:

1. Project Must Finish by
2. Mandatory Start / Mandatory Finish
3. Start / Finish On or After
4. Start / Finish On or Before
5. Start / Finish On
6. Expected Finish

3. How can you define the Critical Path in PRIMAVERA?

It's the longest path through the project with the least amount of float, Filter the activities with a total float equal to or less than 0

4. What is WBS?

WBS means Work Breakdown Structure. it represents a hierarchical breakdown of a Project into elements and deliverables.

5. What is an open-end activity in primavera?

An open-end activity is an activity that does not have any successor. Normally open-end activity is not accepted in the schedule because the total float will be calculated from the end of the project and these entire activities' late dates gather at the end of the project and can not prepare a logical late start plan.

6. What is the difference between Retained Logic & Override Logic in progress updates?

- If a project is generally running according to plan and activities are not progressed out of sequence then there will be virtually no difference between the two methods. BIG differences come when activities are progressed out of sequence.
- I believe in retained logic. Invariably that will produce the longest critical path but if activities have progressed out of sequence, there could be some resulting illogical dependencies remaining, in particular resulting from dependencies with durations.
- Progress override invariably produces a shorter critical path and again there could be some illogical lack of dependencies resulting from activities having progressed out of sequence.

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7. How do you measure & compare the progress using primavera?

Progress can be measured using EVM earned value management as per the following terms:

- Budget at Completion (BAC)
- Planned Value (PV) = budget at Completion (BAC) x Planned % Complete
- Earned Value (EV) = budget at Completion (BAC) x Actual% Complete
- Actual Cost (AC) = No formula What you've actually spent on the project
- Schedule Performance Index (SPI) =Earned Value (EV) / Planned Value (PV)

8. What are resource allocation and resource leveling?

- Resource allocation is assigning resources to activities, and determining the amount of labor, equipment, and money required for any activity.
- Resource leveling is the Resource requirements of all scheduled activities that are compared to the maximum quantity available at the time of leveling. An activity is delayed if too few resources are available at any time during the activity's duration.
- The maximum quantity for a resource is determined through the Max units/time for a particular resource in the Resources Tab.

9. What is an S – Curve and how to create S Curve in PRIMAVERA?

- An S-curve is the cumulative cost function plotted on a histogram, which can vaguely resemble the letter S. BCWS, BCWP, and ACWP are frequently plotted and compared on a histogram as separate and "shadowing" S-curves.
- Use the Activity Usage Profile to view cost or unit values for activities in the open project over time according to a timescale you specify. The Activity Usage Profile displays resource allocations for all activities or for the activities you select in the Activity Table, Activity Usage Spreadsheet, Gantt Chart, or the Activity Network.

10. What is the difference between flag and milestone activity in primavera?

Milestones & flags both are events rather than activities. Some client likes to use flags rather than milestone due to the following differences.

1. With the use of flags, the logic of the main event can be easily tracked as these can not be created without a predecessor as a stand-alone allocating the constraint. Whereas milestones can.
2. Flags can not update manually as Primavera automatically update the status whereas milestone can be updated manually.
3. Flags can not be constrained only driven by predecessors whereas milestones can.

Primavera P6 Interview Questions For Experienced

11. How have you improved project controls processes at your previous company?

Project Controllers don't necessarily get the chance to influence final project decisions but they do get the opportunity to offer suggestions. This shows if they have ideas and want to express them, hopefully making things a bit better for everyone.

12. What is Primavera P6?

Primavera P6 is the official project management software tool employed worldwide in enterprises such as Construction, Oil & Gas, Manufacturing, Energy, and even IT. While there are loads of project administration tools in the business, Primavera P6 polishes in being capable to manage huge and complicated projects and doing it thoroughly.

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13. What is the cost of primavera p6?
If you desire to have the regular license of Primavera P6, indicating that you want to have the software for experience, then it will require you US$2,500. In extension to the licensing price, you are also required to pay US$550 for the preeminent year of software update and maintenance.

14. What is portfolio management?
Portfolio management is a phrase utilized by project management experts to illustrate methods for examining and collectively maintaining a combination of current or proposed projects based on various key features. The primary objective is to discover the optimal mix and sequencing of recommended projects to best accomplish the company's overall aims typically couched in the duration of tough economic measures, business approach goals, or technical approach goals while acknowledging limitations required by the administration or external real-world circumstances.

15. Compare between primavera contractor and primavera p6?
Primavera Contractor is Primavera's entry-level project control product, intended to provide contractors to transfer planning data with users utilizing P6 EPPM or PPM for their project superintendence. It contributes a related level of functionality to Microsoft Project but can create the .xer files typically needed for bid obedience on superior engineering and development projects.

16. Can one purchase p3 or Suretrack?
Regrettably no, they were eliminated from the business at the end of 2010. The most proximate equivalents from the contemporary product assortment are P6 PPM or Contractor

17. List the industries where primavera is significantly used?
Oil and Gas, Construction and Engineering

18. Explain the primavera schedule?
A Primavera P6 schedule is usually needed at the commencement of a project, regardless of whether it is easy or complicated, to determine the extent of the project and its actions. A schedule must be made earlier to begin the project. It must be a strong plan that beats out what requires to be completed, by whom and when, while evaluating any hazards to the project. This is all achieved with the aim of giving the deliverables of the project to the quality measures while completing on point and on resources.

19. What is the planning stage in creating a primavera p6 schedule?
Where a project description is made explaining the project, highlighting all aspects. Subsections could involve legal elements, Quality Assurance, and so on.

20. What are the milestones in creating a primavera p6 schedule?
Activities spell out the actions to reach a Milestone. Milestones contain a decided date yet no span and are a particular point in time throughout the project lifecycle. They are utilized to include progress towards achievement. They may be introduced for budget remittances or as a source point, which marks a significant event or choice point inside the scheme.

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DEPARTMENT OF CIVIL ENGINEERING

Academic Year: 2023-2024

Course Name –PRIMEVERA

MARK SHEET

S. No.	Name of Student	Mark (20)	Out of 100
1	ABHIJITH JAYAN	18	90
2	ABHIJITH M A	16	80
3	ABHIJITH P	15	75
4	ABHIJITH RAM	14	70
5	ABHIMANYU SANALKUMAR	19	95
6	ABHIRAM CHANDRAN	14	70
7	ABHISHEK N M	15	75
8	ACHU VIJAYAN	14	70
9	AFIDA ANWAR	19	95
10	AISWARYA LAKSHMY	19	95
11	AJMAL FIZEL	20	100
12	AKSHAY M S	15	75
13	AKSHAYA BIJU	18	90
14	ANAKHA SATHEESH	16	80
15	ANAMIKA S	15	75
16	ANCHAL S	14	70
17	ANJALI K S	19	95
18	ANJIMA VM	20	100
19	ANUJITH M VENUGOPAL	15	75
20	ANUMOL R	18	90
21	ANVITHA P K	16	80
22	APSARA O B	15	75
23	ARATHI P S	14	70
24	ARATHY SHAJI	19	95
25	ARDRA AJITH	14	70
26	KEVIN ANTONY	15	75
27	KRISHNA PRIYA V	14	70
28	LITTO K M	19	95
29	MAHUL MAHENDRA	16	80
30	M ARATHY	18	90
31	MUHSINA NASRIN S	16	80
32	NANDAKUMAR P C	15	75
33	NANDANA SAJI	14	70
34	NAVYA KRISHNAN R	19	95
35	SAMBHU P DAS	14	70
36	SANGEETHA REJIMON	15	75
37	SARAH ELIZABETH GEOGY	14	70
38	SREEPARVATHI P	18	90

Course Coordinator

HoD

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DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE

Consolidated Feedback PRIMEVERA

Academic Year: 2023-2024

Questionnaire		Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A.	Were objectives of the course clear to you?	38	38	0	-	-
B.	The course contents met with your expectations.	38	-	-	35	3
C.	The lecture sequence was well planned	38	-	-	36	2
D.	The contents were illustrated with	38	-	-	33	5
E.	The level of the course was	38	-	-	35	3
F.	The course contents compared with your expectations	38	-	-	35	3
G.	The course exposed you to new knowledge and practices	38	-	-	35	3
H.	Will you recommend this course to your colleagues?	38	-	-	35	3
I.	The lectures were clear and easy to understand	38	-	-	33	5
J.	The teaching aids were effectively used	38	-	-	35	3
K.	The course material handed out was adequate	38	-	-	35	3
L.	The instructors encouraged interaction and were helpful	38	-	-	35	3
M.	Were objectives of the course realized? Y	38	38	0	-	-
N.	Please give overall rating of the course				30	
	90% - 100%				5	
	80% - 90%				2	
	70% - 80%				1	
	60% - 70%				0	
	50% - 60%				0	
	below 50%	38	38	0	-	-

Course Coordinator

HOD

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Ettimadai

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

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Ministry of Micro, Small and Medium Enterprises

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Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Reg. No : 185318

प्रमाण-पत्र

Certificate

This is to certify that

Anamika S

D/o M P Mohan

has successfully completed the training

on

PRIMEVERA

from 16.09.2023 to 15.10.2023 (60hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

DATE : January 24, 2024
PLACE : AGRA

No. PPDC/Trg./OSP/2023-24/23528

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

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Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Undertaking

भारत सरकार का उपक्रम

Foundry Nagar, Agra-282 006 (U.P.)

फाउंड्री नगर, आगरा-282 006 (उ.प्र.)

PPDC

Reg. No : 165311

प्रमाण-पत्र

Certificate

This is to certify that

Achu Vijayan

S/o Vijayan K K

has successfully completed the training

on

PRIMEVERA

from 16.09.2023 to 15.10.2023 (60hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MARIAN ENGINEERING COLLEGE
Ettumanoor

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23521

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा-282 006 (उ.प्र.)

PPDC

Reg. No :185309

प्रमाण-पत्र

Certificate

This is to certify that

Abhiram Chandran

S/o Chandran N K

has successfully completed the training

on

PRIMEVERA

from 16.09.2023 to 15.10.2023 (60hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23519

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
Ministry of Micro, Small and Medium Enterprises
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
Government of India Society
भारत सरकार की सोसाइटी
Foundry Nagar, Agra-282 006 (U.P.)
फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No : 185308

प्रमाण-पत्र

Certificate

This is to certify that

Abhimanyu Sanalkumar

S/o Sanalkumar T

has successfully completed the training

on

PRIMEVERA

from 16.09.2023 to 15.10.2023 (60hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23518

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

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Government of India Society

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Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा-282 006 (उ.प्र.)

PPDC

Reg. No : 185323

प्रमाण-पत्र

Certificate

This is to certify that

Anumol

D/o Reji Krishnan A K

has successfully completed the training

on

PRIMEVERA

from 16.09.2023 to 15.10.2023 (60hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23533

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE
Academic Year: 2023-2024
List of Students Enrolled – MATLAB

Sl No.	Name of Student
1	ASWIN DAS
2	BINSHAD K R
3	CHRISTIN JOSE
4	DEVARAJ SIBI
5	DEVIKA BALAKRISHNAN
6	DEVIKA USHA S
7	EBEN JOHNS SAJI
8	ELIZABETH THOMAS
9	GANGA RADHAKRISHNAN
10	GOPIKA JITENDER
11	GOVINDLAL PJ
12	HARIKRISHNA P R
13	INDRAJITH R NAIR
14	JESSON GEORGE JACOB
15	JISHNU S NAIR
16	PARVATHY RAJEEV
17	RION JOHN POVIL
18	SALMAN SULFIKAR
19	SANDRA VARGHESE
20	SAYANA SANTHOSH
21	SHALU BOSE
22	SREELEKSHMI R
23	SREENATH V R
24	SUJITH. G
25	SURYA S
26	THOMAS KURIEN
27	U.P SANDEEP
28	VARSHA N S
29	VASUDEV P KUMAR
30	VISAL KRISHNA
31	VISHNU. B
32	VISHNU G PILLAI
33	VRINDHASURESH

Course Coordinator

HOD/CE

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

Circular

Ref: MLM/ CE/ Certificate Course / Circular / 2023-24/ 15.02.2024

The Department of Civil Engineering is planned to conduct a certificate course for students. So it is informed to the students to enroll their names for the MATLABcourse which will start on 09.03.2024. Students are asked to enroll their names to their respective class advisor on or before 07.04.2024. The course syllabus is attached.

Name of the Course	MATLAB
Course Duration	09.03.2024 -07.04.2024
Time Duration	9:00 AM-04:00 PM

COURSE COORDINATOR

DEPARTMENT OF CIVIL ENGINEERING MANGALAM COLLEGE OF ENGINEERING Ettumanoor KERALA - 686 631

HOD

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

From

Head of the Department,
Civil Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 15/02/2024 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024;

S. No	Name of Add on Course	Year	Total No of Hours	Course Coordinator
1	MATLAB	2024	60Hrs	Dr.Arunkumar

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-CE

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Ettumanoor

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE

Course Details

1.	Academic Year	2023-2024
2.	Tile of the Course	MATLAB
3.	Objective of the Course	
4.	Prerequisite	Nil
5.	Requirement	Seminar Hall, Computer LAB
6.	Beneficiary	B. Tech Students
7.	Date and Duration of the Course	09.03.2024 to 07.04.2024 (60 Hours)
8.	Proposed Timing	9:00 AM to 04:00 PM
9.	No of Hours Required	60 Hours
10.	Internal Resources	Mr. Abhijithkumar A N AP (CE)
11.	Course Registration Fees	Nil
12.	Contents of Courses	Enclosed Separately
13.	Credits and Certification	Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	Seminar Hall, Computer Lab

COURSE COORDINATOR

HOD

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

8. What is the symbol used to evaluate the transpose of a vector?
a)"^"
b)"*"
c)"'"
d)" ~ "

9. What is the advantage of MATLAB over other computing software with matrix dimensions?
a)No advantage
b) Real time pre-defined memory allocation
c) Real time user-defined memory allocation
d) Matrix operations are easily computed

10. What is the function used to multiply a matrix, A, with itself n times?
a) mtimes(A,n)
b) ntimes(A,n)
c) mtimes(n,A)
d) mtimes(A^n)

11. Which command gives a title to the graph plotted by MATLAB?
a) plot() generates the title itself
b) title()
c) hlabel()
d) heading()

12. Which command enables a title for the x-axis?
a) xlabel()
b) horilabel()
c) xlabel[]
d) no command

13. Model Tab and Layout Tab can be majorly distinguished as,
A. The Model tab is used for drawing in 3D and a Layout is used for drawing in 2D
B. The Model tab is where you create the drawing, and a Layout tab represents the sheet that you will plot or print on
C. The colour of the background
D. The Model tab displays the drawing you are copying from and the Layout tab is where you lay out the new drawing

14. Shortcut key for Multileader in AutoCAD 2022,
A. ML
B. MLN
C. MLEADER
D. MULTI

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Course Name: MATLAB (CIVIL)

Model Questions

1. MATLAB stands for?

a) matrix laboratory
b) math library
c) matric library
d) matrix library

2. Which command is used to clear a command window?

a) clear
b) close all
c) clc
d) clear all

3. To determine whether an input is MATLAB keyword, command is?

a) iskeyword
b) key word
c) inputword
d) isvarname

4. Command used to display the value of variable x.

a) displayx
b) disp(x)
c) disp x
d) vardisp('x')

5. Which of the following statements shows the result of executing the following line in the editor window? size = [13]';size(size)

a)error
b)1
c)3
d) 3 3

6. Command is used to save command window text to file.

a) saveas
b) texttofile
c) diary
d) todiary

7. To see the sub-matrix with a_{ij} for 2<=i<=4 and 1<=j<=2 of a matrix a, of order 5*6 which codeisused?

a)a(2;4,1;2)
b)a(2,4:1,2)
c)a(2:4,1:2)
d) a(2,4;1,2)

Course Name: MATLAB (CIVIL)

SYLLABUS

Total hours: 60hrs

Module 1

Introductory Sessions Of MATLAB Training Course - Handling Data And Data Flow In MATLABFile Editing And Debugging In MATLAB

Module 2

MATLAB Graphics ISimple Graphics& Types, Plotting Functions, Creating And Editing Plots (2D & 3D), Handling GraphicsMATLAB Programming IConditional Statements, Iterative Statements, Flow Control, Efficient Coding Practices, Linear Algebra, Polynomials, Curve Fitting, Differentiation & Integration

Module 3

Introduction To MATLAB ToolboxesData Acquisition Toolbox In MATLAB, Signal Processing Toolbox In MATLAB, Image Acquisition Toolbox In MATLAB, Image Processing Toolbox In MATLABData Acquisition & Signal Processing Toolbox Of MATLAB Basics Of Signal Processing, Representing & Analyzing Signals, Analog Input Acquisition, Transforms Computation, Analog & Digital Filter Designing

Module 1

Image Acquisition & Image Processing ToolboxIntroduction To Image Processing, Images In MATLAB, Image Data Acquisition, Reading And Writing Images, Converting Between Image Types And Classes, Simple Image Arithmetic, Image Transformations, Spatial Referencing, Image Enhancement, Morphological Processing, Using Image ToolSIMULINK Interface, Libraries & Tools, Sources & Sinks, Building Systems, Mathematical Modeling, Converting Mathematical Model Into SIMULINK Model, Creating Systems & Subsystems, Solver Configuration

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15. To bring a particular area of the workspace in focus, what command should be used?
A. Zoom Extents
B. Zoom Window
C. Zoom Dynamic
D. Zoom All

16. What are the various options from left to right and the opposite direction?
A. Choose a different category of objects
B. Select objects according to their colour
C. Select objects according to their position
D. No difference

17. Shortcut for Trim command is.
A. T
B. TR
C. TI
D. X

18. A Boolean operation that is used to select interfering region between solids.
A. Union
B. Intersect
C. Subtract
D. None of the above

19. What command allows us to select objects based on some status?
A. Properties
B. Qselect
C. Pselect
D. Attributes

20. If you change the scale list a project that I have started from 1:50 1:10 then,
A. You will have to start over
B. You should not raise the objects already exist (scale) by 5
C. You will not need to change anything in hitherto methodology
D. Should be converted into new items that will add based on the new scale



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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

Attendance of Certificate Course –MATLAB

Academic Year: 2023-24 (MARCH-APRIL)

S. No.	Name of Student	28/3/24	29/3/24	30/3/24	1/4/24	2/4/24	3/4/24	4/4/24	5/4/24	6/4/24	7/4/24	
1	ASWIN DAS	/	/	/	/	/	/	/	/	/	/	100
2	BINSHADKP	/	/	/	/	/	/	/	/	/	/	100
3	CHRISTIN JOSE	/	/	/	/	/	/	/	/	/	/	100
4	DEVARAJ SRI	/	O	O	/	/	/	/	/	/	/	90
5	DEVIKABALAKRISHNAN	/	/	/	/	/	/	/	/	/	/	100
6	DEVIKA USHAS	/	/	/	/	/	/	/	/	/	/	100
7	EBEN JOHNS SAJI	/	/	/	/	/	/	/	/	/	/	100
8	ELIZABETH THOMAS	/	/	/	/	/	/	/	/	/	/	100
9	GANGAPADHAKRISHNAN	/	/	/	/	/	/	/	/	/	/	100
10	GOPIKA JITENDER	/	O	/	O	O	/	/	/	/	/	90
11	GOVINDLAL P J	/	/	/	/	/	/	/	/	/	/	100
12	HARIKRISHNA P P	/	/	/	/	/	/	/	/	/	/	100
13	INDRAJITH P NAIR	/	/	/	/	/	/	/	/	/	/	100
14	JESSON GEORGE JACOB	/	/	/	/	/	/	/	/	/	/	100
15	JISHNU S NAIR	/	/	/	/	/	/	/	/	/	/	100
16	PARVATHY RAJEEV	/	/	/	/	/	/	/	/	/	/	100
17	RION JOHN POVIL	/	O	/	/	O	/	/	/	/	/	90
18	SALMAN SULFIKAR	/	/	/	/	/	/	/	/	/	/	100
19	SANDRA VARGHESE	/	/	/	/	/	/	/	/	/	/	100
20	SAYANA SANTHOSH	/	/	/	/	/	/	/	/	/	/	100
21	SHALU BOSE	/	O	/	/	/	/	/	/	/	/	90
22	SREELEKSHMI R	/	/	/	/	/	/	/	/	/	/	100
23	SREENATH V R	/	/	/	O	O	O	/	/	/	/	70
24	SUJITH G	/	/	/	/	/	/	/	/	/	/	100
25	SURYA S	/	O	/	/	/	O	O	/	/	/	80
26	THOMAS KURIEN	/	/	/	/	/	O	O	/	/	/	80
27	U P SANDEEP	/	/	/	/	O	/	/	/	/	/	90
28	VARSHA N S	/	/	/	/	/	/	/	/	/	/	100
29	VASUDEVP KUMAR	/	/	/	/	/	/	/	/	/	/	100
30	VISAL KRISHNA	/	/	/	/	/	/	/	/	/	/	100
31	VISHNU B	/	/	/	/	/	/	/	/	/	/	100
32	VISHNUGPILLAI	/	/	/	/	/	/	/	/	/	/	100
33	VRINDHA SURESH	/	/	/	/	/	/	/	/	/	/	100

Course Coordinator

HoD

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
ETTUMANOOR

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

Academic Year: 2023-2024

Course Name –MATLAB

MARK SHEET

S. No.	Name of Student	Mark (20)	Out of 100
1	ASWIN DAS	18	90
2	BINSHADK R	16	80
3	CHRISTIN JOSE	15	75
4	DEVARAJ SIBI	14	70
5	DEVIKA BALAKRISHNAN	19	95
6	DEVIKAUSHA S	14	70
7	EBENJOHNS SAJI	15	75
8	ELIZABETH THOMAS	14	70
9	GANGA RADHAKRISHNAN	19	95
10	GOPIKA JITENDER	19	95
11	GOVINDLAL PJ	20	100
12	HARIKRISHNAP R	15	75
13	INDRAJITHR NAIR	18	90
14	JESSONGEORGE JACOB	16	80
15	JISHNUS NAIR	15	75
16	PARVATHYRAJEEV	14	70
17	RIONJOHNPOVIL	19	95
18	SALMANSULFIKAR	20	100
19	SANDRAVARGHESE	15	75
20	SAYANASANTHOSH	18	90
21	SHALUBOSE	16	80
22	SREELEKSHMIR	15	75
23	SREENATHV R	14	70
24	SUJITH.G	19	95
25	SURYA S	14	70
26	THOMASKURIEN	15	75
27	U.PSANDEEP	14	70
28	VARSHA N S	19	95
29	VASUDEVPKUMAR	16	80
30	VISALKRISHNA	19	95
31	VISHNU.B	18	90
32	VISHNUGPILLAI	18	90
33	VRINDHASURESH	16	80

Course Coordinator

HoD

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE

Consolidated Feedback MATLAB

Academic Year: 2023-2024

Questionnaire		Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A.	Were objectives of the course clear to you?	33	33	0	-	-
B.	The course contents met with your expectations.	33	-	-	33	0
C.	The lecture sequence was well planned	33	-	-	32	1
D.	The contents were illustrated with	33	-	-	33	0
E.	The level of the course was	33	-	-	32	1
F.	The course contents compared with your expectations	33	-	-	33	0
G.	The course exposed you to new knowledge and practices	33	-	-	29	4
H.	Will you recommend this course to your colleagues?	33	-	-	31	2
I.	The lectures were clear and easy to understand	33	-	-	33	0
J.	The teaching aids were effectively used	33	-	-	33	0
K.	The course material handed out was adequate	33	-	-	33	0
L.	The instructors encouraged interaction and were helpful	33	-	-	33	0
M.	Were objectives of the course realized? Y	33	-	-	33	0
N.	Please give overall rating of the course	33	33	0	-	-
	90% - 100%				28	
	80% - 90%				2	
	70% - 80%				3	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator

HOD

MANGALAM COLLEGE OF ENGINEERING
Ettimadai

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

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Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No :185374

प्रमाण-पत्र

Certificate

This is to certify that

Vrindha Suresh

D/o Suresh T R

has successfully completed the training

on

MATLAB (CIVIL)

from 09.03.2023 to 07.04.2023 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : May 07, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23584

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

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Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Reg. No :185369

प्रमाण-पत्र

Certificate

This is to certify that

Varsha N S

D/o Sajeevan

has successfully completed the training

on

MATLAB (CIVIL)

from 09.03.2023 to 07.04.2023 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

DATE : May 07, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23579

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No : 185364

प्रमाण-पत्र

Certificate

This is to certify that

Sreenath V R

S/o Reghunathan T T

has successfully completed the training

on

MATLAB (CIVIL)

from 09.03.2023 to 07.04.2023 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

MSME-TDC (PPDC) AGRA

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING

DATE : May 07, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23574

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

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Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Reg. No : 185363

प्रमाण-पत्र

Certificate

This is to certify that

Sreelaekshmi R

D/o Suresh R

has successfully completed the training

on

MATLAB (CIVIL)

from 09.03.2023 to 07.04.2023 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : May 07, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23573

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
Ministry of Micro, Small and Medium Enterprises
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
Government of India Society
भारत सरकार की सोसाइटी
Foundry Nagar, Agra-282 006 (U.P.)
फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Reg. No :185365

प्रमाण-पत्र

Certificate

This is to certify that

Sujith G

S/o Gopalakrishnan

has successfully completed the training

on

MATLAB (CIVIL)

from 09.03.2023 to 07.04.2023 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

DATE : May 07, 2024
PLACE : AGRA

No. PPDC/Trg./OSP/2023-24/23575

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

List of Students Enrolled for Certificate course – STAAD

Academic Year: 2023-2024

Sl No.	Name of Student
1	AADITHYAN C VINOD
2	ABHIJITH BIJU
3	ABHINAND B
4	ABHINAV REMANAN
5	ABHIRAM V S
6	ABHISHEK SAJEEV
7	ABHISHEK SHIBU
8	AKHIL P ANILKUMAR
9	ALAN C THOMAS
10	ALEENA SUNNY
11	ALEN ALEX
12	ANAND S NAIR
13	ANJALI JAID
14	ANJANA BABU
15	ANURAJ C SAJI
16	ANURAJ V
17	APARNA B
18	ARCHA PRADEEP
19	ARJUN ANIL
20	ARYA KRISHNAN
21	DEVIKA ARAVIND
22	DHAMAL SHAJI
23	GOKUL KRISHNA G
24	HALLEY J
25	JASEEM K JALAL

	JAYAKRISHNAN C
27	JIBIN BAIJU
28	JITHIN RAJENDRAN
29	JOSHNA VIJAY
30	KASHINADH M S
31	KRISHNENDU R

Course Coordinator

HOD/CE

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

Circular

Ref: MLM/ CE/ Certificate Course / Circular / 2023-24/ 15.01.2024

The Department of Civil Engineering is planned to conduct a certificate course for students. So it is informed to the students to enroll their names for the STAADcourse which will start on 15.01.2024. Students are asked to enroll their names to their respective class advisor on or before 05.02.2024. The course syllabus is attached.

Name of the Course	STAAD.Pro
Course Duration	09.03.2024 -07.04.2024
Time Duration	9:00 AM-04:00 PM

COURSE COORDINATOR

HOD

From

Head of the Department,
Civil Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 15/01/2024 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

SL No	Name of Add on Course	Year	Total No of Hours	Faculty Coordinator
1	STAAD.Pro	2024	60Hrs	Mr.Gokul P V

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HOD-CE

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE

Course Details

1.	Academic Year	2023-2024
2.	Tile of the Course	STAAD.Pro
3.	Objective of the Course	
4.	Prerequisite	Nil
5.	Requirement	Seminar Hall, Computer LAB
6.	Beneficiary	B. Tech Students
7.	Date and Duration of the Course	09.03.2024 to 07.04.2024 (60 Hours)
8.	Proposed Timing	9:00 AM to 04:00 PM
9.	No of Hours Required	60 Hours
10.	Internal Resources	Mr. Abhijithkumar A N AP (CE)
11.	Course Registration Fees	Nil
12.	Contents of Courses	Enclosed Separately
13.	Credits and Certification	Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	Seminar Hall, Computer Lab

COURSE COORDINATOR

HOD

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

Course Name: STAAD.Pro

SYLLABUS

Total hours: 60 hrs

Module 1

Introduction to Structural Engineering-Introduction to STAAD.Pro.V8i-Getting familiar with STAAD window-Model generation using STAAD editor-Introduction to Snap Node/Beam Editor-Model generation using Node/Beam Editor- Introduction to Translational Repeat-Model generation using Translational Repeat.

Module 2

Assigning Properties for the members- Assigning Supports and support conditions- Assigning Loads- introduction to Structure Analysis- Simply Supported Beam- Analysis of Framed Structure- Applying Floor Loads- Creating Load Combinations.

Module 3

Basics and concepts of Wind Analysis- Seismic Analysis- Dynamic Analysis- Response Spectrum Analysis- Introduction to FEM- Analysis of Framed Structure Including Slabs- Column & Beam Design- Reinforced Concrete Design.

Module 4

Concepts and design of Slab- Circular Water Tank Design- Rectangular Water Tank Design- Moving Loads- Staircase Analysis- Introduction to Steel Design- Pushover Analysis- Shear Wall Design- Lift Room Modeling- Transmission Line Tower- Concepts of Bridge Deck Design.

IQAC

HoD

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

Course Name: STAAD.Pro

Model Questions

1 With the help of which of the following functions, you can duplicate Nodes, Beams, and Plates, in the direction of X,Y,Z?

A) Circular repeat
B) Insert Nodes
C) Translational Repeat
D) Mirror

2 STAAD.Pro Perform Analysis is:

A) Taking into consideration the Stiffness Correction
B) Multi- Iteration Analysis
C) Taking into consideration the Displacement of Nodes
D) None of these

3 How many types of Models are available in the Structure Wizard?

A) 7
B) 8
C) 5
D) 6

4 Which of the following sub-pages are in Foundation Plan Pages?

A) Radial Grid Setup
B) Column Positioning
C) Column Dimension and width
D) Linear Grid Setting

5 Select the Indian Codes for Concrete Design

A) IS 800 – 1984
B) None of these
C) IS 801 – 1975
D) IS 456

6 Select the structure type which is bound by a global X-Y coordinate system with loads in the same plane

A) FLOOR
B) SPACE
C) PLANE
D) TRUSS

7 In floor load, Y is the :

A) Affective height
B) Building height
C) All of these
D) Floor height



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8 In Meshing Parametric dialog box, by default, bias value is ___ and divi value is

A) Bias is 1 Divi is 15
B) Bias is 1 Divi is 11
C) Bias is 1 Divi is 10
D) Bias is 2 Divi is 10

9 In Concentrated Load, P is :

A) Perpendicular distance from the member
B) Force Direction
C) Value of Load
D) All of the above

10 How many types of meshing we have in STAAD.Pro?

A) 4
B) 2
C) 5
D) 1

11In concrete design parameter, by default, value for Clear Cover top is:

A) 25mm
B) 12mm
C) 30mm
D) 20mm

12Dead loads are self-weights of material, equipment, or components that are relativelyconstant throughout the structure's life.

A) True
B) False

13 Pinned Support will have _____ reactions.

A) 2
B) 6
C) 4
D) 3

14 Indian Standard Criteria for Earthquake Resistant design of Structure is?

A) Is 1893-2016
B) Is 1893-2002
C) Is 1892-2003
D) Is 1892-2016

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15 The _____ group allows you to change the display of load arrows.

A) Modeling Scale
B) Loading Scale
C) Displacement
D) Result Scales

16 For Plates, Which one of the following is true?

A) In order to release a Plate, you can release the Beams holding the plate
B) You can release the Nodes of the Plates.
C) You can release more than one Nodes of the Plates.
D) Options B & C.

17 The minimum and maximum limits of number of divisions of each side are 1 to 100.

A) True
B) False

18 In the input file and under Joint Coordinate , One of the following statement is true:

A) 1 0 0 0
B) 1,0,0,0
C) 1;0;0;0
D) 1 0 0

19 In the Mirror Function Which of the following statements is true:

A) I can define a User-defined Plane to Mirror around it.
B) I can only Mirror around X-Z Plane.
C) I can Mirror around any of the three main Planes
D) There is only Copy mode in Mirror

20 In the Translational Repeat:

A) The distance between steps generated should be the same
B) I can repeat parallel to any of the three main axes
C) I can't link steps
D) I can't renumber step Beams



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Ettumanoor

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

Attendance of Certificate Course - STAAD

Academic Year: 2023-24 (March-April)

S. No.	Name of Student	09/03/24	10/03/24	16/03/24	17/03/24	23/03/24	24/03/24	30/3/24	31/3/24	6/4/24	7/4/24	
1	AADITHYAN CVINOD	P	P	P	P	P	P	P	P	-	P	100
2	ABHIJITH BINU	P	P	P	P	P	P	P	P	P	P	100
3	ABHINAND B	P	P	P	P	P	P	P	P	P	P	100
4	ABHINAV REMANAN	P	P	A	A	P	P	P	P	P	P	80
5	ABHIRAM V S	P	P	P	P	P	P	P	P	P	P	100
6	ABHISHEK SAJEEV	P	P	P	P	P	P	P	P	P	P	100
7	ABHISHEK SHIBU	P	P	P	P	P	P	P	P	P	P	100
8	AKHIL P ANILKUMAR	P	P	P	P	P	P	P	P	P	P	100
9	ALAN C THOMAS	P	P	P	P	P	P	P	P	P	P	100
10	ALEENA SUNNY	A	A	P	P	P	A	P	P	P	P	80
11	ALEN ALEX	P	P	P	P	P	P	P	P	P	P	100
12	ANAND SNAIR	P	P	P	P	P	P	P	P	P	P	100
13	ANJALI JAID	P	P	P	P	P	P	P	P	P	P	100
14	ANJANA BABU	P	P	P	P	P	P	P	P	P	P	100
15	ANURAJ C SAJI	P	P	P	P	P	P	P	P	P	P	100
16	ANURAJ V	P	P	P	P	P	P	P	P	P	P	100
17	APARNA B	P	P	P	A	A	P	P	P	P	P	80
18	ARCHA PRADEEP	P	P	P	P	P	P	P	P	P	P	100
19	ARJUN ANIL	P	P	P	P	P	P	P	P	P	P	100
20	ARYA KRISHNAN	P	P	P	P	P	P	P	P	P	P	100
21	DEVIKA ARAVIND	P	P	P	P	P	P	P	P	P	P	100
22	DHAMAL SHAJI	P	P	P	P	P	P	P	P	P	P	100
23	GOKUL KRISHNAG	P	P	A	A	A	P	P	P	P	P	70
24	HALLEY J	P	P	P	P	P	P	P	P	P	P	100

MANGALAM COLLEGE OF ENGINEERING

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

25	JASEEM K JALAL	a	a	x	x	x	x	x	x	x	a	70
26	JAYAKRISHNAN C	x	a	a	x	x	x	x	x	x	x	80
27	JIBIN BAIJU	x	x	x	x	x	x	x	x	x	x	100
28	JITHIN RAJENDRAN	x	x	x	x	x	x	x	x	x	x	100
29	JOSHNA VIJAY	x	x	x	x	x	x	x	x	x	x	100
30	KASHINADH M S	x	x	x	x	x	x	x	x	x	x	100
31	KRISHNENDU R	x	x	x	x	x	x	x	x	x	x	100

Course Coordinator

HoD

PRINCIPAL
COLLEGE OF ENGINEERING
Kothamangalam

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

Certificate Course – STAAD

MARK SHEET

Academic Year: 2023-2024

S. No.	Name of Student	Mark (20)	Out of 100
1	AADITHYAN C VINOD	18	90
2	ABHIJITH BINU	16	80
3	ABHINAND B	15	75
4	ABHINAV REMANAN	14	70
5	ABHIRAM V S	19	95
6	ABHISHEK SAJEEV	14	70
7	ABHISHEK SHIBU	15	75
8	AKHIL P ANILKUMAR	14	70
9	ALAN C THOMAS	19	95
10	ALEENA SUNNY	19	95
11	ALEN ALEX	20	100
12	ANAND S NAIR	15	75
13	ANJALI JAID	18	90
14	ANJANA BABU	16	80
15	ANURAJ C SAJI	15	75
16	ANURAJ V	14	70
17	APARNA B	19	95
18	ARCHA PRADEEP	20	100
19	ARJUN ANIL	15	75
20	ARYA KRISHNAN	18	90
21	DEVIKA ARAVIND	16	80
22	DHAMAL SHAJI	15	75
23		14	70

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MANGALAM COLLEGE OF ENGINEERING

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DEPARTMENT OF CIVIL ENGINEERING

	GOKUL KRISHNA G		
24	HALLEY I	19	95
25	JASEEM K JALAL	14	70
26	JAYAKRISHNAN C	15	75
27	JIBIN BABU	14	70
28	JITHIN RAJENDRAN	19	95
29	KRISHNA VIJAY	16	80
30	KASHINADH M S	18	90
31	KRISHNENDU R	16	80

Course Coordinator

HoD

PRINCIPAL

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE

Consolidated Feedback STAAD.Pro

Academic Year: 2023-2024

Questionnaire		Total Response	Yes	No	Strongly Agree	Disagree
THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	31	31	0	-	-
B.	The course contents met with your expectations.	31	-	-	31	0
C.	The lecture sequence was well planned	31	-	-	30	1
D.	The contents were illustrated with	31	-	-	31	0
E.	The level of the course was	31	-	-	30	1
F.	The course contents compared with your expectations	31	-	-	31	0
G.	The course exposed you to new knowledge and practices	31	-	-	27	4
H.	Will you recommend this course to your colleagues?	31	-	-	29	2
A.	The lectures were clear and easy to understand	31	-	-	31	0
B.	The teaching aids were effectively used	31	-	-	31	0
C.	The course material handed out was adequate	31	-	-	31	0
D.	The instructors encouraged interaction and were helpful	31	-	-	31	0
E.	Were objectives of the course realized? Y	31	31	0	-	-
F.	Please give overall rating of the course	31			-	-
	90% - 100%				27	
	80% - 90%				4	
	70% - 80%				0	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator

HOD

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No :182600

प्रमाण-पत्र

Certificate

This is to certify that

Jithin Rajendran

S/o Rajendran

has successfully completed the training

on

STAAD.PRO

from 09.03.2024 to 07.04.2024 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL

MSME-TDC (PPDC) AGRA

DATE : May 07,2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23510

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No : 182590

प्रमाण-पत्र

Certificate

This is to certify that

Archa Pradeep

D/o Pradeep

has successfully completed the training

on

STAAD.PRO

from 09.03.2024 to 07.04.2024 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING

MSME-TDC (PPDC) AGRA

DATE : May 07,2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23500

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No : 182586

प्रमाण-पत्र

Certificate

This is to certify that

Anjana Babu

D/o Babu

has successfully completed the training

on

STAAD.PRO

from 09.03.2024 to 07.04.2024 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

MSME-TDC (PPDC) AGRA

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

DATE : May 07,2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23496

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No : 182581

प्रमाण-पत्र

Certificate

This is to certify that

Alan C Thomas

S/o Thomas C

has successfully completed the training

on

STAAD.PRO

from 09.03.2024 to 07.04.2024 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

MSME-TDC (PPDC) AGRA

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

DATE : May 07,2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23491

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा-282 006 (उ.प्र.)

PPDC

Reg. No :182573

प्रमाण-पत्र

Certificate

This is to certify that

Aadhithyan C Vinod

S/o Vinod C

has successfully completed the training

on

STAAD.PRO

from 09.03.2024 to 07.04.2024 (60 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

DATE : May 07,2024
PLACE : AGRA

No. PPDC/Trg./OSP/2023-24/23483

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

List of Students Enrolled for Certificate course – AUTOCAD 2D

Academic Year: 2023-2024

Sl No.	Name of Student
1	AADITHYAN C VINOD
2	ABHIJITH BINU
3	ABHINAND B
4	ABHINAV REMANAN
5	ABHIRAM V S
6	ABHISHEK SAJEEV
7	ABHISHEK SHIBU
8	AKHIL P ANILKUMAR
9	ALAN C THOMAS
10	ALEENA SUNNY
11	ALEN ALEX
12	ANAND S NAIR
13	ANJALI JAID
14	ANJANA BABU
15	ANURAJ C SAJI
16	ANURAJ V
17	APARNA B
18	ARCHA PRADEEP
19	ARJUN ANIL
20	ARYA KRISHNAN
21	DEVIKA ARAVIND
22	DHAMAL SHAJI
23	GOKUL KRISHNA G
24	HALLEY J
25	JASEEM K JALAL

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MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

	JAYAKRISHNAN C
27	JIBIN BAIJU
28	JITHIN RAJENDRAN
29	JOSHNA VIJAY
30	KASHINADH M S
31	KRISHNENDU R

Course Coordinator

HOD/CE

PRIN
MANGALAM COLLEG
Ettum

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

Department of Civil Engineering

Circular

Ref: MLM/ CE/ Certificate Course / Circular / 2023-24/ 10.10.2023

The Department of Civil Engineering is planned to conduct a certificate course for students. So it is informed to the students to enroll their names for the AUTOCAD-2Dcourse which will start on 21.10.2023. Students are asked to enroll their names to their respective class advisor on or before 16.10.2023. The course syllabus is attached.

Name of the Course : AUTOCAD-2D

Course Duration : 21.10.2023 -19.11.2023

Time Duration : 9:00 AM-04:00 PM

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettimadai

From

Head of the Department,
Civil Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 10/10/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

S. No	Name of Add on Course	Year	Total No of Hours	Faculty Coordinator
1	AUTOCAD (2D)	2023	60Hrs	Mr.Abhijithkumar A N

I request you kindly to nominate the faculty member for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-CE

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

Department of CivilEngineering

1.	Academic Year	: 2023-2024
2.	Tile of the Course	: AUTOCAD-2D
3.	Objective of the Course	:
4.	Prerequisite	: Nil
5.	Requirement	: Seminar Hall, Computer LAB
6.	Beneficiary	: BtechStudents
7.	Date and Duration of the Course	:21.11.2023 to 19.11.2023(60Hours)
8.	Proposed Timing	: 9:00AM to 04:00 PM
9.	No of Hours Required	: 60 Hours
10.	Internal Resources	: Mr. Abhijithkumar A N AP (CE)
11.	Course Registration Fees	:Nil
12.	Contents of Courses	:Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: Seminar Hall, Computer Lab

COURSE COORDINATOR

HOD

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

Course Name: AUTOCAD (2D)

SYLLABUS

Module 1

INTRODUTION DRAW SETTING & CONDITION Units, Limits, UCS icon Function keys & its work DRAWING TOOLS Line, polyline, Circle, arc Rectangle, polygon Ellipse, Elliptical arc, spline Spline Edit, Xline, Ray, Points Measure, Divide, Region Wipeout, Helix, Donut, Revision cloud, hatch, Gradient

Module 2

MODIFY TOOLS Move, copy, Rotate, scale Stretch, fillet, chamfer Erase, offset, explode Array, polar Array, path array Trim, extend, mirror, Edit polyline, Edit spline, Edit hatch Edit array, break, break at point Blend vertex, joint, overkill, lengthen Annotations Dimensions: dimension setting Linear dimension, Aligned dimension Angular dimensions, arc length, Radius Diameter, ordinates, jogged Base line dimension, Dim base Continuous dimension MULTILEADER: Multi-leader setting, create multi-leader Multi- leader edit, multi-leader align TEXT: Text style, single text, multi text TABLE: Table style, create table - Table Edit, text placement

Module 3

PROPERTIES TOOLS Property: color, line type Line weight, show icon Match properties GROUP: New group, Edit group Active and inactive group LAYERS Create layers, Edit layers properties Layer control (hide, freeze, lock Layout lock, print lock) UTILITIES TOOLS UT tools - distance, Radius, Angle Area, volume, quick select, Quick calculator, point, ID point CLIP BOARD: copy, cut, paste Paste as a block, paste special

Module 4

BLOCK AND ATTRIBUTE BLOCK: create block (Block & write block) Insert block, block Editor ATTRIBUTES: create attributes, Attributes mode setting, block Attribute, insert attributes, Edit attributes Tool palettes, design Centre, Add object to Tool Palette and Design Centre, Insert object from Tool Palettes and Design Centre CONSTRAINTS

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GEOMETRIC CONSTRAINT Coincident, parallel, tangent Collinear, mid-point, smooth Concentric, Horizontal, symmetric Lock, Vertical, Equal, Show and hide constraints DIMENSION CONSTRAINT Linear, aligned, Radius, diameter Angle, show and hide dim constraints Delete constraints, parameters References: External reference, Attach files IMPORT: Import 2D, import 3D, OLE LAYOUTS: Multiview, paper space, model space Page setup, print setup Print setting, PDF conversion DXF, batch print.

IQAC

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DEPARTMENT OF CIVIL ENGINEERING

Course Name: AUTOCAD (3D)

Model Questions

1. In AutoCAD 3D Modelling, which axis is not accessible for drafting?

A. X
B. Y
C. Z
D. WCS

Answer: C) Z
Explanation: Z axis is relevant to 3D modelling.

2. A Polyline can be broken into individual lines and arcs using which of the following command?

A. BREAK
B. TRIM
C. EXPLODE
D. OVERKILL

Answer: C) EXPLODE
Explanation: Explode command is used to separate polyline to individual entities.

3. Origin of the AutoCAD drawing space is,

A. 0,0
B. 1,0
C. 0,1
D. 1,1

Answer: A) 0,0
Explanation: (0,0) is the origin for AutoCAD.

4. Scrolling of mouse can perform which following action?

A. Zoom in / zoom out
B. pan & scan
C. extents / all
D. scale

Answer: C) extents / all
Explanation: It is one of the shortcut methods to zoom in and out of the workspace.

5. In AutoCAD, the number of workspaces is,

A. 1
B. 2
C. 3
D. 4

Answer: B) 2

Explanation:2D Modelling and 3D Modelling.

6. Is there any difference between Command Plot and Print?

A. plot command prints only big plans
B. The plot command for CNC (CAM)
C. No difference
D. print command can print up to A3 size paper

Answer: C) No difference
Explanation:No difference exists between Command Plot and Print.

7. Find the false statement in regards with "If an array is made associative".

A. You can't use Boolean operations on the array elements
B. To make the array non associative you need to use explode command on it
C. The array can be edited again by selecting it
D. The array can't be modified in any way once it is made associative

Answer: D) The array can't be modified in any way once it is made associative
Explanation:An associative array can be modified in AutoCAD.

8. An open area can be filled with which of the following gradient:

A. Gap
B. Tolerance
C. Transparency
D. Open

Answer: B) Tolerance
Explanation:Tolerance is one of the sub commands of hatching to fill to open area.

9. The shortcut to start a table is,

A. T
B. TA
C. TBL
D. TABLE

Answer: D) TABLE
Explanation:This command opens a table like that in office.

10. What is the shortcut for zoom command?

A. Z Command
B. Rotate mouse wheel
C. ZOOM Command
D. All of the above

Answer: D) All of the above
Explanation:All the above methods can be used to zoom in and out the workspace.

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16. What are the various options from left to right and the opposite direction?

A. Choose a different category of objects
B. Select objects according to their colour
C. Select objects according to their position
D. No difference

Answer: B) Select objects according to their colour
Explanation: You can select different coloured objects.

17. Shortcut for Trim command is,

A. T
B. TR
C. TI
D. X

Answer: B) TR

Explanation: The shortcut for Trim command is TR.

18. A Boolean operation that is used to select interfering region between solids,

A. Union
B. Intersect
C. Subtract
D. None of the above

Answer: B) Intersect
Explanation: Intersect command produces only intersecting regions of two solids.

19. What command allows us to select objects based on some status?

A. Properties
B. Qselect
C. Pselect
D. Attributes

Answer: B) Qselect
Explanation: It allows to select objects based on the predetermined conditions.

20. If you change the scale list a project that I have started from 1:50 1:10 then,

A. You will have to start over
B. You should not raise the objects already exist (scale) by 5
C. You will not need to change anything in hitherto methodology
D. Should be converted into new items that will add based on the new scale

Answer: A) You will have to start over
a) **Explanation:** You will have to start over again.

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11. To select a set of objects in the workspace, what should be done?

A. By a crossing window drawn from right to left
B. By a crossing window drawn left to right
C. Shift + clicking on the objects
D. None of the above

Answer: A) By a crossing window drawn from right to left
Explanation: This control selects the objects present in the design space.

12. A line shows its dimension as 14.52. What is the precision of this line?

A. [0.0]
B. [0.00]
C. [0.000]
D. Display of length has nothing to do with precision

Answer: B) [0.00]
Explanation: Since there are two numbers after the decimal point.

13. Model Tab and Layout Tab can be majorly distinguished as,

A. The Model tab is used for drawing in 3D and a Layout is used for drawing in 2D
B. The Model tab is where you create the drawing, and a Layout tab represents the sheet that you will plot or print on
C. The colour of the background
D. The Model tab displays the drawing you are copying from and the Layout tab is where you lay out the new drawing

Answer: B) The Model tab is where you create the drawing, and a Layout tab represents the sheet that you will plot or print on
Explanation: The option clearly explains the solution.

14. Shortcut key for Multileader in AutoCAD 2022,

A. ML
B. MLN
C. MLEADER
D. MULTI

Answer: C) MLEADER
Explanation: This command produces a multileader.

15. To bring a particular area of the workspace in focus, what command should be used?

A. Zoom Extents
B. Zoom Window
C. Zoom Dynamic
D. Zoom All

Answer: B) Zoom Window
Explanation: This command zooms only the required region.

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

Certificate Course : AUTOCAD (2D)
Academic Year: 2023-24
Attendance Sheet

S. No.	Name of Student	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Attendance %
1	AADITHYAN C VINOD	1	1	1	1	1	1	1	1	1	1	100
2	ABHIJITH BINU	1	1	1	1	1	1	1	1	1	1	100
3	ABHINAND B	1	1	1	1	1	1	1	1	1	1	100
4	ABHINAV REMANAN	1	1	1	0	0	1	1	1	1	1	80
5	ABHIRAM V S	1	1	1	1	1	1	1	1	1	1	100
6	ABHISHEK SAJEEV	1	1	1	1	1	1	1	1	1	1	100
7	ABHISHEK SHIBU	1	1	1	1	1	1	1	1	1	1	100
8	AKHIL P ANILKUMAR	1	1	1	1	1	1	1	1	1	1	100
9	ALAN C THOMAS	1	1	1	1	1	1	1	1	1	1	100
10	ALEENA SUNNY	1	1	1	0	0	1	1	1	1	0	70
11	ALEN ALEX	1	1	1	1	1	1	1	1	1	1	100
12	ANAND S NAIR	1	1	1	1	1	1	1	1	1	1	100
13	ANJALI JAID	1	1	1	1	1	1	1	1	1	1	100
14	ANJANA BABU	1	1	1	1	1	1	1	1	1	1	100
15	ANURAJ C SAJI	1	1	1	1	1	1	1	1	1	1	100
16	ANURAJ V	1	1	1	1	1	1	1	1	1	1	100
17	APARNA B	1	1	0	1	1	1	0	1	1	1	80
18	ARCHA PRADEEP	1	1	1	1	1	1	1	1	1	1	100
19	ARJUN ANIL	1	1	1	1	1	1	1	1	1	1	100

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

20	ARYA KRISHNAN											100
21	DEVIKA ARAVIND											100
22	DHAMAL SHAJI											100
23	GOKUL KRISHNA G											70
24	HALLEY J											100
25	JASEEM K JALAL											70
26	JAYAKRISHNAN C											80
27	JIBIN BAIJU											100
28	JITHIN RAJENDRAN											100
29	JOSHNA VIJAY											100
30	KASHINADH M S											100
31	KRISHNENDU R											100

Course Coordinator

HoD

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

Certificate Course – AUTOCAD 2D

MARK SHEET

Academic Year: 2023-2024

S. No.	Name of Student	Mark (20)	Out of 100
1	AADITHYAN C VINOD	18	90
2	ABHIJITH BINU	16	80
3	ABHINAND B	15	75
4	ABHINAV REMANAN	14	70
5	ABHIRAM V S	19	95
6	ABHISHEK SAJEEV	14	70
7	ABHISHEK SHIBU	15	75
8	AKHIL P ANILKUMAR	14	70
9	ALAN C THOMAS	19	95
10	ALEENA SUNNY	19	95
11	ALEN ALEX	20	100
12	ANAND S NAIR	15	75
13	ANJALI JAID	18	90
14	ANJANA BABU	16	80
15	ANURAJ C SAJI	15	75
16	ANURAJ V	14	70
17	APARNA B	19	95
18	ARCHA PRADEEP	20	100
19	ARJUN ANIL	15	75
20	ARYA KRISHNAN	18	90
21	DEVIKA ARAVIND	16	80
22	DHAMAL SHAJI	15	75
23		14	70

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	GOKUL KRISHNA G	19	95
24	HALLEY J	14	70
25	JASEEM K JALAL	15	75
26	JAYAKRISHNAN C	14	70
27	JIBIN BAIJU	19	95
28	JITHIN RAJENDRAN	16	80
29	JOSHNA VIJAY	12	60
30	KASHINADH M S	16	80
31	KRISHNENDU R		

Course Coordinator

HoD

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE

Consolidated Feedback AUTOCAD (2D)

Academic Year: 2023-2024

	Questionnaire	Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A.	Were objectives of the course clear to you?	31	31	0	-	-
B.	The course contents met with your expectations.	31	-	-	31	0
C.	The lecture sequence was well planned	31	-	-	30	1
D.	The contents were illustrated with	31	-	-	31	0
E.	The level of the course was	31	-	-	30	1
F.	The course contents compared with your expectations	31	-	-	31	0
G.	The course exposed you to new knowledge and practices	31	-	-	27	4
H.	Will you recommend this course to your colleagues?	31	-	-	29	2
I.	The lectures were clear and easy to understand	31	-	-	31	0
J.	The teaching aids were effectively used	31	-	-	31	0
K.	The course material handed out was adequate	31	-	-	31	0
L.	The instructors encouraged interaction and were helpful	31	-	-	31	0
M.	Were objectives of the course realized? Y	31	31	0	-	-
N.	Please give overall rating of the course	31				
	90% - 100%				27	
	80% - 90%				4	
	70% - 80%				0	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator

HOD

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ernakulam

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No : 185234

प्रमाण-पत्र

Certificate

This is to certify that

Halley J

S/o Jayaprakash M P

has successfully completed the training

on

AUTOCAD

from 21.10.2023 to 19.11.2023(60hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23444

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा-282 006 (उ.प्र.)

PPDC

Reg. No : 185227

प्रमाण-पत्र

Certificate

This is to certify that

Aparna B

S/o Binumon P

has successfully completed the training

on

AUTOCAD

from 21.10.2023 to 19.11.2023(60hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23437

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

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भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No : 165227

प्रमाण-पत्र

Certificate

This is to certify that

Aparna B

S/o Binumon P

has successfully completed the training

on

AUTOCAD

from 21.10.2023 to 19.11.2023(60hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23137

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

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Government of India Society

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Foundry Nagar, Agra 282 006 (U.P.)

फाउन्ड्री नगर, आगरा 282 006 (उ.प्र.)

Reg. No : 1[illegible]

प्रमाण-पत्र

Certificate

This is to certify that

Akhil P Anilkumar

S/o Anilkumar P N

has successfully completed the training

on

AUTOCAD

from 21.10.2023 to 19.11.2023(60hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
[illegible]
Ettumanoor

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

DATE : January 24, 2024
PLACE : AGRA

No. PPDC/Trg./OSP/2023-24/23428

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा-282 006 (उ.प्र.)

Reg. No : 185212

प्रमाण-पत्र

Certificate

This is to certify that

Abhijith Binu

S/o Binu C K

has successfully completed the training

on

AUTOCAD

from 21.10.2023 to 19.11.2023(60hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

MSME-TDC (PPDC) AGRA

DATE : January 24, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23422

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE
Academic Year: 2023-2024
List of Students Enrolled – 3DS MAX

S. No.	Name of Student
1	AADITHYAN C VINOD
2	ABHIJITHBINU
3	ABHINANDB
4	ABHINAVPREMANAN
5	ABHIRAMV S
6	ABHISHEKSAJEEV
7	ABHISHEKSHIBU
8	AKASHM
9	AKHILPANILKUMAR
10	ALANC THOMAS
11	ALEENASUNNY
12	ALENALEX
13	ANAND SNAIR
14	ANJALHAID
15	ANJANA BABU
16	ANURAJCSAJI
17	ANURAJV
18	APARNAB
19	ARCHAPRADEEP
20	ARJUNANIL
21	ARYAKRISHNAN
22	ASIL
23	ASWINANIL
24	ATHULDEVCV
25	ATHULVM
26	AYONASAJI
27	BHAVYAS
28	BISTAMOLBPARIYARAM
29	DEEPAKDEVS
30	DEVIKAARAVIND
31	DHAMALSHAJI

Course Coordinator

HOD/CE

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

Circular

Ref: MLM/ CE/ Certificate Course / Circular / 2023-24/ 15.09.2023

The Department of Civil Engineering is planned to conduct a certificate course for students. So it is informed to the students to enroll their names for the 3DS MAXcourse which will start on 14.10.2023. Students are asked to enroll their names to their respective class advisor on or before 10.10.2023. The course syllabus is attached.

Name of the Course	3DS MAX
Course Duration	02.12.2023 - 30.12.2023
Time Duration	9:00 AM-04:00 PM

From

Head of the Department,
Civil Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 15/11/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

S. No	Name of Add on Course	Year	Total No of Hours	Faculty Coordinator
1	3DS MAX	2023	60Hrs	Ms.SaliniTheres N Kurian

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-CE

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MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE

Course Details

1.	Academic Year	2023-2024
2.	Tile of the Course	3DS MAX
3.	Objective of the Course	
4.	Prerequisite	Nil
5.	Requirement	Seminar Hall, Computer LAB
6.	Beneficiary	BtechStudents
7.	Date and Duration of the Course	02.12.2023 to 30.12.2023 (60 Hours)
8.	Proposed Timing	9:00 AM to 04:00 PM
9.	No of Hours Required	60 Hours
10.	Internal Resources	Mr. Abhijithkumar A N AP (CE)
11.	Course Registration Fees	Nil
12.	Contents of Courses	Enclosed Separately
13.	Credits and Certification	Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	Seminar Hall, Computer Lab

COURSE COORDINATOR

HOD

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

Certificate Course –3DS MAX

Academic Year: 2023-24

Attendance Sheet

S. No.	Name of Student	02/12/23	03/12/23	9/12/23	10/12/23	16/12/23	17/12/23	24/12/23	26/12/23	27/12/23	30/12/23	Attendance %
1	AADITHYAN C VINOD	P	P	P	P	P	P	P	P	P	P	100
2	ABHIJITH BINU	P	P	P	P	P	P	P	P	P	P	100
3	ABHINAND B	P	P	P	P	P	P	P	P	P	P	100
4	ABHINAV REMANAN	P	P	P	P	P	P	P	P	A	P	80
5	ABHIRAM V S	P	P	P	P	P	P	P	P	P	P	100
6	ABHISHEK SAJEEV	P	P	P	P	P	P	P	P	P	P	100
7	ABHISHEK SHIBU	P	P	P	P	P	P	P	P	P	P	100
8	AKASH M	P	P	P	P	P	P	P	P	P	P	100
9	AKHIL P ANILKUMAR	P	P	P	P	P	P	P	P	P	P	100
10	ALAN C THOMAS	A	A	P	P	P	P	A	P	P	P	70
11	ALEENA SUNNY	P	P	P	P	P	P	P	P	P	P	100
12	ALEN ALEX	P	P	P	P	P	P	P	P	P	P	100
13	ANAND S NAIR	P	P	P	P	P	P	P	P	P	P	100
14	ANJALI JAID	P	P	P	P	P	P	P	P	P	P	100
15	ANJANA BABU	P	P	P	P	P	P	P	P	P	P	100
16	ANURAJ C SAJI	P	P	P	P	P	P	P	P	P	P	100
17	ANURAJ V	P	P	P	P	P	P	P	A	A	P	80
18	APARNA B	P	P	P	P	P	P	P	P	P	P	100
19	ARCHA PRADEEP	P	P	P	P	P	P	P	P	P	P	100
20	ARJUN ANIL	P	P	P	P	P	P	P	P	P	P	100
21	ARYA KRISHNAN	P	P	P	P	P	P	P	P	P	P	100
22	ASIL	P	P	P	P	P	P	P	P	P	P	100
23	ASWIN ANIL	P	P	P	P	P	P	P	P	P	P	100
24	ATHULDEV C V	P	P	P	P	P	P	P	P	P	P	100
25	ATHUL V M	P	P	P	P	P	P	P	P	P	P	100
26	AYONA SAJI	P	P	P	P	P	P	P	P	P	P	100
27	BHAVYA S	P	P	P	P	P	P	A	P	P	A	80
28	BISTAMOL B PARIYARAM	P	P	P	P	P	P	P	P	P	P	100
29	DEEPAK DEV S	P	P	P	P	P	P	P	P	P	P	100
30	DEVIKA ARAVIND	P	P	P	P	P	P	P	P	P	P	100
31	DHAMAL SHAJI	P	P	P	P	P	P	P	P	P	P	100

Course Coordinator

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Ernakulam

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE COURSE

Consolidated Feedback 3DS MAX

Academic Year: 2023-2024

	Questionnaire	Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A.	Were objectives of the course clear to you?	31	31	0	-	-
B.	The course contents met with your expectations.	31	-	-	31	0
C.	The lecture sequence was well planned	31	-	-	30	1
D.	The contents were illustrated with	31	-	-	31	0
E.	The level of the course was	31	-	-	30	1
F.	The course contents compared with your expectations	31	-	-	31	0
G.	The course exposed you to new knowledge and practices	31	-	-	27	4
H.	Will you recommend this course to your colleagues?	31	-	-	29	2
I.	The lectures were clear and easy to understand					
J.	The teaching aids were effectively used	31	-	-	31	0
K.	The course material handed out was adequate	31	-	-	31	0
L.	The instructors encouraged interaction and were helpful	31	-	-	31	0
M.	Were objectives of the course realized? Y	31	-	-	31	0
N.	Please give overall rating of the course	31	31	0	-	-
	90% - 100%					
	80% - 90%				27	
	70% - 80%				4	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator

HOD

Course Name: 3DS MAX

SYLLABUS

Total hours: 60hrs

Module 1

The User Interface & Workflow Viewport Navigation Object Management Modifier Panel Scene Management Poly Modelling with Subdivision Surfaces Poly modelling workflow poly modelling tools Advanced Poly modelling tools Subdivision Surfacing Using the control cage

Module 2

Spline Based Modelling Spline Creation and modification Spline refinement extrusion UV Coordinates Understanding UV Coordinates Tileablevs object basedUVW Map Modifier (projection mapping) Unwrap UVW Modifier (UV unwrapping) Render UVW Template Outside tools and recommendations

Module 3

Materials / Surfacing Materials Explained Slate Editor Material types and node groups Multi-sub object Material PBR (Physically Based Rendering) Material Properties. The big 3 : Albedo / Spec / Bump Outside tools and recommendations Animating 3D objects Keyframes explained Autokey mode TRS (Translation Rotation Scale) Trajectories Graph editor / mini graph editor

Module 4

Lighting and Cameras Creating and manipulating cameras What is IBL? (Image Based Lighting) Using HDRI probes to light a scene (High Dynamic Range Image) Exposure control Controlling light settings Adding standard lights to a scene light lister Rendering Rendering stills vs animations Common render settings (output folder / Image size / sequence length) Render specific render settings Understanding samples Managing render quality vs. render time Final Tips: Render small, tweek, repeat until final

IQAC

HOD

PRINCIPAL

Course Name: 3DS MAX

Model Questions

1.3D MaxQuestions1.---------- is a turbulence pattern in three dimensions.
a.Noise, b.Cellular ,c.Checker, d.Dent.

2. ---------- is a vector that determines which way a face or vertex is pointing
a. Faces, b.Normals, c.View Align,d. Gizmo.

3. The amount by which particles are slowed as they move along the deflector surface is ----
a.Chaos b.Friction.c.Variation.b.Bounce.

4. --------- material lets you mix two materials on a single side of the surface.
a.Mix b. Blend.c.Shellac d.Top Bottom.

5. ---------- contains the accumulated history of an object.
a.Schematics View,b.Track View, c. Modifier Stack, d. Constraints

6. Inheritance of position, rotation, and scale transforms from parent to child is known as
a. Inverse Kinematics,b.Forward Kinematics, c. Linking, d. Binding

7. ----------are editable splines that represent animation values in a line-graph format.
a.Trajectories,b.Nurbs Curves, c. Function Curves, d. Paths.

8. ----------is the effect of light diminishing over distance.
a.Attenuation,b.Falloff, c. Multiplier, d. Intensity

9. ---------- changes the amount of the scene visible and the amount of perspective flare applied to aPerspective or Camera view.
a.Depth of Field,b.FOV,c.Arc Rotate,d.Focal Length

10The Angle of surface Normal relative to the light source is known as--------
a. Intensity, b.Angle of Incidence, c. Incandescence, d. Falloff.

11. The user view is also called as.
a.Projection view b.Orthographic viewc.Axonometric viewd.Perspective view

12. In the camera view port the camera can be moved in and out using.
a.Arc tool b.Select and move toolc.Dolly camera toold.None of the above

13 Which are the keys used to constrain the given axis.
a. X _ F5b.Y _ F6 _ c.Z __ F7.d.All the axis _ F8

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14 .Default lights in a new max scene.
a.Diffuse b.Ambiente.Spotd.Omni

15. A spline can be converted to.
a.Editable mesh b.Editable patche.Editable nurbsd.All the above

16 Animation can be played by pressing _____ key.
a.Enterb.None Of These.c.Nd.Spacebar

17. ---------- color is the color of the object in shadow.
a.Opacity, b.Self Illumination,c. Ambient, d.Bump

18..---------- controls make a sub object selection behave as if surrounded by a magnetic field.
a.Affect backspacing, b.Ignore backfacing, c.Soft selection, d.Constraints.

19.---------- is the sub-object of UVW map modifier.
a. Vertex,b.Gizmo, c.Edge, d.Control Points.

20.---------- lets you automatically create objects on surface of other objects.
a. Grids,b. Snaps ,c.Autogridd. Dummy.

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

Academic Year: 2023-2024
Course Name - 3DS MAX
MARK SHEET

S. No.	Name of Student	Mark(20)	Mark(100)
1	AADITHYAN CVINOD	15	75
2	ABHIJITHBINU	16	80
3	ABHINANDB	18	90
4	ABHINAVREMANAN	16	80
5	ABHIRAMV S	15	75
6	ABHISHEKSAJEEV	14	70
7	ABHISHEKSHIBU	19	95
8	AKASHM	19	95
9	AKHILPANILKUMAR	20	100
10	ALANC THOMAS	15	75
11	ALEENASUNNY	16	80
12	ALENALEX	18	90
13	ANAND SNAIR	16	80
14	ANJALIJAID	18	90
15	ANJANA BABU	16	80
16	ANURAJCSAJI	15	75
17	ANURAJV	14	70
18	APARNAB	19	95
19	ARCHAPRADEEP	14	70
20	ARJUNANIL	15	75
21	ARYAKRISHNAN	14	70
22	ASIL	19	95
23	ASWINANIL	15	75
24	ATHULDEVCV	16	80
25	ATHULVM	18	90
26	AYONASAJI	16	80
27	BHAVYAS	15	75
28	BISTAMOLBPARIYARAM	16	80
29	DEEPAKDEVS	15	75
30	DEVIKAARAVIND	14	70
31	DHAMALSHAJI	19	95

Course Coordinator

HOD CE

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MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Reg. No : 185257

प्रमाण-पत्र

Certificate

This is to certify that

Anuraj C Saji

S/o Saji K

has successfully completed the training

on

3DS MAX

from 02.12.2023 to 30.12.2023 (60hrs)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

DATE : Feb 23, 2024
PLACE : AGRA

No. PPDC/Trg./OSP/2023-24/23467

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Government of India Society

भारत सरकार की सोसाइटी

Boundary Nagar, Agra-282 006 (U.P.)

कालन्दी नगर, आगरा-282 006 (उ.प्र.)

Reg. No.: 185252

प्रमाण-पत्र

Certificate

This is to certify that

Aleena Sunny

D/o Sunny Joseph

has successfully completed the training

on

3DS MAX

from 02.12.2023 to 30.12.2023 (60hrs)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
KARDALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : Feb 23, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/23462

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

Ministry of Micro, Small and Medium Enterprises

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Government of India Society

भारत सरकार की सोसाइटी

Foundry Nagar, Agra-282 006 (U.P.)

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Reg. No : 185245

प्रमाण-पत्र

Certificate

This is to certify that

Abhinav Remanan

S/o Remanan K S

has successfully completed the training

on

3DS MAX

from 02.12.2023 to 30.12.2023 (60hrs)

at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : Feb 23, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2023-24/ 23455

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
Ministry of Micro, Small and Medium Enterprises
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
Government of India Society
भारत सरकार की सोसाइटी
Foundry Nagar, Agra-282 006 (U.P.)
फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

PPDC

Reg. No :185271

प्रमाण-पत्र

Certificate

This is to certify that

Devika Aravind

D/o Aravind kumar K V

has successfully completed the training

on

3DS MAX

from 02.12.2023 to 30.12.2023 (60hrs)

at MSME-TDC, EC- Ettumanoor (Kerala)

MSME-TDC (PPDC) AGRA

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

DATE : Feb 23, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

MANGALAM COLLEGE OF ENGINEERING

	Student List	ECE
B.Tech in Electronics and Communication Engineering		Branch: B.Tech in Electronics and Communication Engineering
Semester: Semester 4		Academic Year: 2023-24
Course Code: ECT292	L-T-P Credits:	Course Name: NANO ELECTRONICS

Sl. NO	Roll No.	Name	Gender	Reg. No.	Admission No.
1	10	AJNA R SHAH	female	MLM22EC010	16769
2	32	DEVIKA DILEEP	female	MLM22EC034	16980
3	36	JASMIN JOHN	female	MLM22EC039	16772
4	40	KEERTHANA SURESH	female	MLM22EC043	16774
5	47	PARVATHY KIRAN	female	MLM22EC050	16903
6	51	SILPA MARIAM KOSHY	female	MLM22EC054	16905

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MANGALAM COLLEGE OF ENGINEERING

Attendance

ECE

B.Tech in Electronics and Communication Engineering

Branch: B.Tech in Electronics and Communication Engineering

Semester: Semester 4

Academic Year: 2023-24

Course Code: ECT292

L-T-P Credits:

Course Name: NANO ELECTRONICS

Roll No.	Student	08/02/2024	13/02/2024	14/02/2024	15/02/2024	16/02/2024	17/02/2024	20/02/2024	22/02/2024	23/02/2024	28/02/2024	01/03/2024	07/03/2024	08/03/2024	12/03/2024	14/03/2024	15/03/2024	16/03/2024	20/03/2024	21/03/2024	22/03/2024	27/03/2024	28/03/2024	29/03/2024	02/04/2024	03/04/2024
		VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII	VIII
10	AJNA R SHAH	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
32	DEVIKA DILEEP	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
36	JASMIN JOHN	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
40	KEERTHANA SURESH	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
47	PARVATHY KIRAN	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
51	SILPA MARIAM KOSHY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

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APJ Abdul Kalam Technological University
CET Campus, Thiruvananthapuram
Kerala -695016
India

MANGALAM COLLEGE OF ENGINEERING

Students Examination Eligibility Details

Academic Year : 2023 - 2024

Degree Type : BTech Minor

Program :
B.Tech(Full Time)

Branch : Robotics and Automation

Semester : S3

Course Name : RAT281-BASICS OF ROBOTICS(Basket 1)

Batch : RB MINOR 22 A BATCH

Eligibility For : Regular Students

Period of Registration : NA

Student Name	Attendance %, Internal Marks/50	Availed Leaves	Disc. Action	Eligible for Written Exam	Status:	In-eligibility Type
ADITHYA S NADH Register No : LMLM22EC063	Attendance : 100.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SARANG SANTHOSH Register No : LMLM22EC064	Attendance : 100.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
PRAFUL RAJEEV Register No : LMLM22EE033	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ABDUL HADHI T N Register No : MLM22CS002	Attendance : 94.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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AISHA HUSSAIN Register No : MLM22CS008	Attendance : 94.0 Internals : 46.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AISWARYA MADHU Register No : MLM22CS009	Attendance : 100.0 Internals : 48.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AJITH SEBASTAIN Register No : MLM22CS010	Attendance : 100.0 Internals : 39.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AKHILESH K S Register No : MLM22CS012	Attendance : 100.0 Internals : 39.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AKSA MARY JOHN Register No : MLM22CS013	Attendance : 100.0 Internals : 46.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AKSHARA PRADEEP Register No : MLM22CS014	Attendance : 88.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALAN GEORGE JOSHY Register No : MLM22CS016	Attendance : 100.0 Internals : 39.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALBY SHIJI Register No : MLM22CS020	Attendance : 100.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALISHA BAIJU Register No : MLM22CS022	Attendance : 100.0 Internals : 46.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AMEEKHA NIYAS Register No : MLM22CS026	Attendance : 100.0 Internals : 49.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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ANEENA ANN MATHAI Register No : MLM22CS028	Attendance : 100.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ANGITHA SUNIL Register No : MLM22CS029	Attendance : 100.0 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ANIRUDH T MADHU Register No : MLM22CS030	Attendance : 94.0 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ANUSREE BINOY Register No : MLM22CS032	Attendance : 100.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ARUNDHATHI AJAY Register No : MLM22CS035	Attendance : 100.0 Internals : 45.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ASWATHY RAJ Register No : MLM22CS038	Attendance : 94.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ASWIN PRAMOD Register No : MLM22CS039	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
DONA MARIYA SOJI Register No : MLM22CS052	Attendance : 100.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
JOSHAN V JOHN Register No : MLM22CS073	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
JOYAL REJI Register No : MLM22CS077	Attendance : 94.0 Internals : 46.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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JYOTHILEKSHMI B T Register No : MLM22CS078	Attendance : 100.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
KRISHNAPRASAD S Register No : MLM22CS079	Attendance : 100.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
MUHAMMED SHUHAIB Register No : MLM22CS089	Attendance : 94.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
NANDITHA M Register No : MLM22CS092	Attendance : 100.0 Internals : 43.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
NEHA MARIA SHAJI Register No : MLM22CS093	Attendance : 100.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
NIRENJAN J Register No : MLM22CS095	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
PAVITHRA RAJESH Register No : MLM22CS101	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SACHIN PREMJI Register No : MLM22CS106	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SAFNA SHAJAHAN Register No : MLM22CS107	Attendance : 94.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SOHIL SUMAN Register No : MLM22CS116	Attendance : 100.0 Internals : 48.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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STEEVE C BABY Register No : MLM22CS119	Attendance : 100.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
THARIQ REGI Register No : MLM22CS122	Attendance : 100.0 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AJNA R SHAH Register No : MLM22EC010	Attendance : 100.0 Internals : 45.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
VIGNESH RAJA Register No : MLM22EC062	Attendance : 100.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALBIN THOMAS Register No : MLM22EE008	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SWARAJ P S Register No : MLM22EE029	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGG.
MANGALAM COLLEGE OF ENGINEERING
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APJ Abdul Kalam Technological University
CET Campus, Thiruvananthapuram
Kerala -695016
India

MANGALAM COLLEGE OF ENGINEERING

Students Examination Eligibility Details

Academic Year : 2023 - 2024

Degree Type : BTech Minor

Program :
B.Tech(Full Time)

Branch : Robotics and Automation

Semester : S3

Course Name : RAT281-BASICS OF ROBOTICS(Basket 1)

Batch : RB MINOR 22 B BATCH

Eligibility For : Regular Students

Period of Registration : NA

Student Name	Attendance %, Internal Marks/50	Availed Leaves	Disc. Action	Eligible for Written Exam	Status:	In-eligibility Type
KENZE BIJU Register No : LMLM22AIM033	Attendance : 75.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
FATHIMATH SUHAIRA M Register No : LMLM22CE066	Attendance : 94.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ABHINAVE G NAIR Register No : MLM22AIM001	Attendance : 100.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ADARSH SUNIL Register No : MLM22AIM002	Attendance : 100.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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AKASH BIJU Register No : MLM22AIM005	Attendance : 81.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALAN BINOY Register No : MLM22AIM006	Attendance : 75.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALAN THANKACHAN Register No : MLM22AIM007	Attendance : 100.0 Internals : 46.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALEX J MATHEW Register No : MLM22AIM009	Attendance : 81.0 Internals : 43.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALFY MATHEW PHILIP Register No : MLM22AIM010	Attendance : 94.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALFYMOL T A Register No : MLM22AIM011	Attendance : 100.0 Internals : 43.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ANANDHU K BINU Register No : MLM22AIM013	Attendance : 88.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ASWIN PRAMOD Register No : MLM22AIM015	Attendance : 100.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ATHUL MANOJ Register No : MLM22AIM016	Attendance : 75.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
DEVANARAYANAN V S Register No : MLM22AIM018	Attendance : 75.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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FAALIHA NISHAD Register No : MLM22AIM020	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
FARIS BASHEER Register No : MLM22AIM021	Attendance : 75.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
HASHIR MUHAMMED Register No : MLM22AIM022	Attendance : 88.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
LEKSHMIKRISHNA P A Register No : MLM22AIM024	Attendance : 81.0 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
MUHAMMED ASLAM S Register No : MLM22AIM025	Attendance : 81.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
NEGHA S VINOD Register No : MLM22AIM028	Attendance : 94.0 Internals : 45.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SREELAKSHMI N P Register No : MLM22AIM030	Attendance : 75.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SWAJNA MARY NELSON Register No : MLM22AIM032	Attendance : 75.0 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AKHIL P ANILKUMAR Register No : MLM22CE010	Attendance : 88.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALEN ALEX Register No : MLM22CE013	Attendance : 81.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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HALLEY J Register No : MLM22CE035	Attendance : 100.0 Internals : 47.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
JAYAKRISHNAN C Register No : MLM22CE037	Attendance : 100.0 Internals : 45.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
JOSHNA VIJAY Register No : MLM22CE040	Attendance : 75.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
MEGHA MADHU Register No : MLM22CE043	Attendance : 75.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
NIDHA FATHIMA Register No : MLM22CE048	Attendance : 88.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ROHIT BASTIAN Register No : MLM22CE054	Attendance : 81.0 Internals : 43.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SAURAV SANTHOSH Register No : MLM22CE056	Attendance : 81.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SREENATH R Register No : MLM22CE058	Attendance : 75.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ABHIJITH ANIYAN Register No : MLM22ME001	Attendance : 75.0 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ABHILASH SEBASTIAN Register No : MLM22ME003	Attendance : 100.0 Internals : 45.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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ABHINAV K BINU Register No : MLM22ME004	Attendance : 75.0 Internals : 43.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ABIN JOSEPH Register No : MLM22ME006	Attendance : 75.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ADHARSH P S Register No : MLM22ME008	Attendance : 75.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ADITHYAN KRISHNA P R Register No : MLM22ME009	Attendance : 81.0 Internals : 43.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ADWAIT JOSHY Register No : MLM22ME011	Attendance : 100.0 Internals : 47.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AFSAL V S Register No : MLM22ME012	Attendance : 75.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALAN SEBASTIAN Register No : MLM22ME016	Attendance : 100.0 Internals : 45.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALBIN BIJU Register No : MLM22ME017	Attendance : 75.0 Internals : 35.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALBIN GEORGE Register No : MLM22ME018	Attendance : 75.0 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALBIN THANKACHAN Register No : MLM22ME019	Attendance : 100.0 Internals : 35.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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AMALKRISHNAN Register No : MLM22ME020	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AMAL SHAJI Register No : MLM22ME021	Attendance : 75.0 Internals : 43.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ARUN ASHLEY Register No : MLM22ME035	Attendance : 94.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ARUNSHAJI Register No : MLM22ME036	Attendance : 75.0 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ASHIK B Register No : MLM22ME037	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
DEVADATHAN V S Register No : MLM22ME045	Attendance : 88.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
GLODIN TONY Register No : MLM22ME051	Attendance : 75.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
JISHNU VASU Register No : MLM22ME058	Attendance : 75.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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APJ Abdul Kalam Technological University
CET Campus, Thiruvananthapuram
Kerala -695016
India

MANGALAM COLLEGE OF ENGINEERING

Students Examination Eligibility Details

Academic Year : 2023 - 2024 **Degree Type : BTech Honours**

Program : B.Tech(Full Time) **Branch : ELECTRONICS AND COMMUNICATION ENGINEERING** **Semester : S5**

Course Name : FPGA BASED SYSTEM DESIGN-ECT393(Basket 1) **Batch : 1**

Eligibility For : Regular Students **Period of Registration : NA**

Student Name	Attendance %, Internal Marks/50	Availed Leaves	Disc. Action	Eligible for Written Exam	Status:	In-eligibility Type
NOURIN NILA NAZAR Register No : MLM21EC031	Attendance : 100.0 Internals : 48.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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MANGALAM COLLEGE OF ENGINEERING

Internal Evaluation Report

	ECE
B.Tech in Electronics and Communication Engineering	Branch: B.Tech in Electronics and Communication Engineering
Semester: Semester 6	Academic Year: 2023-24
Course Code: ECT394	L-T-P Credits: 3-1-0-4
	Course Name: ELECTRONIC DESIGN AUTOMATION

Roll. NO	Student	Attendance		Assessments				Assignments						Score Summary			
		Count	%	Activity 1		Activity 2		Activity 1		Activity 2		Activity 3		Attendance	Assessments	Assignments	Total
				SC.	WT.	SC.	WT.	SC.	WT.	SC.	WT.	SC.	WT.	10	25	15	50
				40	100%	40	100%	0	100%	10	100%	10	100%				
30	NOURIN NILA NAZAR	22/22	100	39	97.5	38	95	NA	0	10	100	10	100	10	24.06	15	49

Abbreviations: SC - Score, WT - Weightage

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Assessments			
Code	Name	Maximum Score	% of Weightage
Activity 1	FIRST SERIES EXAMINATION	40	100
Activity 2	SECOND INTERNAL EXAMINATION	40	100

Assignments			
Code	Name	Maximum Score	% of Weightage
Activity 1	EDA ASSIGNMENT 1	0	100
Activity 2	EDA ASSIGNMENT 2	10	100
Activity 3	EDA ASSIGNMENT 3	10	100

Calculations:

Attendance:

Score of a student for Attendance= (no. of present/ max. no. of attendance) * Maximum score for attendance

Assessment / Assignment:

% of Score of a student for an Activity = (student score/ max. score of Activity) * (% of weightage of Activity / 100)

If best score selection applcable then only number of best scores from all exams will be considerd for % of Score of student in all Activity's

% of Score of student in all Activity's = sum(% of Score of a student for an Activity) / number of Activity's

Score of a student for Assessments = % of Score of student in all Activity's * Maximum score for Assessment

Total Internal mark:

Total Score= Score of a student for Attendance + Score of a student for Assessments + Score of a student for Assignments

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APJ Abdul Kalam Technological University
CET Campus, Thiruvananthapuram
Kerala -695016
India

MANGALAM COLLEGE OF ENGINEERING

Students Examination Eligibility Details

Academic Year : 2023 - 2024 **Degree Type : BTech Minor**

Program : **Branch : Robotics and Automation** **Semester : S4**
B.Tech(Full Time)

Course Name : RAT282-INTRODUCTION TO INDUSTRIAL AUTOMATION(Basket 1) **Batch : RB MINOR 22 A BATCH**

Eligibility For : Regular Students **Period of Registration : NA**

Student Name	Attendance %, Internal Marks/50	Availed Leaves	Disc. Action	Eligible for Written Exam	Status:	In-eligibility Type
SARANG SANTHOSH Register No : LMLM22EC064	Attendance : 100.0 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
PRAFUL RAJEEV Register No : LMLM22EE033	Attendance : 88.89 Internals : 39.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AISHA HUSSAIN Register No : MLM22CS008	Attendance : 94.44 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AISWARYA MADHU Register No : MLM22CS009	Attendance : 94.44 Internals : 39.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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AKHILESH K S Register No : MLM22CS012	Attendance : 94.44 Internals : 39.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AKSA MARY JOHN Register No : MLM22CS013	Attendance : 94.44 Internals : 47.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALISHA BAIJU Register No : MLM22CS022	Attendance : 88.89 Internals : 45.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AMEEKHA NIYAS Register No : MLM22CS026	Attendance : 100.0 Internals : 47.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ARUNDHATHI AJAY Register No : MLM22CS035	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
JOYAL REJI Register No : MLM22CS077	Attendance : 92.86 Internals : 47.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
JYOTHILEKSHMI B T Register No : MLM22CS078	Attendance : 100.0 Internals : 43.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
KRISHNAPRASAD S Register No : MLM22CS079	Attendance : 92.86 Internals : 39.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
MUHAMMED SHUHAIB Register No : MLM22CS089	Attendance : 92.86 Internals : 38.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
NANDITHA M Register No : MLM22CS092	Attendance : 92.86 Internals : 37.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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NEHA MARIA SHAJI Register No : MLM22CS093	Attendance : 92.86 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
NIRENJAN J Register No : MLM22CS095	Attendance : 100.0 Internals : 46.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
PAVITHRA RAJESH Register No : MLM22CS101	Attendance : 100.0 Internals : 39.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SOHIL SUMAN Register No : MLM22CS116	Attendance : 100.0 Internals : 45.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
STEEVE C BABY Register No : MLM22CS119	Attendance : 92.86 Internals : 46.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
THARIQ REGI Register No : MLM22CS122	Attendance : 92.86 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AJNA R SHAH Register No : MLM22EC010	Attendance : 100.0 Internals : 47.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALBIN THOMAS Register No : MLM22EE008	Attendance : 90.0 Internals : 37.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SWARAJ P S Register No : MLM22EE029	Attendance : 90.0 Internals : 37.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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APJ Abdul Kalam Technological University
CET Campus, Thiruvananthapuram
Kerala -695016
India

MANGALAM COLLEGE OF ENGINEERING

Students Examination Eligibility Details

Degree Type : BTech Minor

Academic Year : 2023 - 2024

Semester : S4

Program :
B.Tech(Full Time)

Branch : Robotics and Automation

Batch : RB MINOR 22 B BATCH

Course Name : RAT282-INTRODUCTION TO INDUSTRIAL AUTOMATION(Basket 1)

Period of Registration : NA

Eligibility For : Regular Students

Student Name	Attendance %, Internal Marks/50	Availed Leaves	Disc. Action	Eligible for Written Exam	Status:	In-eligibility Type
KENZE BIJU Register No : LMLM22AIM033	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
FATHIMATH SUHAIRA M Register No : LMLM22CE066	Attendance : 88.89 Internals : 38.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALAN BINOY Register No : MLM22AIM006	Attendance : 81.25 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
DEVANARAYANAN V S Register No : MLM22AIM018	Attendance : 100.0 Internals : 47.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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FARIS BASHEER Register No : MLM22AIM021	Attendance : 87.5 Internals : 38.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AKHIL P ANILKUMAR Register No : MLM22CE010	Attendance : 94.12 Internals : 38.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALEN ALEX Register No : MLM22CE013	Attendance : 100.0 Internals : 38.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
HALLEY J Register No : MLM22CE035	Attendance : 94.44 Internals : 38.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
JAYAKRISHNAN C Register No : MLM22CE037	Attendance : 94.44 Internals : 38.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
JOSHNA VIJAY Register No : MLM22CE040	Attendance : 94.44 Internals : 37.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
MEGHA MADHU Register No : MLM22CE043	Attendance : 100.0 Internals : 38.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
NIDHA FATHIMA Register No : MLM22CE048	Attendance : 83.33 Internals : 38.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ROHIT BASTIAN Register No : MLM22CE054	Attendance : 94.44 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
SAURAV SANTHOSH Register No : MLM22CE056	Attendance : 94.44 Internals : 39.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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SREENATH R Register No : MLM22CE058	Attendance : 100.0 Internals : 42.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ABHINAV K BINU Register No : MLM22ME004	Attendance : 100.0 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ABIN JOSEPH Register No : MLM22ME006	Attendance : 100.0 Internals : 40.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ADWAIT JOSHY Register No : MLM22ME011	Attendance : 100.0 Internals : 46.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AFSAL V S Register No : MLM22ME012	Attendance : 100.0 Internals : 43.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ALAN SEBASTIAN Register No : MLM22ME016	Attendance : 100.0 Internals : 44.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
AMAL SHAJI Register No : MLM22ME021	Attendance : 100.0 Internals : 41.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
ASHIK B Register No : MLM22ME037	Attendance : 100.0 Internals : 43.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	
GLODIN TONY Register No : MLM22ME051	Attendance : 100.0 Internals : 38.0/50	Long Leave : Duty Leave :		Yes	Submitted by college	

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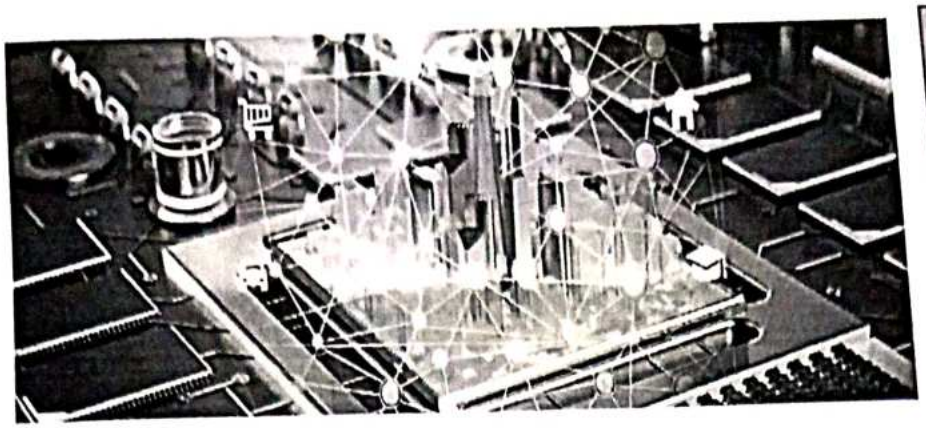

CERTIFICATE COURSE

ON

EMBEDDED SYSTEMS DESIGN

Course Content

- ✓ Introduction to embedded Systems
- ✓ Hands-on programming exercises
- ✓ Communication protocols
- ✓ Hands-on sessions with popular tools

Date: 15.01.2024 to 19.01.2024

Time: 9:00am to 4:00pm

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Prof. Jyothisree KR,
Assoc. Prof -Electronics & Communication Engineering

VISION

To achieve excellent standards in technical education and engage research in the field of Electronics and Communication Engineering creating employable and innovative professionals who can excel in global challenges

MISSION

1. *To practice innovative teaching and learning practices in Electronics and Communication domain with effective curriculum enhancement and Industry collaboration.*
2. *To inspire creative enquiry and innovation in students through excellent training programs and projects for professional skills.*
3. *To imbibe a sense of team work, ethics combined with social responsibility in student*

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Department of Electronics & Communication Engineering
MANGALAM COLLEGE OF ENGINEERING

CIRCULAR

Ref:MLM/ECE/Certificate Course/Circular/2023-24/02 **03.01.2024**

The department of Electronics and Communication Engineering is planned to conduct a certificate course for third year students. So it is informed to students to enroll their names for **EMBEDDED SYSTEM DESIGN** which will held on this year. Students are asked to enroll their names to their respective class advisor on or before 11.01.2024. The course syllabus is attached.

Name of the course: EMBEDDED SYSTEM DESIGN

Course duration: 30 hours

Time duration: 9am to 4pm

Subject handling Faculty: Ms. Jyothisree K R, Associate Professor, ECE

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Department of Electronics & Communication Engineering
MANGALAM COLLEGE OF ENGINEERING

1.	Academic Year	2023-24
2.	Title of the course	EMBEDDED SYSTEM DESIGN
3.	Course objectives	To develop the skill for embedded system design
4.	Pre requisite	Basic programming
5.	Requirement	Online google meet for theory class Project lab for practical class
6.	Beneficiary	S6 Students of ECE
7.	Date & duration of the course	15.01.2024 to 19.01.2024
8.	Proposed timing	9am to 4pm
9.	No. of hours required	30 hrs
10.	Internal Resource person	Ms. Jyothisree K R, Assoc.P-ECE
11.	Course registration fee	Nil
12.	Course contents	Enclosed separately
13.	Credits & certification	Those who have 80% attendance and scored 60% in assessment
14.	Venue	Online

Co-ordinator **HoD-ECE** **Principal**

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGG.
MANGALAM COLLEGE OF ENGINEERING
ETTUMANOOR 686 631

Department of Electronics & Communication Engineering
MANGALAM COLLEGE OF ENGINEERING

List of Students Enrolled for Certificate course – EMBEDDED SYSTEM DESIGN

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III Year

Sl. No.	Name of Student
1	ABHISHEK THULASIDHARAN
2	ABIYA DAL
3	ACHU JAYAMON
4	ADITHYAN ANOOP
5	ADITHYA K J
6	AFNA SALIM
7	AKSHAY GOPAL
8	AMAL V B
9	ANANDHU KRISHNAN
10	ANJANA K J
11	APARNA K S
12	ASHBEL ANN ROY
13	ASHBIN THOMAS
14	ASHNA SAJI
15	ASWIN SANTHOSH
16	AYANA ANTONY
17	FAIHA KAMAL S
18	GOPIKA MOHAN
19	HARIKRISHNAN S
20	JEFFERIN VARGHESE
21	JISHA GIGI
22	KARTHIK P
23	KARTHIKA SUNIL

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24	K R DEVIKA
25	K R JAYASOORYA
26	MELVIN VARGHESE MANOJ
27	MOHITH RANA
28	NIBHAMOL S
29	NIDHASH AHAMED M
30	NOURIN NILA NAZER
31	P.ADHIBAN CHANDRABOSE
32	POORNIMA PUSHPAN
33	RAJASREE P K
34	SURABHI SUNIL
35	VIDHU MOHAN
36	VISHNU S BABU
37	VISHNU SASI
38	ANZAR BASHEER
39	DILSILA
40	JITHIN JOY
41	TEJI JOSEPH

Course Coordinator

HOD/ECE

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Department of Electronics & Communication Engineering
MANGALAM COLLEGE OF ENGINEERING

From

Head of the Department,
Dept. of Electronics and Communication Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 2/01/2024 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

Sl.No	Name of Add on Course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	EMBEDDED SYSTEM DESIGN	2023-24/S8	30Hrs	Ms. Jyothisree KR

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-ECE

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Certificate Course – EMBEDDED SYSTEM DESIGN

Detailed explanation about the course

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III Year

Department of Electronics and Communication Engineering organized a certificate course on **EMBEDDED SYSTEM DESIGN** for the Third Year B.Tech students (2021-2025 Batch) from 15th January 2024 to 19th January 2024. A total of 36 students were enrolled for the course. 27 lecture hours and 3 practical hours were provided during the course as per curriculum. A multiple choice-based examination was conducted for the enrolled students at the end of the course. Certificates were provided for the participants after successful completion of the course.

No of students Registered	No of Students participated	No of Students Passed	No of students Eligible for Certificate
41	41	41	41

Course Coordinator

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List of students enrolled for the certification course: **EMBEDDED SYSTEM DESIGN**

Academic Year:2023-24 **Batch/Year:S6 ECE/ III**

Sl No.	Reg No.	Name of the student
1	MLM21EC001	ABHISHEK THULASIDHARAN
2	MLM21EC002	ABIYA DAL
3	MLM21EC003	ACHU JAYAMON
4	MLM21EC005	ADITHYAN ANOOP
5	MLM21EC006	ADITHYA K J
6	MLM21EC007	AFNA SALIM
7	MLM21EC008	AKSHAY GOPAL
8	MLM21EC009	AMAL V B
9	MLM21EC010	ANANDHU KRISHNAN
10	MLM21EC011	ANJANA K J
11	MLM21EC012	APARNA K S
12	MLM21EC013	ASHBEL ANN ROY
13	MLM21EC014	ASHBIN THOMAS
14	MLM21EC015	ASHNA SAJI
15	MLM21EC016	ASWIN SANTHOSH
16	MLM21EC017	AYANA ANTONY
17	MLM21EC018	FAIHA KAMAL S
18	MLM21EC019	GOPIKA MOHAN
19	MLM21EC020	HARIKRISHNAN S
20	MLM21EC021	JEFFERIN VARGHESE
21	MLM21EC022	JISHA GIGI
22	MLM21EC023	KARTHIK P
23	MLM21EC024	KARTHIKA SUNIL
24	MLM21EC025	K R DEVIKA
25	MLM21EC026	K R JAYASOORYA
26	MLM21EC027	MELVIN VARGHESE MANOJ
27	MLM21EC028	MOHITH RANA
28	MLM21EC029	NIBHAMOL S
29	MLM21EC030	NIDHASH AHAMED M
30	MLM21EC031	NOURIN NILA NAZER
31	MLM21EC032	P.ADHIBAN CHANDRABOSE
32	MLM21EC033	POORNIMA PUSHPAN
33	MLM21EC034	RAJASREE P K
34	MLM21EC037	SURABHI SUNIL
35	MLM21EC038	VIDHU MOHAN
36	MLM21EC039	VISHNU S BABU
37	MLM21EC040	VISHNU SASI
38	LMLM21EC041	ANZAR BASHEER
39	LMLM21EC042	DILSILA
40	LMLM21EC043	JITHIN JOY
41	LMLM21EC044	TEJI JOSEPH

Course Co-ordinator

HoD

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SYLLABUS (Add-on Course)

Course Name: EMBEDDED SYSTEM DESIGN

Total hours: 30

Module 1 (4 hours): Introduction to Embedded Systems

- Definition and characteristics of embedded systems
- Applications and examples
- Challenges in embedded system design

Module 2 (6 hours): Microcontroller Programming

- Basics of microcontroller architecture
- Programming languages (C and assembly)
- Hands-on programming exercises

Module 3 (5 hours): Peripheral Interfaces

- Interfacing with sensors and actuators
- Communication protocols (I2C, SPI, UART)
- Practical sessions on interfacing

Module 4 (5 hours): Real-time Operating Systems (RTOS)

- Introduction to RTOS
- Tasks, scheduling, and synchronization
- Case studies and practical applications

Module 5 (5 hours): Embedded System Development Tools

- Overview of development tools (IDEs, compilers, debuggers)
- Hands-on sessions with popular tools
- Debugging techniques

Module 6 (5 hours): Project Work

- Group project assignment
- Guidance and mentorship during project work
- Project presentations and feedback

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SUBJECT NAME: EMBEDDED SYSTEM DESIGN

1. What is the primary function of a microcontroller in an embedded system?

a) Graphic processing

b) Task scheduling

c) Data storage

d) Controlling and processing data

Answer: d) Controlling and processing data

1.2 Which programming language is commonly used for embedded systems development due to its efficiency and proximity to hardware?

a) Java

b) Python

c) C

d) JavaScript

Answer: c) C

3. A microcontroller typically integrates a _____, memory, and various peripherals on a single chip.

Answer: CPU (Central Processing Unit)

4. Interfacing with sensors and actuators often involves the use of communication protocols such as _____.

Answer: I2C, SPI, UART (any one or more)

5.Match the following:

A. I^2C

B. Real-time Operating System (RTOS)

C. Peripheral Interface

D. Embedded System

5.1 Responsible for connecting microcontroller to external devices

5.2 Manages tasks with specific timing requirements

5.3 A dedicated computing system for a specific function

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5.4 Communication protocol for sensors and peripherals

Answer:

A. 5.4

B. 5.2

C. 5.1

D. 5.3

6. What is the purpose of task scheduling in a real-time operating system (RTOS)?

a) Determining order of task execution

b) Managing file systems

c) Optimizing memory usage

d) Graphic rendering

Answer: a) Determining order of task execution

7. Which communication protocol is commonly used for interfacing with sensors and peripherals in embedded systems?

a) Bluetooth

b) I^2C

c) USB

d) Ethernet

Answer: b) I^2C

8. What does the term "RTOS" stand for?

a) Random Task Operating System

b) Real-time Operating System

c) Robotic Task Observation System

d) Resourceful Task Optimization System

Answer: b) Real-time Operating System

9. Which component of a microcontroller is responsible for temporarily storing data during program execution?

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a) CPU

b) RAM

c) ROM

d) EEPROM

Answer: b) RAM

10. What is the primary advantage of using a real-time operating system in embedded systems?

a) High-level programming support

b) Cost-effectiveness

c) Deterministic and predictable behavior

d) Graphic rendering capabilities

Answer: c) Deterministic and predictable behavior

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Certificate Course – EMBEDDED SYSTEMS DESIGN

MARK SHEET

Academic Year: 2023-24 Batch 2021-2025

Year: III

S. No.	Name of Student	Mark (20)	Out of 100
1	ABHISHEK THULASIDHARAN	14	70
2	ABIYA DAL	15	75
3	ACHU JAYAMON	15	75
4	ADITHYAN ANOOP	17	85
5	ADITHYA K J	15	75
6	AFNA SALIM	16	80
7	AKSHAY GOPAL	20	100
8	AMAL V B	16	80
9	ANANDHU KRISHNAN	18	90
10	ANJANA K J	16	80
11	APARNA K S	14	70
12	ASHBEL ANN ROY	18	90
13	ASHBIN THOMAS	16	80
14	ASHNA SAJI	14	70
15	ASWIN SANTHOSH	15	75
16	AYANA ANTONY	20	100
17	FAHIA KAMAL S	16	80
18	GOPIKA MOHAN	15	75
19	HARIKRISHNAN S	20	100
20	JEFFERIN VARGHESE	16	80
21	JISHA GIGI	15	75
22	KARTHIK P	20	100
23	KARTHIKA SUNIL	18	90
24	K R DEVIKA	16	80
25	K R JAYASOORYA	15	75
26	MELVIN VARGHESE MANOJ	16	80
27	MOHITH RANA	20	100
28	NIHAMOL S	16	80
29	NIDHASH AHAMED M	15	75
30	NOURIN NILA NAZER	16	80
31	PADHMAN CHANDRABOSE	18	90

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32	POORNIMA PUSHPAN	16	80
33	RAJASREE P K	14	70
34	SURABHI SUNIL	18	90
35	VIDHU MOHAN	16	80
36	VISHNU S BABU	20	100
37	VISHNU SASI	16	80
38	ANZAR BASHEER	15	75
39	DILSILA	20	100
40	JITHIN JOY	16	80
41	TEJI JOSEPH	18	90

Course Coordinator

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Attendance of Certificate Course – EMBEDDED SYSTEM DESIGN

Academic Year: 2023-2024 **Batch 2021-2025**

Year: III

S. No.	Name of Student	15/1/2024		16/1/2024		17/1/2024		18/1/2024		19/1/2024		Total Attendance
		FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	
1	ABHISHEK THULASIDHARAN	P	P	P	P	P	P	P	P	P	P	100
2	ABIYA DAL	P	P	P	P	P	P	P	P	P	P	100
3	ACHU JAYAMON	P	P	P	P	P	P	P	P	P	P	100
4	ADITHYAN ANOOP	P	P	P	A	A	P	P	P	P	P	80
5	ADITHYA K J	P	P	P	P	P	P	P	P	P	P	100
6	AFNA SALIM	P	P	P	P	P	P	P	P	P	P	100
7	AKSHAY GOPAL	P	P	P	P	P	P	P	P	P	P	100
8	AMAL V B	P	P	P	P	P	P	P	P	P	P	100
9	ANANDHU KRISHNAN	P	P	P	P	A	A	P	P	P	P	80
10	ANJANA K J	P	P	P	P	P	P	P	P	P	P	100
11	APARNA K S	P	P	P	P	P	P	P	P	P	P	100
12	ASHBEL ANN ROY	P	P	P	P	P	P	P	P	P	P	100
13	ASHBIN THOMAS	P	P	P	P	P	P	P	P	P	P	100
14	ASHNA SAJI	P	P	P	P	P	P	P	P	P	P	100
15	ASWIN SANTHOSH	P	P	P	P	P	P	P	P	P	P	100
16	AYANA ANTONY	P	P	P	P	P	P	P	P	P	P	100
17	FAIHA KAMAL S	P	P	P	P	P	P	P	P	P	P	100
18	GOPIKA MOHAN	P	P	P	P	P	P	P	P	P	P	100
19	HARIKRISHNAN S	P	P	P	P	P	P	P	P	P	P	100
20	JEFFERIN VARGHESE	P	P	P	P	P	P	P	P	P	P	100
21	JISHA GIGI	P	P	P	P	P	P	P	P	P	P	100
22	KARTHIK P	P	P	P	P	A	A	P	P	P	P	80
23	KARTHIKA SUNIL	P	P	P	P	P	P	P	P	P	P	100
24	K R DEVIKA	P	P	P	P	A	A	A	P	P	P	70
25	K R JAYASOORYA	P	P	P	P	P	P	A	A	P	P	80
26	MELVIN VARGHESE MANOJ	P	P	P	P	P	P	P	P	P	P	100
27	MOHITH RANA	P	P	P	P	P	P	P	P	P	P	100
28	NIBHAMOL S	P	P	P	P	P	P	P	P	P	P	100
29	NIDHASH AHAMED M	P	P	P	P	P	P	P	P	P	P	100

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30	NOURIN NILA NAZER	P	P	P	P	P	P	P	P	P	P	100
31	P.ADHIBAN CHANDRABOSE	P	P	P	P	P	P	P	P	P	P	100
32	POORNIMA PUSHPAN	P	P	P	P	P	P	P	P	P	P	100
33	RAJASREE P K	P	P	P	P	P	P	P	P	P	P	100
34	SURABHI SUNIL	P	P	P	P	P	P	P	P	P	P	100
35	VIDHU MOHAN	P	P	P	P	P	P	P	P	P	P	100
36	VISHNU S BABU	P	P	P	P	P	P	P	P	P	P	100
37	VISHNU SASI	P	P	P	P	P	P	P	P	P	P	100
38	ANZAR BASHEER	P	P	P	P	P	P	P	P	A	A	80
39	DILSILA	P	P	P	P	P	P	P	P	P	P	100
40	JITHIN JOY	P	P	P	P	P	P	P	P	P	P	100
41	TEJI JOSEPH	P	P	A	A	P	P	P	P	P	P	80

Course Coordinator

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Course Feedback Form

Course Title: EMBEDDED SYSTEM Dates: 15/11/24 - 19/11/24
Venue:

Name: ANZAR BASHEER
Semester: S6
Branch: ELECTRONICS & COMMUNICATION

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? Yes/ ~~NO~~

B. The course contents met with your expectations. 5
1. Strongly Disagree 5. Strongly Agree

C. The lecture sequence was well planned 4
1. Strongly Disagree 5. Strongly Agree

D. The contents were illustrated with 3
1. Too few examples 5. Adequate examples

E. The level of the course was 3
1. Too low 5. Too high

F. The course contents compared with your expectations 4
1. Too theoretical 5. Too empirical

G. The course exposed you to new knowledge and practices 5
1. Strongly Disagree 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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3

1. Not at all 5. Very strongly

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand — 5

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used — 4

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate — 5

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful — 5

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? Yes/ ~~NO~~

F. Please give overall rating of the course

90% – 100%	( )	60% – 70%	(✓)
80% – 90%	( )	50% – 60%	( )
70% – 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Thank You

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Course Feedback Form

Course Title: Embedded Systems Design
Venue: Online
Dates: 15/1/24 - 19/1/24

Name: Nowin Nila Nazar
Semester: S6
Branch: ECE

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? Yes/ NO ✓

B. The course contents met with your expectations. 5

1. Strongly Disagree 5. Strongly Agree

C. The lecture sequence was well planned 3

1. Strongly Disagree 5. Strongly Agree

D. The contents were illustrated with 4

1. Too few examples 5. Adequate examples

E. The level of the course was 4

1. Too low 5. Too high

F. The course contents compared with your expectations 4

1. Too theoretical 5. Too empirical

G. The course exposed you to new knowledge and practices 3

1. Strongly Disagree 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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1. Not at all 5. Very strongly [4]

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand [4]

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used [4]

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate [3]

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful [3]

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? [Yes/ NO] ✓

F. Please give overall rating of the course

90% – 100%	( )	60% – 70%	( )
80% – 90%	(✓)	50% – 60%	( )
70% – 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

The class was effective and also innovative

Please comment on the weaknesses of the course and the way it was conducted.

More interactive session discussions was required

Thank You

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Course Feedback Form

Course Title: Embedded System
Venue:
Dates: 15/1/24 - 19/1/24

Name: Vishnu Sasi
Semester: S6
Branch: B Electronic and communication

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? Yes/ ~~NO~~

B. The course contents met with your expectations. 5
1. Strongly Disagree 5. Strongly Agree

C. The lecture sequence was well planned 4
1. Strongly Disagree 5. Strongly Agree

D. The contents were illustrated with 3
1. Too few examples 5. Adequate examples

E. The level of the course was 4
1. Too low 5. Too high

F. The course contents compared with your expectations 3
1. Too theoretical 5. Too empirical

G. The course exposed you to new knowledge and practices 5
1. Strongly Disagree 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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1. Not at all 5. Very strongly [5]

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand [5]

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used [5]

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate [4]

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful [5]

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? Yes/~~NO~~

F. Please give overall rating of the course

90% – 100%	( )	60% – 70%	( )
80% – 90%	( )	50% – 60%	( )
70% – 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

The Effective New ~~study~~ learning opportunity.

Please comment on the weaknesses of the course and the way it was conducted.

Need more time.

Thank You

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Consolidated Course Feedback

EMBEDDED SYSTEMS DESIGN

Academic Year: 2023-2024 Batch 2021-2025

Year: III

	Questionnaire	Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A	Were objectives of the course clear to you?	41	41	0	-	-
B	The course contents met with your expectations.	41	-	-	37	4
C	The lecture sequence was well planned	41	-	-	39	2
D	The contents were illustrated with	41	-	-	38	3
E	The level of the course was	41	-	-	40	1
F.	The course contents compared with your expectations	41	-	-	36	5
G	The course exposed you to new knowledge and practices	41	-	-	38	3
H	Will you recommend this course to your colleagues?	41	-	-	37	4
	THE CONDUCT OF THE COURSE					
A	The lectures were clear and easy to understand	41	-	-	41	0
B	The teaching aids were effectively used	41	-	-	41	0
C	The course material handed out was adequate	41	-	-	37	4
D	The instructors encouraged interaction and were helpful	41	-	-	41	0
E	Were objectives of the course realized? Y	41	41	0	-	-
F.	Please give overall rating of the course					
	90% - 100%				41	
	80% - 90%				4	
	70% - 80%				0	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGG.
MANGALAM COLLEGE OF ENGINEERING
ETTUMANOOR 686 631



MANGALAM
COLLEGE OF ENGINEERING

Department of Electronics and Communication Engineering

Certificate of Completion

This certificate is proudly awarded to

Nourin Nila Nazar

for the successful completion of the course on "Embedded Systems Design" organized by the Department of Electronics and Communication Engineering, Ettumanoor from 15/1/2024 to 19/1/2024.

Ms.JYOTHISREE K R
CO ORDINATOR

Dr.ABRAHAM C G
HOD

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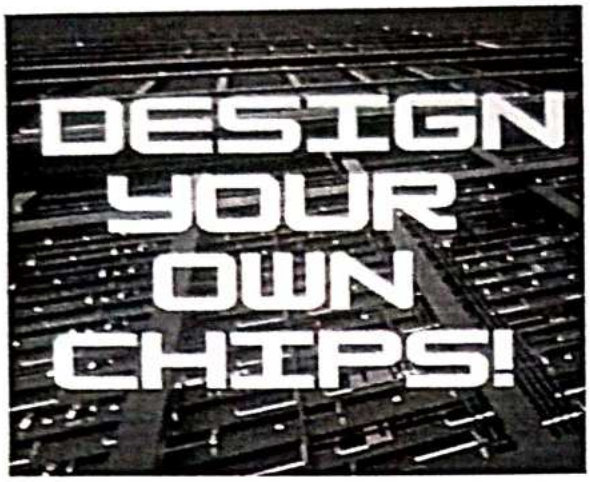

CERTIFICATE COURSE
ON

ASIC DESIGN

Course Content

- ✓ Introduction to ASIC
- ✓ Basic cell designs and architecture
- ✓ Devices and synthesis
- ✓ Design for test

Date: 07.08.2023 to 11.08.2023

Time: 9:00am to 4:00pm

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Prof Mariya Stephen,
AP – Electronics & Communication Engineering

VISION

To achieve excellent standards in technical education and engage research in the field of Electronics and Communication Engineering creating employable and innovative professionals who can excel in global challenges

MISSION

1. *To practice innovative teaching and learning practices in Electronics and Communication domain with effective curriculum enhancement and Industry collaboration.*
2. *To inspire creative enquiry and innovation in students through excellent training programs and projects for professional skills.*
3. *To imbibe a sense of team work, ethics combined with social responsibility in students.*

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CIRCULAR

Ref: MLM/ECE/Certificate Course/Circular/2023-24/01 **01.08.2023**

The department of Electronics and Communication Engineering is planning to conduct a certificate course for final year students. So, it is informed to students to enroll their names for **ASIC DESIGN** which will held in this year. Students are asked to enroll their names to their respective class advisor on or before 04.08.23. The course syllabus is attached.

Name of the course: ASIC DESIGN

Course duration: 30 hours

Time duration: 9am to 4pm

Subject handling Faculty: Ms. Mariya Stephen, AP-ECE

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1.	Academic Year	2023-24
2.	Title of the course	ASIC DESIGN
3.	Course objectives	To develop the skill for ASIC design
4.	Pre requisite	Basic programming
5.	Requirement	• Online google meet for theory class • Project lab for practical class
6.	Beneficiary	S7 Students of ECE
7.	Date & duration of the course	07.08.2023 to 11.08.2023
8.	Proposed timing	9am to 4pm
9.	No. of hours required	30 hrs
10.	Internal Resource person	Ms. Mariya Stephen, AP-ECE
11.	Course registration fee	Nil
12.	Course contents	Enclosed separately
13.	Credits & certification	Those who have 80% attendance and scored 60% in assessment
14.	Venue	Online

Co-ordinator **HoD-ECE** **Principal**

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Department of Electronics & Communication Engineering
MANGALAM COLLEGE OF ENGINEERING

From

Head of the Department,
Dept. of Electronics and Communication Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 01/8/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

Sl.No	Name of Add on Course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	ASIC DESIGN	2023-24/S7	30Hrs	Ms. Mariya Stephen

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-ECE

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List of Students Enrolled for Certificate course – ASIC DESIGN

Academic Year: 2023-2024 **Batch 2020-2024**

Year: IV Year

Sl. No.	Name of Student
1	ABISON SHIBU
2	AFSSY BASHEER
3	AJUMAL T J
4	AKASH P S
5	AKHIL A
6	AKHIL K SOMAN
7	AKHINESH BIJU
8	ALFIN E PRASAD
9	ANAGHA RAKESH
10	ANANDA KRISHNA
11	ANANDU P
12	ANGEL CHANDRESH
13	ANJITHA ANIL
14	ARJUN KRISHNA K M
15	ARSHA JOY
16	ASWIN P T
17	ASWIN SIBY
18	DEVIKA RAJ K
19	DHANUSH M RAJ
20	JIBIL JOJI
21	JITHIN G THOMAS
22	JOEL V SAJI
23	JUSTIN KURIAKOSE SUNIL

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24	LAVANYA K
25	NAVEEN RAVIGOPAL
26	RAHUL R NATH
27	SEBIN PS
28	SHAN B MATHEWS
29	SREEJISH K PILLAI
30	STEPHANE ABRAHAM
31	SUBIN SAJI PETER
32	TENIL SOJAN
33	VARGHESE JOSEPH
34	VISHNU S
35	ABLE THOMAS
36	SUDEV A S

Course Coordinator

HOD/ECE

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Certificate Course – ASIC DESIGN

Detailed explanation about the course

Academic Year: 2023-2024 **Batch 2020-2024**

Year: IV Year

Department of Electronics and Communication Engineering organized a certificate course on **ASIC DESIGN** for the Final Year B.Tech students (2020-2024 Batch) from 7th August 2023 to 11th August 2023. A total of 36 students were enrolled for the course. 27 lecture hours and 3 practical hours were provided during the course as per curriculum. A multiple choice-based examination was conducted for the enrolled students at the end of the course. Certificates were provided for the participants after successful completion of the course.

No of students Registered	No of Students participated	No of Students Passed	No of students Eligible for Certificate
36	36	36	36

Course Coordinator

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Department of Electronics & Communication Engineering

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List of students enrolled for the certification course: **ASIC DESIGN**

Academic Year: 2023-24

Batch/Year:S7 ECE/ IV

Sl No.	Reg No.	Name of the student
1	MLM20EC001	ABISON SHIBU
2	MLM20EC002	AFSSY BASHEER
3	MLM20EC003	AJUMAL T J
4	MLM20EC004	AKASH P S
5	MLM20EC005	AKHIL A
6	MLM20EC006	AKHIL K SOMAN
7	MLM20EC007	AKHINESH BIJU
8	MLM20EC008	ALFIN E PRASAD
9	MLM20EC009	ANAGHA RAKESH
10	MLM20EC010	ANANDA KRISHNA
11	MLM20EC011	ANANDU P
12	MLM20EC012	ANGEL CHANDRESH
13	MLM20EC014	ANJITHA ANIL
14	MLM20EC016	ARJUN KRISHNA K M
15	MLM20EC017	ARSHA JOY
16	MLM20EC018	ASWIN P T
17	MLM20EC019	ASWIN SIBY
18	MLM20EC020	DEVIKA RAJ K
19	MLM20EC021	DHANUSH M RAJ
20	MLM20EC022	JIBIL JOJI
21	MLM20EC023	JITHIN G THOMAS
22	MLM20EC024	JOEL V SAJI
23	MLM20EC025	JUSTIN KURIAKOSE SUNIL
24	MLM20EC026	LAVANYA K
25	MLM20EC029	NAVEEN RAVIGOPAL
26	MLM20EC031	RAHUL R NATH
27	MLM20EC032	SEBIN P S
28	MLM20EC033	SHAN B MATHEWS
29	MLM20EC034	SREEJISH K PILLAI
30	MLM20EC035	STEPHANE ABRAHAM
31	MLM20EC036	SUBIN SAJI PETER
32	MLM20EC037	TENIL SOJAN
33	MLM20EC038	VARGHESE JOSEPH
34	MLM20EC039	VISHNU S
35	LMLM20EC040	ABLE THOMAS
36	LMLM20EC041	SUDEV A S

Course Co-ordinator

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SYLLABUS (Add-on Course)
Course Name: ASIC DESIGN

Total hours: 36

Module 1 (6 hours): ASIC Fundamentals

- Introduction to ASICs
- Types of ASICs: Full Custom ASICs
- Standard Cell based ASICs
- Design Flow, ASIC Cell Libraries

Module 2 (6 hours): CMOS Designs

- CMOS Transistors, CMOS Process & CMOS Design Rules
- Combinational Logic Cells, Sequential logic Cells, Latch, Flip-flops, Clocked inverter
- Data path logic Cells: Data path elements, Adders, Multipliers, I/O Cells, Cell Compilers

Module 3 (5 hours): Cell Designs and Architecture

- Transistors as Resistors
- Transistors parasitic capacitances: Junction capacitance, Overlap capacitance, Gate Capacitance, Slew Rate
- Logical Effort: Predicting Delay, Logical Area and logical efficiency, Logical paths
- Multistage cells, Optimum delay, Optimum number of stages
- Library Cell Design, Library Architecture, Gate Array Design, Standard Cell Design, Data Path Cell design.

Module 4 (5 hours): Programmability

- Programmable ASICs- Antifuse, Static Ram
- EPROM and EEPROM Technology, Practical issues, Specifications
- Programmable ASIC logic cells: Actel ACT , Xilinx LCA, Altera Flex, Altera Max
- Programmable ASIC I/O cells

Module 5 (5 hours): Devices and Synthesis

- Programmable ASIC Interconnect
- VHDL, Verilog HDL, Logic Synthesis.

Module 6 (3 hours): Design for Test (DFT)

- DFT features were integrated to facilitate efficient testing during manufacturing and in-field use.
- Guidance and mentorship during project work
- Project presentations and feedback

HoD

IQAC

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Internal Quality Assurance Cell (IQAC)
Mangalam College of Engineering
Kanjiyam, India - 686 631

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SUBJECT NAME: ASIC DESIGN

1. What does the term ASIC stand for?
   A. Analog Signal Integrated Circuit
   B. Advanced System Integrated Chip
   C. Application-Specific Integrated Circuit
   D. Automated System Interconnected Controller

Answer: C. Application-Specific Integrated Circuit

2. In ASIC design, what does RTL stand for?
   A. Random Transfer Level
   B. Register-Transfer Level
   C. Real-Time Logic
   D. Reconfigurable Timing Language

Answer: B. Register-Transfer Level

3. What role does clock gating play in ASIC design?
   A. Reducing clock skew
   B. Minimizing power consumption
   C. Enhancing signal integrity
   D. Optimizing physical layout

Answer: B. Minimizing power consumption

4. **Question:** What is Static Timing Analysis (STA) used for in ASIC design?
   A. Power consumption analysis
   B. Functional verification
   C. Timing requirements validation
   D. Simulation of dynamic behavior

Answer: C. Timing requirements validation

5. **Question:** During which phase of ASIC design is Place and Route typically performed?
   A. RTL Coding
   B. Synthesis
   C. Static Timing Analysis
   D. Integration

Answer: B. Synthesis

6. **Question:** What does DFT stand for in ASIC design?
   A. Digital Frequency Testing
   B. Design for Testability
   C. Data Flow Technique
   D. Differential Fault Tolerance

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Answer: B. Design for Testability

7. **Question:** Why is power analysis important in ASIC design?
   A. To optimize the physical layout
   B. To assess and optimize power consumption
   C. To ensure functional correctness
   D. To perform behavioral modeling
   Answer: B. To assess and optimize power consumption

8. **Question:** What is the primary purpose of functional verification in ASIC design?
   A. Power optimization
   B. Ensuring correct functionality
   C. Physical layout design
   D. Synthesizing RTL code
   Answer: B. Ensuring correct functionality

9. **Question:** How does RTL coding differ from behavioral coding in ASIC design?
   A. RTL coding focuses on physical layout, while behavioral coding focuses on functionality.
   B. RTL coding describes the behavior of the system at the register-transfer level.
   C. Behavioral coding is used for power analysis, while RTL coding is for synthesis.
   D. RTL coding is only used in simulation, while behavioral coding is for synthesis.
   Answer: B. RTL coding describes the behavior of the system at the register-transfer level.

10. **Question:** What is a key advantage of using an ASIC over a general-purpose microprocessor?
    A. Higher flexibility
    B. Lower cost
    C. Lower power consumption
    D. Optimized performance for specific applications
    Answer: D. Optimized performance for specific applications

Answer Key:

Sl. No	Answer
1	C
2	B
3	B
4	C
5	B
6	B
7	B
8	B
9	B
10	D

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Certificate Course – ASIC DESIGN

MARK SHEET

Batch 2020-2024

Academic Year: 2023-24

Year: IV

S. No.	Name of Student	Mark (20)	Out of 100
1	ABISON SHIBU	15	75
2	AFSSY BASHEER	20	100
3	AJUMAL T J	18	90
4	AKASH P S	16	80
5	AKHIL A	14	70
6	AKHIL K SOMAN	15	75
7	AKHINESH BIJU	15	75
8	ALFIN E PRASAD	14	70
9	ANAGHA RAKESH	18	90
10	ANANDA KRISHNA	20	100
11	ANANDU P	16	80
12	ANGEL CHANDRESH	14	70
13	ANJITHA ANIL	20	100
14	ARJUN KRISHNA K M	19	95
15	ARSHA JOY	20	100
16	ASWIN P T	16	80
17	ASWIN SIBY	17	85
18	DEVIKA RAJ K	16	80
19	DHANUSH M RAJ	16	80
20	JIBIL JOJI	14	70
21	JITHIN G THOMAS	15	75
22	JOEL V SAJI	20	100
23	JUSTIN KURIAKOSE SUNIL	16	80
24	LAVANYA K	15	75
25	NAVEEN RAVIGOPAL	20	100
26	RAHUL R NATH	18	90
27	SEBIN PS	16	80
28	SHAN B MATHEWS	14	70
29	SREEJISH K PILLAI	15	75
30	STEPHANE ABRAHAM	15	75
31	SUBIN SAJI PETER	17	85

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32	TESSIL SOJAN	15	75
33	VARGHESE JOSEPH	16	80
34	VISHNU S	20	100
35	ABIE THOMAS	16	80
36	SUDEVAS	15	75

HoD /ECE

Course Coordinator

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Attendance of Certificate Course – ASIC DESIGN

Academic Year: 2023-2024

Year: IV

Batch 2020-2024

S. No.	Name of Student	7/8/2023		8/8/2023		9/8/2023		10/8/2023		11/8/2023		Total Attendance
		FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	
1	ABISON SHIBU	P	P	P	P	P	P	P	P	P	P	100
2	AFSSY BASHEER	P	P	P	P	P	P	P	P	P	P	100
3	AHUMAL T J	P	P	P	P	P	P	P	P	P	P	100
4	AKASH P S	P	P	P	A	A	P	P	P	P	P	80
5	AKHIL A	P	P	P	P	P	P	P	P	P	P	100
6	AKHIL K SOMAN	P	P	P	P	P	P	P	P	P	P	100
7	AKHINESH BIJU	P	P	P	P	P	P	P	P	P	P	100
8	ALFIN E PRASAD	P	P	P	P	P	P	P	P	P	P	100
9	ANAGHA RAKESH	P	P	P	P	P	P	P	P	P	P	100
10	ANANDA KRISHNA	P	P	P	P	A	A	P	P	P	P	80
11	ANANDU P	P	P	P	P	P	P	P	P	P	P	100
12	ANGEL CHANDRESH	P	P	P	P	P	P	P	P	P	P	100
13	ANJITHA ANIL	P	P	P	P	P	P	P	P	P	P	100
14	ARJUN KRISHNA K M	P	P	P	P	P	P	P	P	P	P	100
15	ARSHA JOY	P	P	P	P	P	P	P	P	P	P	100
16	ASWIN P T	P	P	P	P	P	P	P	P	P	P	100
17	ASWIN SIBY	P	P	P	P	P	P	P	P	P	P	100
18	DEVIKA RAJ K	P	P	P	P	P	P	P	P	P	P	100
19	DHANUSH M RAJ	P	P	P	P	P	P	P	P	P	P	100
20	JIBIL JOJI	P	P	P	P	P	P	P	P	P	P	100
21	JITHIN G THOMAS	P	P	P	P	P	P	P	P	P	P	100
22	JOEL V SAJI	P	P	P	P	P	P	P	P	P	P	100
23	JUSTIN KURIAKOSE SUNIL	P	P	P	P	A	A	P	P	P	P	80
24	LAVANYA K	P	P	P	P	P	P	P	P	P	P	100
25	NAVEEN RAVIGOPAL	P	P	P	P	A	A	A	P	P	P	70
26	RAHUL R NATH	P	P	P	P	P	P	A	A	P	P	80
27	SEBIN PS	P	P	P	P	P	P	P	P	P	P	100
28	SHAN B MATTHEWS	P	P	P	P	P	P	P	P	P	P	100
29	SREEJISH K PILLAI	P	P	P	P	P	P	P	P	P	P	100
30	STEPHANE ABRAHAM	P	P	P	P	P	P	P	P	P	P	100
31	SUBIN SAJI PETER	P	P	P	P	P	P	P	P	P	P	10

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32	TENIL SOJAN	P	P	P	P	P	P	P	P	P	P	100
33	VARGHESE JOSEPH	P	P	P	P	P	P	P	P	P	P	100
34	VISHNU S	P	P	P	P	P	P	P	P	P	P	100
35	ABLE THOMAS	P	P	P	P	P	P	P	P	P	P	100
36	SUDEV A S	P	P	P	P	P	P	P	P	P	P	100

Course Coordinator

HoD-ECE

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Course Feedback Form

Course Title: ASIC design
Venue:
Dates: 7/8/2023 to 11/8/2023

Name: SUDEV AS
Semester: S1
Branch: ECE

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? **Yes/ NO** ✓

B. The course contents met with your expectations. [5]

1. Strongly Disagree 5. Strongly Agree

C. The lecture sequence was well planned [5]

1. Strongly Disagree 5. Strongly Agree

D. The contents were illustrated with [5]

1. Too few examples 5. Adequate examples

E. The level of the course was [5]

1. Too low 5. Too high

F. The course contents compared with your expectations [5]

1. Too theoretical 5. Too empirical

G. The course exposed you to new knowledge and practices [5]

1. Strongly Disagree 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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1. Not at all 5. Very strongly [5]

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand [5]

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used [1]

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate [5]

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful [5]

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? [Yes/ NO]

F. Please give overall rating of the course

90% – 100%	( )	60% – 70%	( )
80% – 90%	(✓)	50% – 60%	( )
70% – 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

course was effective and useful

Please comment on the weaknesses of the course and the way it was conducted.

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Thank You

Department of Electronics & Communication Engineering
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Course Feedback Form

Course Title: Asic design
Dates: 7/8/2023 to 11/8/2023
Venue:

Name: Vishnu S
Semester: S1
Branch: ECE

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? **Yes/ NO** ✓

B. The course contents met with your expectations. 5

1. Strongly Disagree — 5. Strongly Agree

C. The lecture sequence was well planned 5

1. Strongly Disagree — 5. Strongly Agree

D. The contents were illustrated with 5

1. Too few examples — 5. Adequate examples

E. The level of the course was 5

1. Too low — 5. Too high

F. The course contents compared with your expectations 5

1. Too theoretical — 5. Too empirical

G. The course exposed you to new knowledge and practices 5

1. Strongly Disagree — 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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1. Not at all 5. Very strongly [5]

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand [1]

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used [5]

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate [5]

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful [5]

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? [Yes/ NO]

F. Please give overall rating of the course

90% – 100%	(✓)	60% – 70%	( )
80% – 90%	( )	50% – 60%	( )
70% – 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

This Course was beneficial for me.

Please comment on the weaknesses of the course and the way it was conducted.

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Thank You

Department of Electronics & Communication Engineering
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Course Feedback Form

Course Title: ASIC design
Venue:
Dates: 7/8/2023 to 11/8/202

Name: ABLE THOMAS
Semester: S8
Branch: ECE

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? **Yes/ NO** ✓

B. The course contents met with your expectations. 5

1. Strongly Disagree 5. Strongly Agree

C. The lecture sequence was well planned 5

1. Strongly Disagree 5. Strongly Agree

D. The contents were illustrated with 1

1. Too few examples 5. Adequate examples

E. The level of the course was 5

1. Too low 5. Too high

F. The course contents compared with your expectations 5

1. Too theoretical 5. Too empirical

G. The course exposed you to new knowledge and practices 1

1. Strongly Disagree 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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1. Not at all 5. Very strongly [5]

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand [5]

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used [5]

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate [5]

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful [5]

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? [Yes/ NO]

F. Please give overall rating of the course

90% – 100%	( )	60% – 70%	( )
80% – 90%	(✓)	50% – 60%	( )
70% – 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Gained basic knowledge about ASIC

Please comment on the weaknesses of the course and the way it was conducted.

Thank You

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Department of Electronics & Communication Engineering
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Consolidated Course Feedback

ASIC DESIGN

Academic Year: 2023-2024

Year: IV **Batch 2020-2024**

	Questionnaire	Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A	Were objectives of the course clear to you?	36	36	0	-	-
B	The course contents met with your expectations.	36	-	-	30	6
C	The lecture sequence was well planned	36	-	-	35	1
D	The contents were illustrated with	36	-	-	30	6
E	The level of the course was	36	-	-	31	5
F.	The course contents compared with your expectations	36	-	-	36	0
G	The course exposed you to new knowledge and practices	36	-	-	32	4
H	Will you recommend this course to your colleagues?	36	-	-	33	3
	THE CONDUCT OF THE COURSE					
A	The lectures were clear and easy to understand	36	-	-	36	0
B	The teaching aids were effectively used	36	-	-	36	0
C	The course material handed out was adequate	36	-	-	33	3
D	The instructors encouraged interaction and were helpful	36	-	-	36	0
E	Were objectives of the course realized? Y	36	36	0	-	-
F.	Please give overall rating of the course					
	90% - 100%				32	
	80% - 90%				4	
	70% - 80%				0	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator

HOD/ECE

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Department of Electronics and Communication Engineering

Certificate of Completion

This certificate is proudly awarded to

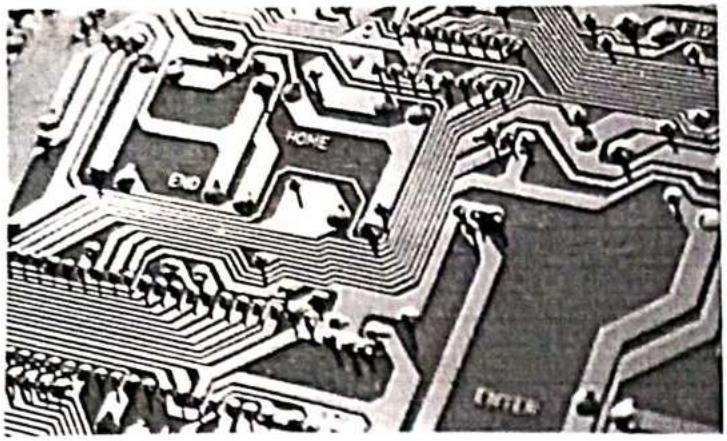
Sebin P S

for the successful completion of the course on "ASIC DESIGN" organized by the Department of Electronics and Communication Engineering, Ettumanoor from 7/8/2023 to 11/8/2023.

Ms.MARIYA STEPHEN
CO ORDINATOR

Dr.ABRAHAM C G
HOD

PRINCIPAL



CERTIFICATE COURSE
ON
CIRCUIT STIMULATION

Course Content

- ✓ Importance of simulation in circuit design
- ✓ Introduction to simulation software tools.
- ✓ Creating and editing circuits in the simulation environment
- ✓ Mixed-Signal Simulation.
- ✓ Optimization using simulation tools.

Date: 15.01.2024 to 19.01.2024

Time: 9:00am to 4:00pm

VISION

To achieve excellent standards in technical education and engage research in the field of Electronics and Communication Engineering creating employable and innovative professionals who can excel in global challenges

MISSION

1. *To practice innovative teaching and learning practices in Electronics and Communication domain with effective curriculum enhancement and Industry collaboration.*
2. *To inspire creative enquiry and innovation in students through excellent training programs and projects for professional skills.*
3. *To imbibe a sense of team work, ethics combined with social responsibility in students.*

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Prof. Sumesh Chandran
AP- Electronics & Communication Engineering

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1.	Academic Year	2023-24
2.	Title of the course	CIRCUIT SIMULATION
3.	Course objectives	To develop the skill for Circuit simulation
4.	Pre requisite	Basic programming
5.	Requirement	• Online google meet for theory class • Project lab for practical class
6.	Beneficiary	S8 Students of ECE
7.	Date & duration of the course	15.01.2024 to 19.01.2024
8.	Proposed timing	9am to 4pm
9.	No. of hours required	30 hrs
10.	Internal Resource person	Mr. Sumesh Chandran, AP-ECE
11.	Course registration fee	Nil
12.	Course contents	Enclosed separately
13.	Credits & certification	Those who have 80% attendance and scored 60% in assessment
14.	Venue	Online

Co-ordinator **HoD-ECE** **Principal**

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Department of Electronics & Communication Engineering
MANGALAM COLLEGE OF ENGINEERING

From

Head of the Department,
Dept. of Electronics and Communication Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 2/01/2024 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

Sl.No	Name of Add on Course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	CIRCUIT SIMULATION	2023-24/S8	30Hrs	Mr. Sumesh Chandran

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-ECE

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List of Students Enrolled for Certificate course – CIRCUIT SIMULATION

Academic Year: 2023-2024 **Batch 2020-2024**

Year: IV Year

Sl. No.	Name of Student
1	ABISON SHIBU
2	AFSSY BASHEER
3	AJUMAL T J
4	AKASH P S
5	AKHIL A
6	AKHIL K SOMAN
7	AKHINESH BIJU
8	ALFIN E PRASAD
9	ANAGHA RAKESH
10	ANANDA KRISHNA
11	ANANDU P
12	ANGEL CHANDRESH
13	ANJITHA ANIL
14	ARJUN KRISHNA K M
15	ARSHA JOY
16	ASWIN P T
17	ASWIN SIBY
18	DEVIKA RAJ K
19	DHANUSH M RAJ
20	JIBIL JOJI
21	JITHIN G THOMAS

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22	JOEL V SAJI
23	JUSTIN KURIAKOSE SUNIL
24	LAVANYA K
25	NAVEEN RAVIGOPAL
26	RAHUL R NATH
27	SEBIN PS
28	SHAN B MATHEWS
29	SREEJISH K PILLAI
30	STEPHANE ABRAHAM
31	SUBIN SAJI PETER
32	TENIL SOJAN
33	VARGHESE JOSEPH
34	VISHNU S
35	ABLE THOMAS
36	SUDEV A S

Course Coordinator

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List of students enrolled for the certification course: **CIRCUIT SIMULATION**

Academic Year: 2023-24 **Batch/Year: 58 ECE/ IV**

Sl No.	Reg No.	Name of the student
1	MLM20EC001	ABISON SHIBU
2	MLM20EC002	AFSSY BASHEER
3	MLM20EC003	AJUMAL T J
4	MLM20EC004	AKASH P S
5	MLM20EC005	AKHIL A
6	MLM20EC006	AKHIL K SOMAN
7	MLM20EC007	AKHINESH BIJU
8	MLM20EC008	ALPIN E PRASAD
9	MLM20EC009	ANAGHA RAKESH
10	MLM20EC010	ANANDA KRISHNA
11	MLM20EC011	ANANDU P
12	MLM20EC012	ANGEL CHANDRESH
13	MLM20EC014	ANJITHA ANIL
14	MLM20EC016	ARJUN KRISHNA K M
15	MLM20EC017	ARSHA JOY
16	MLM20EC018	ASWIN P T
17	MLM20EC019	ASWIN SIBY
18	MLM20EC020	DEVIKA RAJ K
19	MLM20EC021	DHANUSH M RAJ
20	MLM20EC022	JIBIL JOJI
21	MLM20EC023	JITHIN G THOMAS
22	MLM20EC024	JOEL V SAJI
23	MLM20EC025	JUSTIN KURIAKOSE SUNIL
24	MLM20EC026	LAVANYA K
25	MLM20EC029	NAVEEN RAVIGOPAL
26	MLM20EC031	RAHUL R NATH
27	MLM20EC032	SEBIN P S
28	MLM20EC033	SHAN B MATHEWS
29	MLM20EC034	SREEJISH K PILLAI
30	MLM20EC035	STEPHANE ABRAHAM
31	MLM20EC036	SUBIN SAJI PETER
32	MLM20EC037	TENIL SOJAN
33	MLM20EC038	VARGHESE JOSEPH
34	MLM20EC039	VISHNU S
35	LMLM20EC040	ABLE THOMAS
36	LMLM20EC041	SUDEV A S

Course Co-ordinator

HoD

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CIRCULAR

Ref: MLM/ECE/Certificate Course/Circular/2023-24/03 **03.01.2024**

The department of Electronics and Communication Engineering is planning to conduct a certificate course for final year students. So, it is informed to students to enrol their names for **CIRCUIT SIMULATION** which will held in this year. Students are asked to enrol their names to their respective class advisor on or before 08.01.2024. The course syllabus is attached.

Name of the course: CIRCUIT SIMULATION

Course duration: 30 hours

Time duration: 9am to 4pm

Subject handling Faculty: Mr. Sumesh Chandran, AP-ECE

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Certificate Course – CIRCUIT SIMULATION

Detailed explanation about the course

Academic Year: 2023-2024 **Batch 2020-2024**

Year: IV Year

Department of Electronics and Communication Engineering organized a certificate course on **CIRCUIT SIMULATION** for the Final Year B.Tech students (2020-2024 Batch) from 15th January 2024 to 19th January 2024. A total of 36 students were enrolled for the course. 27 lecture hours and 3 practical hours were provided during the course as per curriculum. A multiple choice-based examination was conducted for the enrolled students at the end of the course. Certificates were provided for the participants after successful completion of the course.

No of students Registered	No of Students participated	No of Students Passed	No of students Eligible for Certificate
36	36	36	36

Course Coordinator **HOD/ECE**

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SYLLABUS (Add-on Course)

Course Name: CIRCUIT STIMULATION

Total hours: 30

Module 1: Introduction to Circuit Simulation (2 hours)
- Overview of circuit simulation
- Importance of simulation in circuit design
- Introduction to simulation software tools

Module 2: Simulation Software Basics (4 hours)
- Installation and setup of simulation tools
- User interface overview
- Creating and editing circuits in the simulation environment

Module 3: Circuit Elements and Models (6 hours)
- Detailed study of passive components (resistors, capacitors, inductors)
- Active components and their simulation models (transistors, op-amps)
- Behavioral modeling techniques

Module 4: DC Analysis (4 hours)
- DC circuit simulation fundamentals
- Node and mesh analysis in simulation
- DC sweep analysis and parameter extraction

Module 5: AC Analysis (4 hours)
- AC circuit simulation basics
- Frequency domain analysis
- Bode plots and AC sweep analysis

Module 6: Transient Analysis (4 hours)
- Time-domain simulation
- Response to step and pulse inputs
- Practical considerations in transient analysis

Module 7: Mixed-Signal Simulation (3 hours)
- Integration of analog and digital components in simulation
- Co-simulation techniques
- Challenges and solutions in mixed-signal simulation

Module 8: Advanced Simulation Techniques (3 hours)
- Monte Carlo analysis for component variation
- Sensitivity analysis
- Optimization using simulation tools

IQAC

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Internal Quality Assurance Cell (IQAC)
Mangalam College of Engineering
Kottayam, India - 686 631

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Subject Name: CIRCUIT STIMULATION

1. **What is the primary purpose of circuit simulation?**
   A) To replace physical circuits
   B) To analyze and predict circuit behavior without building physical prototypes
   C) To simulate random electronic noise
   D) To generate circuit diagrams automatically
2. **Which type of analysis is used to study the response of a circuit to a step input over time?**
   A) DC analysis
   B) AC analysis
   C) Transient analysis
   D) Monte Carlo analysis
3. **What is the primary function of a Monte Carlo analysis in circuit simulation?**
   A) Frequency analysis
   B) Time-domain analysis
   C) Component variation analysis
   D) Optimization analysis
4. **Which software tool is commonly used for circuit simulation in both academic and industrial settings?**
   A) Microsoft Excel
   B) MATLAB
   C) SPICE
   D) AutoCAD
5. **What does a Bode plot illustrate in circuit simulation?**
   A) Circuit topology
   B) Frequency response
   C) Transient behavior
   D) Component values
6. **In circuit simulation, what does a DC sweep analysis involve?**
   A) Analyzing the circuit's response to a changing DC voltage
   B) Simulating the circuit's behaviour in the time domain
   C) Investigating the circuit's response to an AC signal
   D) Varying component values and observing the effects on DC parameters

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7. **What does the term "mixed-signal simulation" refer to?**

   A) Simulating circuits with mixed types of components (resistors, capacitors, inductors)

   B) Simulating both analog and digital components in the same circuit

   C) Combining circuit simulation with mechanical simulation

   D) Simulating circuits with mixed levels of complexity

8. **Which analysis technique is used to examine the sensitivity of a circuit's performance to changes in component values?**

   A) AC analysis

   B) Sensitivity analysis

   C) Transient analysis

   D) Monte Carlo analysis

9. **What is the purpose of co-simulation in circuit design?**

   A) Simulating multiple circuits simultaneously

   B) Simulating both analog and digital domains concurrently

   C) Collaborative simulation between multiple users

   D) Simulating circuits with varying temperatures

10. **What role do behavioral models play in circuit simulation?**

    A) Representing the physical layout of a circuit

    B) Describing the dynamic behavior of complex components

    C) Specifying the manufacturing process of electronic components

    D) Generating circuit diagrams automatically

Answer Key:

Sl. No	Answer
1	B
2	C
3	C
4	C
5	B
6	A
7	B
8	B
9	B
10	B

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Department of Electronics & Communication Engineering
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Attendance of Certificate Course – CIRCUIT SIMULATION

Academic Year: 2023-2024 **Batch 2020-2024**

Year: IV

S. No.	Name of Student	15/1/2024		16/1/2024		17/1/2024		18/1/2024		19/1/2024		Total Attendance
		FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	
1	ABISON SHIBU	P	P	P	P	P	P	P	P	P	P	100
2	AFSSY BASHEER	P	P	P	P	P	P	P	P	P	P	100
3	AJUMAL T J	P	P	P	P	P	P	P	P	P	P	100
4	AKASH P S	P	P	P	A	A	P	P	P	P	P	80
5	AKHIL A	P	P	P	P	P	P	P	P	P	P	100
6	AKHIL K SOMAN	P	P	P	P	P	P	P	P	P	P	100
7	AKHINESH BIJU	P	P	P	P	P	P	P	P	P	P	100
8	ALFIN E PRASAD	P	P	P	P	P	P	P	P	P	P	100
9	ANAGHA RAKESH	P	P	P	P	P	P	P	P	P	P	100
10	ANANDA KRISHNA	P	P	P	P	A	A	P	P	P	P	80
11	ANANDU P	P	P	P	P	P	P	P	P	P	P	100
12	ANGEL CHANDRESH	P	P	P	P	P	P	P	P	P	P	100
13	ANJITHA ANIL	P	P	P	P	P	P	P	P	P	P	100
14	ARJUN KRISHNA K M	P	P	P	P	P	P	P	P	P	P	100
15	ARSHA JOY	P	P	P	P	P	P	P	P	P	P	100
16	ASWIN P T	P	P	P	P	P	P	P	P	P	P	100
17	ASWIN SIBY	P	P	P	P	P	P	P	P	P	P	100
18	DEVIKA RAJ K	P	P	P	P	P	P	P	P	P	P	100
19	DHANUSH M RAJ	P	P	P	P	P	P	P	P	P	P	100
20	JIBIL JOJI	P	P	P	P	P	P	P	P	P	P	100
21	JITHIN G THOMAS	P	P	P	P	P	P	P	P	P	P	100
22	JOEL V SAJI	P	P	P	P	P	P	P	P	P	P	100
23	JUSTIN KURIAKOSE SUNIL	P	P	P	P	A	A	P	P	P	P	80
24	LAVANYA K	P	P	P	P	P	P	P	P	P	P	100
25	NAVEEN RAVIGOPAL	P	P	P	P	P	P	P	P	P	P	100
26	RAHUL R NATH	P	P	P	P	P	P	A	A	P	P	80
27	SEBIN PS	P	P	P	P	P	P	P	P	P	P	100
28	SHAN B MATHEWS	P	P	P	P	P	P	P	P	P	P	100
29	SREEJISH K PILLAI	P	P	P	P	P	P	P	P	P	P	100
30	STEPHANE ABRAHAM	P	P	P	P	P	P	P	P	P	P	100
31	SUBIN SAJI PETER	P	P	P	P	P	P	P	P	P	P	100

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32	ABISON SHIBU	P	P	P	P	P	P	P	P	P	P	100
33	AFSSY BASHEER	P	P	P	P	P	P	P	P	P	P	100
34	VISHNU S	P	P	P	P	P	P	P	P	P	P	100
35	ABLE THOMAS	P	P	P	P	P	P	P	P	P	P	100
36	SUDEV A S	P	P	P	P	P	P	P	P	P	P	100

Course Coordinator

HoD-ECE

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Certificate Course – CIRCUIT SIMULATION

MARK SHEET

Academic Year: 2023-24 **Batch 2020-2024**

Year: IV

S. No.	Name of Student	Mark (20)	Out of 100
1	ABISON SHIBU	16	80
2	AFSSY BASHEER	16	80
3	AJUMAL T J	14	70
4	AKASH P S	15	75
5	AKHIL A	20	100
6	AKHIL K SOMAN	16	80
7	AKHINESH BIJU	15	75
8	ALFIN E PRASAD	20	100
9	ANAGHA RAKESH	18	90
10	ANANDA KRISHNA	16	80
11	ANANDU P	14	70
12	ANGEL CHANDRESH	15	75
13	ANJITHA ANIL	15	75
14	ARJUN KRISHNA K M	17	85
15	ARSHA JOY	15	75
16	ASWIN P T	16	80
17	ASWIN SIBY	20	100
18	DEVIKA RAJ K	16	80
19	DHANUSH M RAJ	20	100
20	JIBIL JOJI	16	80
21	JITHIN G THOMAS	15	75
22	JOEL V SAJI	20	100
23	JUSTIN KURIAKOSE SUNIL	18	90
24	LAVANYA K	16	80
25	NAVEEN RAVIGOPAL	14	70
26	RAHUL R NATH	18	90
27	SEBIN PS	16	80
28	SHAN B MATHEWS	14	70
29	SREEJISH K PILLAI	15	75
30	STEPHANE ABRAHAM	20	100
31	SUBIN SAJI PETER	16	80

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32	TENIL SOJAN	15	75
33	VARGHESE JOSEPH	16	80
34	VISHNU S	20	100
35	ABLE THOMAS	16	80
36	SUDEV A S	15	75

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Consolidated Course Feedback

CIRCUIT SIMULATION

Academic Year: 2023-2024

Year: IV

Batch 2020-2024

	Questionnaire	Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A	Were objectives of the course clear to you?	36	36	0	-	-
B	The course contents met with your expectations.	36	-	-	32	4
C	The lecture sequence was well planned	36	-	-	32	4
D	The contents were illustrated with	36	-	-	33	3
E	The level of the course was	36	-	-	30	6
F.	The course contents compared with your expectations	36	-	-	35	1
G	The course exposed you to new knowledge and practices	36	-	-	33	3
H	Will you recommend this course to your colleagues?	36	-	-	32	4
	THE CONDUCT OF THE COURSE					
A	The lectures were clear and easy to understand	36	-	-	36	0
B	The teaching aids were effectively used	36	-	-	36	0
C	The course material handed out was adequate	36	-	-	32	4
D	The instructors encouraged interaction and were helpful	36	-	-	36	0
E	Were objectives of the course realized? Y	36	36	0	-	-
F	Please give overall rating of the course					
	90% - 100%				32	
	80% - 90%				4	
	70% - 80%				0	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator

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MANGALAM COLLEGE OF ENGINEERING
ETTUMANOOR 686 631

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Ettumanoor

Department of Electronics & Communication Engineering
MANGALAM COLLEGE OF ENGINEERING

Course Feedback Form

Course Title: CIRCUIT SIMULATION
Dates: 15/1/2024 to 19/1/2024
Venue:

Name: ANJITH ANIL
Semester: 8
Branch: ECE

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? ✓ Yes/ NO

B. The course contents met with your expectations. 5
1. Strongly Disagree 5. Strongly Agree

C. The lecture sequence was well planned 5
1. Strongly Disagree 5. Strongly Agree

D. The contents were illustrated with 5
1. Too few examples 5. Adequate examples

E. The level of the course was 5
1. Too low 5. Too high

F. The course contents compared with your expectations 5
1. Too theoretical 5. Too empirical

G. The course exposed you to new knowledge and practices 5
1. Strongly Disagree 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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1. Not at all 5. Very strongly [5]

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand [5]

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used [5]

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate [5]

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful [5]

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? [Yes/ NO]

F. Please give overall rating of the course

90% – 100%	( )	60% – 70%	( )
80% – 90%	(✓)	50% – 60%	( )
70% – 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Thank You

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Course Feedback Form

Course Title: Circuit Simulation

Dates: 18/1/2024 to 19/1/2024

Venue:

Name: Ananda Krishna

Semester: 8

Branch: ECE

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? ✓ Yes/ NO

B. The course contents met with your expectations. 1

1. Strongly Disagree 5. Strongly Agree

C. The lecture sequence was well planned 5

1. Strongly Disagree 5. Strongly Agree

D. The contents were illustrated with 5

1. Too few examples 5. Adequate examples

E. The level of the course was 5

1. Too low 5. Too high

F. The course contents compared with your expectations 5

1. Too theoretical 5. Too empirical

G. The course exposed you to new knowledge and practices 5

1. Strongly Disagree 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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1. Not at all 5. Very strongly [5]

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand [5]

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used [5]

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate [1]

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful [5]

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? [Yes/ NO]

F. Please give overall rating of the course

90% – 100%	( )	60% – 70%	( )
80% – 90%	( )	50% – 60%	( )
70% – 80%	(✓)	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Teached well

Please comment on the weaknesses of the course and the way it was conducted.

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Thank You

Department of Electronics & Communication Engineering
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Course Feedback Form

Course Title: Circuit Simulation
Venue:
Dates: 15/01/2024 19/1/2024

Name: Tenil Sojan
Semester: S8
Branch: ECE

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? ✓ **Yes/ NO**

B. The course contents met with your expectations. 5
1. Strongly Disagree 5. Strongly Agree

C. The lecture sequence was well planned 5
1. Strongly Disagree 5. Strongly Agree

D. The contents were illustrated with 5
1. Too few examples 5. Adequate examples

E. The level of the course was 5
1. Too low 5. Too high

F. The course contents compared with your expectations 5
1. Too theoretical 5. Too empirical

G. The course exposed you to new knowledge and practices 5
1. Strongly Disagree 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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1. Not at all 5. Very strongly [5]

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand [1]

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used [5]

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate [5]

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful [5]

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? **Yes/ NO**

F. Please give overall rating of the course

90% – 100%	(✓)	60% – 70%	( )
80% – 90%	( )	50% – 60%	( )
70% – 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Good Course

Please comment on the weaknesses of the course and the way it was conducted.

Thank Yo

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Department of Electronics and Communication Engineering

Certificate of Completion

This certificate is proudly awarded to

Jibil Joji

for the successful completion of the course on "CIRCUIT SIMULATION" organized by the Department of Electronics and Communication Engineering, Ettumanoor from 15/1/2024 to 19/1/2024.

Mr.SUMESH CHANDRAN
CO ORDINATOR

Dr.ABRAHAM C G
HOD

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ME ECE

Mangalam Continuing Education Cell (MCE) & Skill Hub

Certification Course on:

> Autocad (Civil, Mechanical & Electrical)
> QTO
> Revit Architecture
> Creo Studio
> Computer Hardware & Networking
> Android App. Development
> BIM

Course Conducted on
Every Saturday
Commences on
21 October 2023

Course Delivery & Certification by

MSME
सूक्ष्म , लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES

PPDC

For More Information:
+91 8921212350

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CIRCULAR

Ref:MLM/ECE/Certificate Course/Circular/2023-24/02 **16.10.2023**

The department of Electronics and Communication Engineering is planning to conduct a certificate course 1st year & 2nd year students.So, it is informed to students to enroll their names for **COMPUTER HARDWARE AND NETWORKING** which will held in this year. Students are asked to enroll their names to their respective class advisor on or before 20.10.23. The course syllabus is attached.

Name of the course:COMPUTER HARDWARE AND NETWORKING

Course duration: 96 hours

Time duration: All Saturdays

Subject handling Faculty: MSME,TDC,EC-Ettumanoor

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1.	Academic Year	2023-24
2.	Title of the course	COMPUTER HARDWARE AND NETWORKING
3.	Course objectives	To develop the skill for Computer hardware and networking
4.	Pre requisite	Basic programming
5.	Requirement	• Online google meet for theory class • Project lab for practical class
6.	Beneficiary	1st year & 2nd year studentsof ECE
7.	Date & duration of the course	30.10.2024 to 07.04.24
8.	Proposed timing	All Saturdays ,9am to 4pm
9.	No. of hours required	96 hrs
10.	Internal Resource person	**MSME,TDC,EC-Ettumanoor**
11.	Course registration fee	Nil
12.	Course contents	Enclosed separately
13.	Credits & certification	Those who have 80% attendance and scored 60% in assessment
14.	Venue	Online& Offline

Co-ordinator **HoD-ECE** **Principal**

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List of students enrolled for the certification course:

COMPUTER HARDWARE AND NETWORKING

Academic Year:2023-24 **Batch/Year:I &II-Year students**

Sl No.	Reg No.	Name of the Student
1	MLM23EC004	Adithya Anup
2	MLM23EC027	Arya S Pillai
3	MLM23EC032	Devinandhana
4	MLM22EC034	Devika Dileep
5	LMLM22EC063	Adithya S Nadh
6	MLM22EC009	Adithya Surendran
7	MLM22EC018	Ann Merin Mathew
8	MLM22EC028	Bigil Paul Basil
9	MLM22EC032	Devakrishnan P H
10	MLM22EC037	Emil Paul
11	MLM22EC039	Jasmin Anna
12	MLM22EC043	Keerthana Suresh
13	MLM22EC044	Krishnaja Sabu
14	MLM22EC046	NEHA SIVA
15	MLM22EC047	Nikhil Krishna
16	MLM22EC048	Nirmal Krishna
17	MLM22EC050	Parvathy Adivakal Kiran
18	MLM22EC051	Praveen V Nair
19	MLM22EC053	Siddarth S Parthan
20	MLM22EC056	Sravan Ks
21	MLM22EC060	Treesa Biju
22	MLM22EC061	Vaishnavi Sanjeev
23	MLM22CS079	Krishnaprasad S
24	MLM22CS093	Neha Mariya Shaji

Course Co-ordinator

HoD

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Department of Electronics & Communication Engineering
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Certificate Course – Computer Hardware and Networking

Detailed explanation about the course

Academic Years 2023-24

Years I & II Year

Department of Electronics and Communication Engineering organized a certificate course on **Computer Hardware and Networking** for the First &Second Year B.Tech students from 30th October 2023 to 7th April 2024. A total of 24 students were enrolled for the course. 36 hours were provided during the course as per curriculum. A multiple choice based examination was conducted for the enrolled students at the end of the course.Certificates were provided for the participants after successful completion of the course.

No of students Registered	No of Students participated	No of Students Passed	No of students Eligible for Certificate
24	24	24	24

HOD

Course Coordinator

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SYLLABUS (Add-on Course)

Course Name: COMPUTER HARDWARE AND NETWORKING

Total hours: 96

Week 1: Basics of Computer Hardware (24 Hours)

Day 1-2: Introduction to Hardware

- Overview of computer hardware components
- Difference between hardware and software
- Types of computers (desktops, laptops, servers)

Day 3-4: Motherboard & Processor

- Motherboard architecture (slots, ports, and chipsets)
- CPU types, clock speed, cores, and threads
- How to select a motherboard and CPU for a system

Day 5-6: Memory and Storage Devices

- RAM types (DDR3, DDR4, DDR5) and differences
- Hard drives (HDD, SSD, NVMe)
- BIOS vs UEFI, ROM & CMOS functions

Day 7: Power Supply and Cooling Systems

- Power Supply Units (PSUs) and wattage requirements
- Heat sinks, cooling fans, and liquid cooling systems

Week 2: Computer Assembly and Troubleshooting(24 Hours)

Day 8-9: Assembling a Computer

- How to assemble components (hands-on if possible)
- Connecting the motherboard, CPU, RAM, and storage

Day 10: Installing Operating Systems

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- Installing Windows/Linux
- Formatting and partitioning hard drives

Day 11: Drivers and Device Configuration

- Installing drivers (chipset, GPU, printer, etc.)
- Device Manager and troubleshooting driver issues

Day 12-13: Common Hardware Problems

- Troubleshooting boot issues, hardware conflicts
- Power-on self-test (POST) errors

Day 14: Backup and Data Recovery

- Best practices for data backup
- Tools for data recovery (Windows/Linux)

Week 3: Networking Fundamentals(24 Hours)

Day 15-16: Introduction to Networking

- Types of networks (LAN, WAN, PAN, MAN)
- Network topologies (bus, star, ring, mesh)
- OSI and TCP/IP models

Day 17-18: Network Devices

- Routers, switches, modems, and hubs
- IP address, subnet mask, and gateway

Day 19: Network Cables and Connectors

- Ethernet cables (CAT5, CAT6) and fiber optics
- RJ45 connectors and crimping cables

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Day 20: Wireless Networking

- Wi-Fi standards (802.11 a/b/g/n/ac/ax)
- Configuring Wi-Fi routers and security settings

Week 4: Network Configuration and Security(24 Hours)

Day 21-22: IP Addressing and Subnetting

- Public vs private IPs
- Subnetting basics and practice

Day 23: Network Configuration

- Configuring static and dynamic IPs
- Using command-line tools (ping, tracert, ipconfig)

Day 24: Introduction to Network Security

- Firewalls, antivirus, and intrusion detection systems (IDS)
- Basic Wi-Fi security (WPA2, MAC filtering)

Day 25-26: Network Troubleshooting

- Diagnosing connectivity issues
- Using tools like Wireshark and Nmap

Day 27-28: Virtual Networks and VPNs

- Basics of Virtual Private Networks (VPNs)
- Introduction to VLANs

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COMPUTER HARDWARE AND NETWORKING

1. Which of the following is the main function of a computer's CPU?

A) Process data and execute instructions

B) Store data permanently

C) Manage hardware connections

D) Provide user interface

Answer: A) Process data and execute instructions

. Which device is used to connect a computer to a network?

A) Motherboard

B) Router

C) Hard Disk

D) RAM

Answer: B) Router

3. Which type of memory is volatile and loses its data when the computer is turned off?

A) ROM

B) RAM

C) Flash Memory

D) SSD

Answer: B) RAM

4. What is the purpose of an IP address in networking?

A) Identify devices on a network

B) Provide storage location

C) Connect peripheral devices

D) Encrypt data

Answer: A) Identify devices on a network

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5. Which protocol is used to send email messages over the Internet?

A) HTTP

B) FTP

C) SMTP

D) POP3

Answer: C) SMTP

6. In computer networking, what does LAN stand for?

A) Local Access Network

B) Limited Area Network

C) Local Area Network

D) Large Access Network

Answer: C) Local Area Network

7. Which of the following is NOT an output device?

A) Monitor

B) Printer

C) Scanner

D) Projector

Answer: C) Scanner

8. What does DNS stand for in networking?

A) Digital Network Service

B) Domain Name System

C) Data Node Service

D) Direct Network Solution

Answer: B) Domain Name System

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9. Which type of cable is commonly used in Ethernet networks?

A) Coaxial Cable

B) Fiber Optic Cable

C) HDMI Cable

D) Twisted Pair Cable

Answer: D) Twisted Pair Cable

10. Which OSI layer is responsible for data encryption and decryption?

A) Physical Layer

B) Transport Layer

C) Presentation Layer

D) Session Layer

Answer: C) Presentation Layer

Answer Key:

Sl. No	Answer
1	A
2	B
3	B
4	A
5	C
6	C
7	C
8	B
9	D
10	C

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Certificate Course –Computer Hardware and Networking

MARK SHEET

Academic Year: 2023-24

Batch :2022-26,2023-2027

Year: I & II

S. No.	Name of Student	Mark (20)	Out of 100
1	Adithya Anup	16	80
2	Arya S Pillai	13	65
3	Devinandhana	14	70
4	Devika Dileep	18	90
5	Adithya S Nadh	18	90
6	Adithya Surendran	11	55
7	Ann Merin Mathew	10	50
8	Bigil Paul Basil	17	85
9	Devakrishnan P H	20	100
10	Emil Paul	14	70
11	Jasmin Anna	11	55
12	Keerthana Suresh	15	75
13	Krishnaja Sabu	14	70
14	NEHA SIVA	10	50
15	Nikhil Krishna	16	80
16	Nirmal Krishna	16	80
17	Parvathy Adivakal Kiran	10	50
18	Praveen V Nair	13	65
19	Siddarth S Parthan	17	85
20	Sravan Ks	19	95
21	Treesa Biju	11	55
22	Vaishnavi Sanjeev	19	95
23	Krishnaprasad S	14	70
24	Neha Mariya Shaji	10	50

HoD ECE

Course Coordinator

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Course Feedback Form

CourseTitle:Dates: computer Hardware and networking
Venue:

Name: Jasmin anna
Semester: I and II
Branch: ECE

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? Yes/ NO ✓

B. The course contents met with your expectations. 5

1. Strongly Disagree 5. Strongly Agree

C. The lecture sequence was well planned 5

1. Strongly Disagree 5. Strongly Agree

D. The contents were illustrated with 5

1. Too few examples 5. Adequate examples

E. The level of the course was 5

1. Too low 5. Too high

F. The course contents compared with your expectations 5

1. Too theoretical 5. Too empirical

G. The course exposed you to new knowledge and practices 5

1. Strongly Disagree 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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5

1. Not at all5. Very strongly

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand | 5 |

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used | 5 |

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate | 5 |

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful | 5 |

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? | Yes/ NO |

F. Please give overall rating of the course

90% – 100%	(	60% – 70%	(✓)
80% – 90%	(	50% – 60%	( )
70% – 80%	(	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Jasmin.

Thank You

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Course Feedback Form

CourseTitle:~~Dates:~~ Computer Hardware and Networking
Venue:

Name: Arya S Pillai
Semester: I & II
Branch: ECE

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? **Yes/ NO**

B. The course contents met with your expectations. 5

1. Strongly Disagree 5. Strongly Agree

C. The lecture sequence was well planned 5

1. Strongly Disagree 5. Strongly Agree

D. The contents were illustrated with 5

1. Too few examples 5. Adequate examples

E. The level of the course was 5

1. Too low 5. Too high

F. The course contents compared with your expectations 5

1. Too theoretical 5. Too empirical

G. The course exposed you to new knowledge and practices 5

1. Strongly Disagree 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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1. Not at all5. Very strongly [5]

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand [5]

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used [5]

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate [5]

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful [5]

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? [Yes/ NO]

F. Please give overall rating of the course

90% – 100%	( )	60% – 70%	(✓)
80% – 90%	( )	50% – 60%	( )
70% – 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Arya.

Thank You

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Course Feedback Form

CourseTitle: Computer Hardware & Networking
Venue:

Name: Nimal Krishna
Semester: I & II
Branch: ECE

Pleas fill the short questionnaire to make the course better.
Please respond below with 1,2,3,4 or 5 , where 1 and 5 are explained.

THE DESIGN OF THE COURSE

A. Were objectives of the course clear to you? **Yes/ NO**

B. The course contents met with your expectations. [5]

1. Strongly Disagree 5. Strongly Agree

C. The lecture sequence was well planned [5]

1. Strongly Disagree 5. Strongly Agree

D. The contents were illustrated with [5]

1. Too few examples 5. Adequate examples

E. The level of the course was [5]

1. Too low 5. Too high

F. The course contents compared with your expectations [5]

1. Too theoretical 5. Too empirical

G. The course exposed you to new knowledge and practices [5]

1. Strongly Disagree 5. Strongly Agree

H. Will you recommend this course to your colleagues?

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1. Not at all5. Very strongly | 5 |

THE CONDUCT OF THE COURSE

A. The lectures were clear and easy to understand | 5 |

1. Strongly Disagree 5. Strongly Agree

B. The teaching aids were effectively used | 5 |

1. Strongly Disagree 5. Strongly Agree

C. The course material handed out was adequate | 5 |

1. Strongly Disagree 5. Strongly Agree

D. The instructors encouraged interaction and were helpful | 5 |

1. Strongly Disagree 5. Strongly Agree

E. Were objectives of the course realized? | Yes/ NO |

F. Please give overall rating of the course

90% – 100%	(✓)	60% – 70%	( )
80% – 90%	( )	50% – 60%	( )
70% – 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Thank You

Department of Electronics & Communication Engineering
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Consolidated Course Feedback

COMPUTER HARDWARE & NETWORKING

Academic Year: 2023-2024 **Batch: I&II year Students of ECE**

	Questionnaire	Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A	Were objectives of the course clear to you?	24	29	0	-	-
B	The course contents met with your expectations.	24	-	-	20	4
C	The lecture sequence was well planned	24	-	-	18	6
D	The contents were illustrated with	24	-	-	21	3
E	The level of the course was	24	-	-	20	4
F.	The course contents compared with your expectations	24	-	-	17	7
G	The course exposed you to new knowledge and practices	24	-	-	21	3
H	Will you recommend this course to your colleagues?	24	-	-	21	3
	THE CONDUCT OF THE COURSE					
A	The lectures were clear and easy to understand	24	-	-	24	0
B	The teaching aids were effectively used	24	-	-	24	0
C	The course material handed out was adequate	24	-	-	20	4
D	The instructors encouraged interaction and were helpful	24	-	-	24	0
E	Were objectives of the course realized? Y	24	24	0	-	-
F.	Please give overall rating of the course					
	90% - 100%				35	
	80% - 90%				4	
	70% - 80%				2	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator

HOD/ECE

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MANGALAM COLLEGE OF ENGG.
ETTUMANOOR 686 631

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
Ministry of Micro, Small and Medium Enterprises
भारत सरकार की संस्था
Government of India Society
फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)
Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 196406

प्रमाण-पत्र

Certificate

This is to certify that

Ms. Adithya Anup

D/o Mr. Anup Kumar

has successfully completed the training

on

COMPUTER HARDWARE & NETWORKING

from 30.10.2023 to 07.04.2024 (96 hrs.)

at MSME-TDC, EC-Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

DATE : May 29, 2024
PLACE : AGRA

No. PPDC/Trg./OSP/2024-25/5049

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGG.
MANGALAM COLLEGE OF ENGINEERING
ETTUMANOOR 686 631

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
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Government of India Society
फाउन्ड्री नगर, आगरा-282 006 (उ.प्र.)
Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 196407

प्रमाण-पत्र

Certificate

This is to certify that

Ms. Arya S Pillai

D/o Mr. Sadasivan Pillai T

has successfully completed the training

on

COMPUTER HARDWARE & NETWORKING

from 30.10.2023 to 07.04.2024 (96 hrs.)

at MSME-TDC, EC-Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : May 29, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2024-25/5050

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
Ministry of Micro, Small and Medium Enterprises
भारत सरकार की संस्था
Government of India Society
फाउन्ड्री नगर, आगरा-282 006 (उ.प्र.)
Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 196408

प्रमाण-पत्र

Certificate

This is to certify that

Ms. Devinandhana

D/o Mr. Saji P G

has successfully completed the training

on

COMPUTER HARDWARE & NETWORKING

from 30.10.2023 to 07.04.2024 (96 hrs.)

at MSME-TDC, EC-Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

DATE : May 29, 2024
PLACE : AGRA

No. PPDC/Tng/GSP/2024-25/5051

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

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Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 196408

प्रमाण-पत्र

Certificate

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Ms. Devinandhana

D/o Mr. Saji P G

has successfully completed the training

on

COMPUTER HARDWARE & NETWORKING

from 30.10.2023 to 07.04.2024 (96 hrs.)

at MSME-TDC, EC-Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : May 29, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2024-25/5051

Add on Course

DIGITAL MARKETING

2023-2024

starting on
20.04.2024

30 HOURS



cordinator
Ms: Amala Lovely Mary

PRINCIPAL
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Ettimadai

MANGALAM
COLLEGE OF ENGINEERING
DEPARTMENT OF MANAGEMENT STUDIES

MANGALAM COLLEGE OF ENGINEERIIYG

DEPARTMENT OF MANAGEMENT STUDIES

Circular

Certificate Course –Digital Marketing

The Department of Management Studies is planning to conduct a certificate course for Second

Year MBA students. Hence it is informed to the students to enroll their names for the Business etiquettes course which will start on 20/04/2024. Students are asked to enroll their names to their respective class advisor on or before 10.04 .2024. The course syllabus is attached.

Name of the Course: Digital Marketing

Course Duration: 30 Hours

5 Saturdays from 20/4/2024

Time Duration: 9.00 AM-04.00 PM

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Ettumanoor

Internal Quality Assurance Cell (IQAC)

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF MANAGEMENT STUDIES

List of Students Enrolled for Certificate course – Digital Marketing

Academic Year: 2023-24 **Batch: 22-24**

Year: S4

SL NO	Register Number	NAME
1	MLM22MBA01	ABEEGA MARIYAM SANTHOSH
2	MLM22MBA04	ABIN RAJESH
3	MLM22MBA03	ABHIRAMIMOL K S
4	MLM22MBA15	AMAL P CHERIAN
5	MLM22MBA11	AKHIL JOY
6	MLM22MBA14	ALWIN EAPPACHEN
7	MLM22MBA16	AMAL VIJAYAKUMAR
8	MLM22MBA20	ANJANA PRASAD
9	MLM22MBA59	MERIN SARA ABRAHAM
10	MLM22MBA34	BIBIN JOSEPH
11	MLM22MBA27	ARPITHA KRISHNA
12	MLM22MBA30	ASWATHI S NAIR
13	MLM22MBA24	ANURENJANA K
14	MLM22MBA80	SHAMLA M
15	MLM22MBA39	DEVIKA PRASANTH
16	MLM22MBA40	GEOMON JOY
17	MLM22MBA41	GEORGI K SAMSON
18	MLM22MBA42	HAMZA MUHAMMED METHER K.M
19	MLM22MBA48	JOYAL SABU

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20	MLM22MBA51	KARTHI KRISHNA
21	MLM22MBA52	KIRAN K KUTTAPPAN
22	MLM22MBA55	MAHIMAMOL C MADHU
23	MLM22MBA57	MATHEWS K FREDY
24	MLM22MBA58	MEERA BIJU
25	MLM22MBA61	NIMMYA THANKACHAN
26	MLM22MBA63	NIRMAL JESWIN MATHEW
27	MLM22MBA65	NIYAS A P
28	MLM22MBA67	PARVATHI JAYAN
29	MLM22MBA69	PRAVEENA PRASADKUMAR
30	MLM22MBA73	SAM MATHEW ABRAHAM
31	MLM22MBA70	RASHIN NAUSHAD
32	MLM22MBA78	SARATH B NAIR
33	MLM22MBA83	SIBIN THOMAS
34	MLM22MBA74	SANA FATHIMA
35	MLM22MBA47	JOSSUKUTTY ALOYSIUS
36	MLM22MBA02	ABHIGITH M J
37	MLM22MBA75	SANGEETHA C S
38	MLM22MBA09	AKASH KUMAR S

Coordinator

HOD in charge.

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Internal Quality Assurance Cell (IQAC)

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF MANAGEMENT STUDIES

Detailed Explanation of Course

Academic Year: 2023-2024 **Batch: 2022-2024**

Semester: 4

The main objective of the course was to provide the students with basics of Digital Marketing online marketing platforms mainly web analytics, social media tools, mobile marketing, etc The course was offered for second year MBA students of Mangalam College of engineering. The course was designed with four modules and course was conducted from 20.04.2024 to 18.05.2024. Certificate was provided to students having 80% of Attendance and scored 60 % in internal exam evaluation.

No of students Registered	No of Students participated	No of Students Passed	No of students Eligible for Certificate
38	38	38	38

Course Coordinator

HOD in Charge

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MANGALAM COLLEGE OF ENGINEERING

Department of Management studies

1.	Academic Year	: 2023-24
2.	Tile of the Course	Digital Marketing
3.	Objective of the Course	• The main objective of the course was to provide the students to developing an overall understanding of digital marketing/online marketing platforms mainly web analytics, social media tools, mobile marketing, etc.
4.	Prerequisite	: Nil
5	Beneficiary	: S4 MBA Students
6	Date and Duration of the Course	:20/4/2024 to 18/05/2024
7	Proposed Timing	: 9.00 AM to 04.00 PM (6 hours per day 5 Saturdays)
8	No of Hours Required	: 30 Hours
9	Internal Resources	: Ms.Amala Lovely James
10	Course Registration Fees	: Nil
11	Contents of Courses	: Enclosed Separately
12	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
13	Venue	: N102,Computer Lab

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COURSE COORDINATOR

HOD

Mangalam College Of Engineering
Department of Management Studies
Add On Course Digital Marketing Attendance

Sl.No	Student	20/4/24	28/4/24	5/5/2024	12/5/2024	18/5/24	Attend %
1	ABEEGA MARIYAM SANTHOSH	P	P	P	P	P	100
2	ABIN RAJESH	P	P	P	P	P	100
3	ABHIRAMIMOL K S	P	P	P	P	P	100
4	AMAL P CHERIAN	P	P	P	P	P	100
5	AKHIL JOY	P	P	P	P	P	100
6	ALWIN EAPPACHEN	P	P	A	P	P	80
7	AMAL VIJAYAKUMAR	P	P	P	P	P	100
8	ANJANA PRASAD	P	P	P	P	P	100
9	MERIN SARA ABRAHAM	P	P	P	P	P	100
10	BIBIN JOSEPH	P	P	P	P	P	100
11	ARPITHA KRISHNA	P	P	P	P	P	100
12	ASWATHI S NAIR	P	P	P	P	P	100
13	ANURENJANA K	P	P	P	P	P	100
14	SHAMLA M	P	P	P	P	A	80
15	DEVIKA PRASANTH	P	P	P	P	P	100
16	GEOMON JOY	P	P	P	P	P	100
17	GEORGI K SAMSON	P	A	P	P	P	80
18	HAMZA MUHAMMED METHER K.M	P	P	P	P	P	100
19	JOYAL SABU	P	P	P	P	P	100
20	KARTHI KRISHNA	P	P	P	P	P	100
21	KIRAN K KUTTAPPAN	P	P	P	P	P	100
22	MAHIMAMOL C MADHU	P	P	P	P	P	100
23	MATHEWS K FREDY	P	P	P	P	P	100
24	MEERA BIJU	P	P	P	P	P	100
25	NIMMYA THANKACHAN	P	P	P	P	P	100
26	NIRMAL JESWIN MATHEW	P	P	P	P	P	100
27	NIYAS A P	P	P	P	P	P	100
28	PARVATHI JAYAN	P	P	P	P	P	100
29	PRAVEENA PRASADKUMAR	P	P	P	P	P	100
30	SAM MATHEW ABRAHAM	P	P	P	P	P	100
31	RASHIN NAUSHAD	P	P	P	P	P	100
32	SARATH B NAIR	P	P	P	P	P	100
33	SIBIN THOMAS	P	P	P	P	P	100
34	SANA FATHIMA	P	A	P	P	P	80
35	JOSSUKUTTY ALOYSIUS	P	P	P	P	P	100
36	ABHIGITH M J	P	P	P	P	P	100
37	SANGEETHA C S	P	P	P	P	P	100
38	AKASH KUMAR S	P	P	P	P	P	100

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Mangalam College Of Engineering
Department of Management Studies
Add On Course Digital Marketing Marks

Student	Marks
ABEEGA MARIYAM SANTHOSH	18
ABIN RAJESH	17
ABHIRAMIMOL K S	15
AMAL P CHERIAN	18
AKHIL JOY	19
ALWIN EAPPACHEN	15
AMAL VIJAYAKUMAR	16
ANJANA PRASAD	18
MERIN SARA ABRAHAM	17
BIBIN JOSEPH	17
ARPITHA KRISHNA	15
ASWATHI S NAIR	16
ANURENJANA K	18
SHAMLA M	16
DEVIKA PRASANTH	14
GEOMON JOY	17
GEORGI K SAMSON	15
HAMZA MUHAMMED METHER K.M	16
JOYAL SABU	18
KARTHI KRISHNA	18
KIRAN K KUTTAPPAN	17
MAHIMAMOL C MADHU	16
MATHEWS K FREDY	16
MEERA BIJU	18
NIMMYA THANKACHAN	15
NIRMAL JESWIN MATHEW	17
NIYAS A P	16
PARVATHI JAYAN	17
PRAVEENA PRASADKUMAR	18
SAM MATHEW ABRAHAM	15
RASHIN NAUSHAD	16
SARATH B NAIR	18
SIBIN THOMAS	16
SANA FATHIMA	17
JOSSUKUTTY ALOYSIUS	15
ABHIGITH M J	16
SANGEETHA C S	18
AKASH KUMAR S	16

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MANGALAM COLLEGE OF ENGINEERING

Certificate of Completion

This is to certify that Ms SANA FATHIMA(MLM22MBA74) of Second year MBA has successfully completed the value added course on ***"Digital Marketing"*** *for the duration of 30hours organized by the Department of Management Studies during the academic year 2023-24.*

CO-ORDINATOR HOD PRINCIPAL

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Certificate of Completion

This is to certify that Ms MEERA BIJU (MLM22MBA58) of Second year MBA has successfully completed the value added course on ***"Digital Marketing"*** *for the duration of 30hours organized by the Department of Management Studies during the academic year 2023-24.*

CO-ORDINATOR HOD PRINCIPAL

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MANAGEMENT STUDIES
Consolidated Course Feedback

DIGITAL MARKETING

Academic Year: 2023-2024 **Batch 2022-2024**

Year: Semester IV

	Questionnaire	Total Response	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	38	20	11	7	-	
B.	The course contents met with your expectations.	38	19	12	7		
C.	The lecture sequence was well planned	38	20	12	6		
D.	The contents were illustrated with examples	38	19	13	6		
E.	The level of the course was easy to understand	38	20	11	7		
F.	The course contents compared with your expectations	38	19	13	6		
G.	The course exposed you to new knowledge and practices	38	20	11	7		
H.	Will you recommend this course to your colleagues?	38	32	2	3	1	
A.	The lectures were clear and easy to understand	38	19	13	6		
B.	The teaching aids were effectively used	38	19	14	5		
C.	The course material handed out was adequate	38	19	13	6		
D.	The instructors encouraged interaction and were helpful	38	20	12	6		
E.	Were objectives of the course realized?	38	19	14	5		
F.	Please give overall rating of the course	38					
	90% - 100%	20					
	80% - 90%	10					
	70% - 80%	6					
	60% - 70%	2					
	50% - 60%						
	below 50%						

Course Coordinator **HOD/MBA**

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DEPARTMENT OF MANAGEMENT STUDIES

Digital Marketing
Assessment Test
Each Question Carries by 1 Marks

Date 18.05.2024 **Time 3.00 pm to 4.00 pm(1 hr)**

1) Which of the following is the correct depiction of Digital Marketing?

a. E-mail Marketing
b. Social Media Marketing
c. Web Marketing
d. All of the above

2) _____ doesn't fall under the category of digital marketing.

a. TV
b. Billboard
c. Radio
d. All of the above

3) Which of the following is incorrect about digital marketing?

a. Digital marketing can only be done offline
b. Digital marketing cannot be done offline.
c. Digital marketing requires electronic devices for promoting goods and services.
d. In general, digital marketing can be understood as online marketing, web marketing, and e-mail marketing.

4) How many types of pillars do we have in digital marketing?

a. 1

b. 2

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c. 3
d. 4

5) Which of the following is involved in the digital marketing process?

a. RSA
b. Voice Broadcasting
c. Podcasting
d. All of the above

6) What is considered while creating a front page of the website or homepage?

a. References of other websites
b. A brief elaboration about the company
c. Logos portraying the number of awards won by the web designer
d. None of the above

7) What is the name of the process in which marketing is achieved by incorporating tools, techniques, electronic devices, technologies, or systems?

a. Internet Marketing
b. Direct Marketing
c. Electronic Marketing
d. Interactive Marketing

8) Which of the following is not specifically required by the search engines?

a. Poor user experience
b. Keyword stuffing
c. Buying links
d. All of the above

9) Which of the following factors are responsible for leaving an impact on the Google PageRank?

a. The text depicting inbound links to a page of a website.
b. A total number of inbound links to a website's page.
c. The subject matter of the site providing the inbound link to a page of a website.

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d. The number of outbound links on the page that contains the inbound link to a page of a website.

10) The full form of FFA page is _____.

a. Free for All Links
b. Free for Alexa
c. Free for Alternative Links
d. Free for All Search Engine

11) Which of the following is the correct depiction of optimization strategy?

a. Orange Hat Techniques
b. Grey Hat Techniques
c. Shady Hat Techniques
d. Blue Hat Techniques

12) _____ is responsible for hamper the search rankings.

a. Connecting to your own website from any random website.
b. Utilizing the same colors of texts as that of your background pages.
c. Integrating page templates into your page template.
d. None of the above

13) Which of the following is the correct name for Facebook's ranking algorithm?

a. Face Rank
b. Edge Rank
c. Like Rank
d. Page Rank

14) Micro-blogging can be defined as _____.

a. Mobile related blogs
b. Blogs posted by companies instead of an individual
c. Blogs encompassing limited individual posts, which are typically limited by character count.
d. None of the above

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15) Name the features offered by LinkedIn for paid business accounts.

a. Facilitate posting pictures
b. Facilitate to connect directly and send messages to people
c. Ability to post in Groups and create a Group
d. Ability to block use

16) In what ways can site traffic help in assessing the market value?

a. Overall site traffic can be followed, and a general idea of marketing's impact can be determined.
b. There is no association between the site traffic and marketing
c. Ads can send receivers to a specific landing page, which can be tracked
d. Product sales from the company website can be attributed directly to the marketing campaign

17) Creative marketing can be defined as _____.

a. A marketing department entailing several employees.
b. The brand value of an organization.
c. A set of schemes undertaken by the organization for distributing the marketing material.
d. The marketing content and its inventive aspect.

18) Which of the following is the correct abbreviation CMS?

a. Content Maintenance Site
b. Content Maintenance System
c. Content Management System
d. Content Marketing System

19) Which of the following doesn't define the correct roles and responsibilities of content marketing strategy?

a. A strategy that tries to appeal and recall its target audience.
b. A marketing strategy approach.
c. Yet another name of social media marketing.
d. A technique more focused on creating and distributing valuable as well as relevant content to its users/audiences.

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20) Which of the following practices are not suggested for producing relevant content?

a. For creating notable content recurrently, create hero "content for tent-pole events".
b. For creating valuable content constantly, create a series of scheduled hub" content."
c. For creating more content than your competitors, create lots of articles that are short, unsubstantial, or otherwise lacking in helpful specifics.
d. For creating relevant content consistently, create help" content to answer queries."

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DEPARTMENT OF MANAGEMENT STUDIES

Digital Marketing

Assessment Test

Each Question Carries by1 Marks

Answer Key

1.d	**6.d**	**11.b**	**16.c**
2.d	**7.c**	**12.b**	**17.d**
3.b	**8.d**	**13.b**	**18.c**
4.b	**9.b**	**14.c**	**19.c**
5.d	**10a**	**15.b**	**20.c**

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Department of Management Studies

Digital Marketing

Syllabus

Module	Topics	L Hrs
1	Introduction to the Course and Work plan - Introduction of the digital marketing - Digital vs. Real Marketing - Digital Marketing Channels - Creating initial digital marketing plan - Content management -SWOT analysis - Target group analysis- Digital Marketing Budgeting	10
2	Web design - Optimization of Web sites - MS Expression Web SEO Optimization - Writing the SEO content - Google AdWords- creating accounts - Google AdWords- types	8
3	Introduction to CRM - CRM platform - CRM models - Introduction to Web analytics - Web analytics - levels	6
4	Introduction of Social Media Marketing- Business tools in social media – Facebook, Instagram, E mail marketing	6

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Course on

BUSINESS ETIQUETTE

2023-24



Starting on
17.08.24

Co-ordinator
Dr. Prima Anne George

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Ernakulam

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DEPARTMENT OF MANAGEMENT STUDIES

Circular

Certificate Course –Business Etiquettes

The Department of Management Studies is planning to conduct a certificate course on Business Etiquettes for first semester MBA students. Hence it is informed to the students to enroll their names for the Business etiquette course which will start on 17/08/2023. Students are asked to enroll their names to their respective class advisor on or before 10.08 .2023. The course syllabus is attached.

Name of the Course: Business Etiquettes

Course Duration: 30 Hours

5 Saturdays from 19/8/23

Time Duration: 9.00 AM-04.00 PM

For.

HOD

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DEPARTMENT OF MANAGEMENT STUDIES

Date: 10/8/2023

Submitted for the Principal's Approval

We have proposed to conduct the certificate course on "Business Etiquette" for our students during the first semester(2023-24). Tentative timings and course fee details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Explanation

The course is designed to prepare participants to handle a variety of social and business situations: networking events, business meetings, business meals, and more. Thoroughly review dining etiquette for everything from casual buffets to formal dinners. Discuss workplace appearance for any dress code.

Name of the Course	Course Instructors	Course Duration	Approx. Course Fee	Target Students (Yr/Branch)
Business Etiquette	Dr. Prima Anne George Ms. Neethu Kuncheria	30 Hrs	Free	2023/S1 MBA

Thanking you,

Certificate Course I/C

HOD/MBA

Principal

Copy to: MBA Department File

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DEPARTMENT OF MANAGEMENT STUDIES

DETAILED SYLLABUS - BUSINESS ETIQUETTE
Academic Year 2023-24

Module	Topics	L Hrs
1	□ The Case for Business Etiquette □ The ABC of Business Etiquette □ Body Language □ First Impressions do Count □ Nothing to Wear? □ Grooming	9
2	□ Introduction Etiquette □ The Hand Shake □ Polite Conversation □ Personal Style □ Civility on the Internet □ Email Etiquette □ Social Media Etiquette	9
3	□ Understanding Particular Cultures □ Hosting or Attending? □ Awkward Dining Moments □ Which fork? □ Socialising After Hours □ Marking Employee Events	9
4	□ Difficult People □ Ethical Dilemmas □ Create an Action Plan □ Accountability = Action	3

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DEPARTMENT OF MANAGEMENT STUDIES

Business Etiquette
Assessment Test
Each Question Carries by 1 Marks

Date 16.01.2021 **Time 3.00 pm to 4.00 pm(1 hr)**

1. You pass a co-worker in the hallway and he asks "How are you?". You respond by:
   a. Telling him that your back has been hurting you and you have a cold
   b. Saying "Fine, thanks"
   c. Explaining that you are tired and stressed out in your job

2. Canadians value closeness and friendliness. It is appropriate to stand close to a business contact andfrequently touch his/her arm while talking.
   a. True b. False

3. A co-worker comes to your office to introduce you to a friend of his. You:
   a. Smile and nod
   b. You stand up, establish eye contact, smile and shake his hand
   c. Wave and tell him how happy you are to meet him
   d. Give him a "high five"

4. You have a meeting with a colleague from a different department scheduled for 10:00am. You've spoken to the receptionist and you have been waiting outside the colleague's office for a while and it is now 10:05. Youwant to make sure the person knows you're there. You:
   a. Peek your head in the doorway and say "Excuse me"
   b. Stand near the door where your colleague will see you
   c. Continue to sit and wait
   d. Enter the office confidently, introduce yourself and remind them you have a 10:00 am meeting.

5. After a meeting with a contact, in order to express your thanks, it is appropriate to:
   a. Send him/her a small box of chocolates with a note
   b. Drop by the office and give him/her a hot cup of coffee
   c. Send a dozen red roses to his/her home
   d. Send a thank you letter

6. When meeting a contact of the opposite sex the man should wait for the woman to initiate the handshake.
   a. True b. False

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7. When breaking the ice with a contact at the beginning of a meeting it is appropriate to discuss such things asthe weather, politics and traffic.
   a. True b. False

8. When corresponding with a business contact by email you should:
   a. Be as formal as if you were writing an actual letter on paper
   b. Be a little more informal to appear up-to-date with technology and the trend towards a relaxed work atmosphere

9. It is acceptable to leave on your personal cellular phone during office hours and answer it when it rings.
   a. True b. False

10. A co-worker shares office gossip/rumors with you. You:
   a. Thank him for telling you and pass the stories on
   b. Check out the facts with other employees
   c. Politely listen and keep the information to yourself

11. When introducting people to each other, which of the following is the correct method?
   a. A woman is introduced to a man.
   b. An older person is introduced to a younger person.
   c. A more important person is introduced to a less important person.
   d. A younger person is introduced to an older person.

12. How should you respond when introduced to someone?
   a. Hi! Nice to meet you
   b. You mispronounced my name, it's Smythe, not Smith.
   c. pleasure meeting you, Mr. Monroe.
   d. Hey Timmy, nice to meet ya!

13. How should you react if someone forgets to introduce you when you are in a group of people you have not met?

   a.Take offense, how dare they forget to introduce you!

   b.Stand quietly and never say anything.

   c.Push your way into the conversation.

   d.Wait for a convenient time to introduce yourself.

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14. When meeting someone for the first time, you should convey all of these feelings except.....

a.Respect

b. Acceptance

c. Indifference

b. Warmth

15. When dining out for business purposes, it is important to.....

a. Leave your cell phone on in case a family member needs to call you.
b. Fix your makeup at the table.
c. Use proper posture.
d. Start eating as soon as your food arrives, even if the rest of the table has not been served.

16. When ordering at a restaurant, the waiter will know you are ready to order when.....

a. Your close your menu.
b. You look his way.
c. You put your napkin in your lap.
d. You tap your utensils on the table.

17. When eating out, it is proper to use your napkin in every way except.....

a. Use your napkin frequently in a blotting or patting manner to clean your lips.
b. Use your napkin as a handkerchief.
c. Wipe your fingers as necessary.
d. Use your napkin to clean up if a spill occurs.

18. When eating spaghetti at a restaurant.....

a. Cut your spaghetti so you don't have to spin it onto your fork.
b. Suck the noodles into your mouth to make it easier to eat.
c. Twirl the pasta around your fork and put the fork in your mouth.
d. Don't order spaghetti!

19. What are the ABC's of Etiquette?

a. Advise, Be Respectful, Create
b. Acceptable, Believable, Courteous

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c. Advertise, Beneficial, Charitable
d. Accurate, Boastful, Couragous

20. If you are working as a receptionist. It is important that you:

a. Always have a pen and notepad nearby.
b. Be familiar with your organization.
c. Smile.
d. All of the above.

HOD

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DEPARTMENT OF MANAGEMENT STUDIES

List Of Students Enrolled for Certificate Course- Business Etiquette

Branch: MBA

Batch: 2023-24

Year/ Semester : I/I

Academic Year:2023-25

Sl.No	Register Number	Name of the Student
1	MLM23MBA01	ABDUL RAHMAN HANEEFA
2	MLM23MBA02	ABHIJITH BAIJU
3	MLM23MBA03	ABIN BENNY
4	MLM23MBA04	Adarsh C S
5	MLM23MBA05	ADITHYA A
6	MLM23MBA06	Adithya G Nath
7	MLM23MBA07	ADITHYA K. S
8	MLM23MBA08	ADITYA VALSALAN
9	MLM23MBA09	AFEEF SHAJI
10	MLM23MBA10	Akash Johnson
11	MLM23MBA11	Akhil Shaji
12	MLM23MBA13	AKSHAY SURESH
13	MLM23MBA12	Akshaya Ajith
14	MLM23MBA14	ALWIN JOSHY
15	MLM23MBA15	Amrutha
16	MLM23MBA16	Anandhu Uthaman
17	MLM23MBA17	ANANTHU MANOJ
18	MLM23MBA18	ANASMON J
19	MLM23MBA19	Angel George
20	MLM23MBA20	ANSEEF NOUSHAD
21	MLM23MBA21	Ansu Babu
22	MLM23MBA22	Archana Babu
23	MLM23MBA24	ARUN RAJ
24	MLM23MBA25	ARUN T S
25	MLM23MBA27	Arya Purushothaman
26	MLM23MBA26	Aryalakshmi C S
27	MLM23MBA28	Ashiyamol PS
28	MLM23MBA29	ASHKAR KABIR
29	MLM23MBA30	Ashna Zakir
30	MLM23MBA29	ASHWIN BINU

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31	MLM23MBA31	Aswani Soman
32	MLM23MBA33	ASWIN SUNIL
33	MLM23MBA34	ATHY SURESH
34	MLM23MBA35	Bibin Benny
35	MLM23MBA36	BIJITHKRISHNA P B
36	MLM23MBA37	Bince Benny
37	MLM23MBA38	Chinchumol Bijoy
38	MLM23MBA39	CHRISTINA SARA ALEX
39	MLM23MBA40	COLIN JOE SEBASTIAN
40	MLM23MBA41	Devapriya Binu
41	MLM23MBA42	FARSANA SATHAR
42	MLM23MBA43	GAUTHAM DILEEP
43	MLM23MBA44	GITHIN JOHN SHAJI
44	MLM23MBA45	IBRAHIM BADHUSHA
45	MLM23MBA46	JAGAN SURESH
46	MLM23MBA47	Jayakrishnan K S
47	MLM23MBA48	JEBSON BABY
48	MLM23MBA49	Jibu P Biju
49	MLM23MBA52	Jino Thomas
50	MLM23MBA53	Jithin Shaji
51	MLM23MBA54	JOBIN THOMAS MATHAI
52	MLM23MBA55	Joice P Shibu
53	MLM23MBA56	Jojy Sibi
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60	MLM23MBA63	Linumol Sabu
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62	MLM23MBA65	Manu Renjith
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65	MLM23MBA69	Mekha P S
66	MLM23MBA71	Merin Susan Joseph
67	MLM23MBA72	MILTTON P B
68	MLM23MBA73	MOHAMMED ASLAM
69	MLM23MBA75	Nandu Krishna
70	MLM23MBA76	Nashida Y
71	MLM23MBA77	Nijo Mathew
72	MLM23MBA78	NITHIN JACOB THANKACHAN

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73	MLM23MBA79	NITHIN VIJAYAN
74	MLM23MBA80	Noel Philip
75	MLM23MBA82	PRANAV P
76	MLM23MBA84	Preethi Jayan
77	MLM23MBA86	RADHIKA S
78	MLM23MBA85	RADHIKA RADHAKRISHNAN
79	MLM23MBA88	Rejeena Reji
80	MLM23MBA89	REUBEN JOHN
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82	MLM23MBA91	RIJO EAPEN
83	MLM23MBA92	SALMAN BIN NAVAS
84	MLM23MBA93	Sandra Kunjumon
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87	MLM23MBA97	Saranga Sajan
88	MLM23MBA98	SHILPA SIVANKUTTY
89	MLM23MBA99	Shon Pearson
90	MLM23MBA100	SINDHURA PRAKASHAN
91	MLM23MBA102	Sneha Santhosh
92	MLM23MBA103	SNEHA SHINY SAM
93	MLM23MBA104	Snehavally A K
94	MLM23MBA105	Sona Thomas
95	MLM23MBA106	SONU S
96	MLM23MBA108	SREEJITH P S
97	MLM23MBA109	SREELAKSHMI ANIL
98	MLM23MBA110	Sreeparvathi Pillai
99	MLM23MBA112	Surabhi S
100	MLM23MBA114	Vidhya Vijayan
101	MLM23MBA115	Vishnu Selvaraj
102	MLM23MBA116	YADHUKRISHNA B

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DEPARTMENT OF MANAGEMENT STUDIES

Attendance Sheet- Certificate Course- Business Etiquette

Sl.No	Register Number	Name of the Student	19-08-2023	26-08-2023	02-09-2023	09-09-2023	16-09-2023	23-09-2023
1	MLM23MBA01	ABDUL RAHMAN HANEEFA	✗	a	✗	✗	a	✗
2	MLM23MBA02	ABHIJITH BAIJU	✗	✗	✗	✗	✗	a
3	MLM23MBA03	ABIN BENNY	a	✗	✗	a	✗	✗
4	MLM23MBA04	Adarsh C S	✗	✗	✗	a	✗	✗
5	MLM23MBA05	ADITHYA A	✗	a	✗	✗	✗	✗
6	MLM23MBA06	Adithya G Nath	✗	a	✗	✗	✗	✗
7	MLM23MBA07	ADITHYA K. S	✗	✗	✗	✗	✗	✗
8	MLM23MBA08	ADITYA VALSALAN	✗	✗	a	✗	✗	✗
9	MLM23MBA09	AFEEF SHAJI	a	✗	✗	a	✗	✗
10	MLM23MBA10	Akash Johnson	✗	✗	✗	a	✗	✗
11	MLM23MBA11	Akhil Shaji	✗	✗	✗	a	✗	✗
12	MLM23MBA13	AKSHAY SURESH	✗	✗	✗	✗	a	✗
13	MLM23MBA12	Akshaya Ajith	✗	a	✗	✗	✗	a
14	MLM23MBA14	ALWIN JOSHY	✗	✗	✗	a	✗	✗
15	MLM23MBA15	Amrutha	✗	✗	✗	✗	a	✗
16	MLM23MBA16	Anandhu Uthaman	✗	✗	✗	✗	✗	a
17	MLM23MBA17	ANANTHU MANOJ	✗	a	✗	✗	✗	✗
18	MLM23MBA18	ANASMON J	✗	✗	✗	a	✗	✗
19	MLM23MBA19	Angel George	✗	✗	a	✗	✗	✗
20	MLM23MBA20	ANSEEF NOUSHAD	✗	✗	✗	a	✗	✗
21	MLM23MBA21	Ansu Babu	✗	✗	✗	a	✗	✗
22	MLM23MBA22	Archana Babu	✗	✗	✗	a	✗	✗

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23	MLM23MBA24	ARUN RAJ						
24	MLM23MBA25	ARUN T S						
25	MLM23MBA27	Arya Purushothaman						
26	MLM23MBA26	Aryalakshmi C S						
27	MLM23MBA28	Ashiyamol PS						
28	MLM23MBA29	ASHKAR KABIR						
29	MLM23MBA30	Ashna Zakir						
30	MLM23MBA29	ASHWIN BINU						
31	MLM23MBA31	Aswani Soman						
32	MLM23MBA33	ASWIN SUNIL						
33	MLM23MBA34	ATHY SURESH						
34	MLM23MBA35	Bibin Benny						
35	MLM23MBA36	BIJITHKRISHNA P B						
36	MLM23MBA37	Bince Benny						
37	MLM23MBA38	Chinchumol Bijoy						
38	MLM23MBA39	CHRISTINA SARA ALEX						
39	MLM23MBA40	COLIN JOE SEBASTIAN						
40	MLM23MBA41	Devapriya Binu						
41	MLM23MBA42	FARSANA SATHAR						
42	MLM23MBA43	GAUTHAM DILEEP						
43	MLM23MBA44	GITHIN JOHN SHAJI						
44	MLM23MBA45	IBRAHIM BADHUSHA						
45	MLM23MBA46	JAGAN SURESH						
46	MLM23MBA47	Jayakrishnan K S						
47	MLM23MBA48	JEBSON BABY						
48	MLM23MBA49	Jibu P Biju						
49	MLM23MBA52	Jino Thomas						
50	MLM23MBA53	Jithin Shaji						
51	MLM23MBA54	JOBIN THOMAS MATHAI						
52	MLM23MBA55	Joice P Shibu						

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53	MLM23MBA56	Jojy Sibi						
54	MLM23MBA57	Joyal Thomas						
55	MLM23MBA58	Justin Jacob						
56	MLM23MBA59	JYOTHY B						
57	MLM23MBA60	KARTHIK BINESH						
58	MLM23MBA61	Keerthi Dayalu						
59	MLM23MBA62	KELVIN THOMAS						
60	MLM23MBA63	Linumol Sabu						
61	MLM23MBA64	MALAVIKA MANI						
62	MLM23MBA65	Manu Renjith						
63	MLM23MBA67	Mary Helen						
64	MLM23MBA68	Meenu M Nair						
65	MLM23MBA69	Mekha P S						
66	MLM23MBA71	Merin Susan Joseph						
67	MLM23MBA72	MILTTON P B						
68	MLM23MBA73	MOHAMMED ASLAM						
69	MLM23MBA75	Nandu Krishna						
70	MLM23MBA76	Nashida Y						
71	MLM23MBA77	Nijo Mathew						
72	MLM23MBA78	NITHIN JACOB THANKACHAN						
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75	MLM23MBA82	PRANAV P						
76	MLM23MBA84	Preethi Jayan						
77	MLM23MBA86	RADHIKA S						
78	MLM23MBA85	RADHIKA RADHAKRISHNAN						
79	MLM23MBA88	Rejeena Reji						
80	MLM23MBA89	REUBEN JOHN						
81	MLM23MBA90	REVATHY P S						
82	MLM23MBA91	RIJO EAPEN						
83	MLM23MBA92	SALMAN BIN NAVAS						

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84	MLM23MBA93	Sandra Kunjumon						
85	MLM23MBA94	Sanjay S						
86	MLM23MBA96	SANJU THOMAS						
87	MLM23MBA97	Saranga Sajan						
88	MLM23MBA98	SHILPA SIVANKUTTY						
89	MLM23MBA99	Shon Pearson						
90	MLM23MBA100	SINDHURA PRAKASHAN						
91	MLM23MBA102	Sneha Santhosh						
92	MLM23MBA103	SNEHA SHINY SAM						
93	MLM23MBA104	Snehavally A K						
94	MLM23MBA105	Sona Thomas						
95	MLM23MBA106	SONU S						
96	MLM23MBA108	SREEJITH P S						
97	MLM23MBA109	SREELAKSHMI ANIL						
98	MLM23MBA110	Sreeparvathi Pillai						
99	MLM23MBA112	Surabhi S						
100	MLM23MBA114	Vidhya Vijayan						
101	MLM23MBA115	Vishnu Selvaraj						
102	MLM23MBA116	YADHUKRISHNA B						

23/9/2023

Dr. Prune Anne George.

Faculty Coordinator

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Mangalam College Of Engineering
Department of Management Studies
Add On Course Business Etiquette Marks

Sl.No	Student	Marks
1	ABDUL RAHMAN HANEEFA	18
2	ABHIJITH BAIJU	17
3	ABIN BENNY	15
4	Adarsh C S	18
5	ADITHYA A	19
6	Adithya G Nath	15
7	ADITHYA K. S	16
8	ADITYA VALSALAN	19
9	AFEEF SHAJI	17
10	Akash Johnson	15
11	Akhil Shaji	18
12	AKSHAY SURESH	17
13	Akshaya Ajith	15
14	ALWIN JOSHY	16
15	Amrutha	16
16	Anandhu Uthaman	19
17	ANANTHU MANOJ	17
18	ANASMON J	15
19	Angel George	18
20	ANSEEF NOUSHAD	17
21	Ansu Babu	15
22	Archana Babu	16
23	ARUN RAJ	15
24	ARUN T S	18
25	Arya Purushothaman	19
26	Aryalakshmi C S	15
27	Ashiyamol PS	16
28	ASHKAR KABIR	19
29	Ashna Zakir	17
30	ASHWIN BINU	15
31	Aswani Soman	18
32	ASWIN SUNIL	17
33	ATHY SURESH	15
34	Bibin Benny	16
35	BIJITHKRISHNA P B	16
36	Bince Benny	19
37	Chinchumol Bijoy	17
38	CHRISTINA SARA ALEX	17
39	COLIN JOE SEBASTIAN	18
40	Devapriya Binu	18
41	FARSANA SATHAR	15
42	GAUTHAM DILEEP	16
43	GITHIN JOHN SHAJI	19
44	IBRAHIM BADHUSHA	17
45	JAGAN SURESH	15

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46	Jayakrishnan K S	18
47	JEBSON BABY	17
48	Jibu P Biju	16
49	Jino Thomas	16
50	Jithin Shaji	16
51	JOBIN THOMAS MATH	19
52	Joice P Shibu	17
53	Jojy Sibi	18
54	Joyal Thomas	17
55	Justin Jacob	16
56	JYOTHY B	19
57	KARTHIK BINESH	17
58	Keerthi Dayalu	16
59	KELVIN THOMAS	18
60	Linumol Sabu	17
61	MALAVIKA MANI	18
62	Manu Renjith	16
63	Mary Helen	16
64	Meenu M Nair	19
65	Mekha P S	17
66	Merin Susan Joseph	15
67	MILTTON P B	16
68	MOHAMMED ASLAM	15
69	Nandu Krishna	18
70	Nashida Y	19
71	Nijo Mathew	16
72	NITHIN JACOB THANKA	16
73	NITHIN VIJAYAN	19
74	Noel Philip	17
75	PRANAV P	15
76	Preethi Jayan	14
77	RADHIKA S	17
78	RADHIKA RADHAKRISH	15
79	Rejeena Reji	16
80	REUBEN JOHN	18
81	REVATHY P S	19
82	RIJO EAPEN	17
83	SALMAN BIN NAVAS	16
84	Sandra Kunjumon	18
85	Sanjay S	18
86	SANJU THOMAS	15
87	Saranga Sajan	16
88	SHILPA SIVANKUTTY	19
89	Shon Pearson	17
90	SINDHURA PRAKASHA	15
91	Sneha Santhosh	18
92	SNEHA SHINY SAM	17
93	Snehavally A K	16
94	Sona Thomas	16
95	SONU S	17

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96	SREEJITH P S	19
97	SREELAKSHMI ANIL	17
98	Sreeparvathi Pillai	16
99	Surabhi S	14
100	Vidhya Vijayan	18
101	Vishnu Selvaraj	19
102	YADHUKRISHNA B	16

Dr. Prima Anne George.

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Certificate of Completion

This is to certify that Ms Aryalakshmi CS (MLM23MBA26) of First year MBA has successfully completed the value added course on **"Business Etiquette"** *for the duration of 30hours organized by the Department of Management Studies during the academic Year 2023-24.*

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CO-ORDINATOR HOD PRINCIPAL

MANGALAM COLLEGE OF ENGINEERING

Certificate of Completion

This is to certify that Ms ANSU BABU (MLM23MBA21) of First year MBA has successfully completed the value added course on **"Business Etiquette"** *for the duration of 30hours organized by the Department of Management Studies during the academic year 2023-24.*

CO-ORDINATOR HOD PRINCIPAL

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MANAGEMENT STUDIES
Consolidated Course Feedback

BUSINESS ETIQUETTE'S

Academic Year: 2023-2024 **Batch 2023-2025**

Year: Semester I

	Questionnaire	Total Response	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	102	43	40	17	2	
B.	The course contents met with your expectations.	102	39	41	20	2	
C.	The lecture sequence was well planned	102	40	40	20	2	
D.	The contents were illustrated with Examples	102	43	40	16	1	
E.	The level of the course was easy to understand	102	40	40	20	2	
F.	The course contents compared with your expectations	102	43	40	17	2	
G.	The course exposed you to new knowledge and practices	102	40	40	22	0	
H.	Will you recommend this course to your colleagues?	102	42	41	18	1	
A.	The lectures were clear and easy to understand	102	42	41	17	2	
B.	The teaching aids were effectively used	102	43	40	19	0	
C.	The course material handed out was adequate	102	39	41	20	2	
D.	The instructors encouraged interaction and were helpful	102	43	43	17	0	
E.	Were objectives of the course realized?	102	43	40	17	2	
F.	Please give overall rating of the course	102					
	90% - 100%	45					
	80% - 90%	52					
	70% - 80%	5					
	60% - 70%						
	50% - 60%						
	below 50%						

Course Coordinator

HOD/MBA

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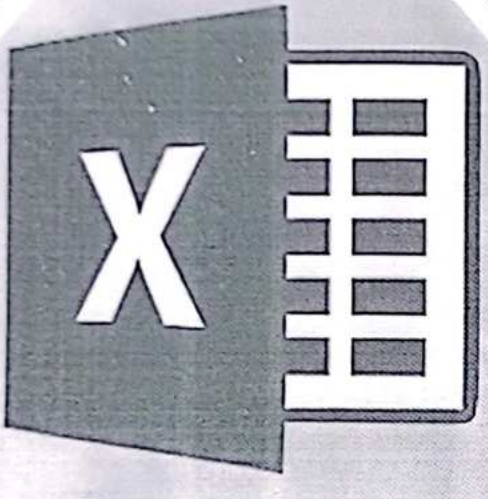
Ettumanoor

MANGALAM COLLEGE OF ENGINEERING

NAAC A

DEPARTMENT OF MANAGEMENT STUDIES

FOR ACADEMIC YEAR 2023-2024



TRAINING SESSION WITH

G TEC COMPUTER EDUCATION

G-TEC COMPUTER EDUCATION
ETTUMANOOR, PALA

ADD ON COURSE ON

MS EXCEL

STARTS ON

25TH NOVEMBER 2023

CORDINATOR
MS.TINTA BABY

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MANGALAM COLLEGE OF ENGINEERIIYG

DEPARTMENT OF MANAGEMENT STUDIES

Circular

Certificate Course –MS Excel

The Department of Management Studies is planning to conduct a certificate course for Third

Semester MBA students. Hence it is informed to the students to enroll their names for the MS Excel course which will start on 25/11/2023. Students are asked to enroll their names to their respective class advisor on or before e 20/11/2023. The course syllabus is attached.

Name of the Course: MS Excel

Course Duration: 30 Hours

5 Saturdays from 25/11/2023

Time Duration: 9.00 AM-04.00 PM

18/11/23

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DEPARTMENT OF MANAGEMENT STUDIES

1.	Academic Year	: 2023-24
2.	Tile of the Course	MS Excel
3.	Objective of the Course	• The main objective of the course was to provide the students to developing an overall understanding of Ms Excel. Create formulas and use built in functions to perform calculations and solve Problems.
4.	Prerequisite	: Nil
5	Beneficiary	: Second Year MBA Students
6	Date and Duration of the Course	:25/11/2023 to 23/12/2023
7	Proposed Timing	: 9.00 AM to 04.00 PM (6 hours per day 5 Saturdays)
8	No of Hours Required	: 30 Hours
9	Internal Coordinator	: Ms.Tinta Baby
10	Course Registration Fees	: Rs 1000
11	Contents of Courses	: Enclosed Separately
12	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
13	Venue	: Gtech Training Center Pala,Ettumanoor

COURSE COORDINATOR

HOD

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Internal Quality Assurance Cell (IQAC)

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF MANAGEMENT STUDIES

List of Students Enrolled for Certificate course – MS Excel

Academic Year: 2023-24 **Batch: 22-24**

Year: II

SL NO	Register Number	NAME
1	MLM22MBA01	ABEEGA MARIYAM SANTHOSH
2	MLM22MBA04	ABIN RAJESH
3	MLM22MBA05	ADITHYA MOHANAN
4	MLM22MBA07	AISWARYA MANO
5	MLM22MBA11	AKHIL JOY
6	MLM22MBA14	ALWIN EAPPACHEN
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11	MLM22MBA27	ARPITHA KRISHNA
12	MLM22MBA30	ASWATHI S NAIR
13	MLM22MBA31	ATHIRA K SAJEEV
14	MLM22MBA33	AYANA JOSE
15	MLM22MBA39	DEVIKA PRASANTH
16	MLM22MBA40	GEOMON JOY
17	MLM22MBA41	GEORGI K SAMSON
18	MLM22MBA45	JOSHMI JOSEPH
19	MLM22MBA48	JOYAL SABU

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20	MLM22MBA51	KARTHI KRISHNA
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25	MLM22MBA61	NIMMYA THANKACHAN
26	MLM22MBA63	NIRMAL JESWIN MATHEW
27	MLM22MBA65	NIYAS A P
28	MLM22MBA66	NOORA AJI
29	MLM22MBA69	PRAVEENA PRASADKUMAR
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35	MLM22MBA89	SURYA S NAIR
36	MLM22MBA02	ABHIGITH M J
37	MLM22MBA06	AISWARYA KRISHNAN
38	MLM22MBA09	AKASH KUMAR S
39	MLM22MBA10	AKHILA SASIKUMAR
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56	MLM22MBA82	SHILPA SANTHOSH
57	MLM22MBA84	SNEHA ELAISE GEORGE
58	MLM22MBA86	SONA SOMAN
59	MLM22MBA92	TOBY PAUL
60	MLM22MBA93	VIJAY VINAYAN

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Advance Excel Syllabus

Total Duration: 30 Hrs

1) Custom and Conditional Formats

- Introduction
- Creating Conditional Formatting using color scales
- Using Icon sets
- Conditional formatting using New rule
- Conditional formatting using manage rules and clear rules

2) Data Validation

- Specifying a valid range of value of a cell
- Specifying a valid value for a cell
- Specifying custom validation based on formula for a cell
- Prevent duplicate entries

Chapter 1 & 2 **Duration: 3Hr**

3) Working with Range Names

- Using Range names
- Creating range names
- Using range names in formulas
- Deleting range names
- Advanced Range Options

4) Advanced Table Option

- Creating Tables
- Naming the Tables
- Changing the Table style
- Creating a total row
- Creating a calculated column
- using FIltering in Table
- Removing the duplicate record



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5) Array Functions

- Array functions using CTRL+SHIFT+ENTER
- One Dimensional Array
- Two Dimensional Array
- Single cell and Multi cell Array

Chapter 3, 4 & 5 **Duration: 4 Hrs**

6) Using Formulas and Functions

- Text Function
- Logical Functions
- Date and Time Functions
- Math and Trigonometry Functions
- Statistical Functions
- Lookup and reference functions

Chapter 6 **Duration 8 Hrs**

7) Working with Charts

- Creating a chart
- Formatting a chart
- Adding Labels
- Changing the chart type, Data source

8) Working with Pivot Tables

- Creating Pivot tables
- Adding Pivot table Report Fields
- Refreshing Pivot table Reports
- Changing the summary functions
- Creating report filter page
- Creating Subtotals
- Multiple Level subtotals
- Creating Pivot tables
- Formatting and customizing Pivot tables
- Using advanced options of pivot table
- pivot charts

Chapter 7 & 8 **Duration: 3 Hr**

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9) Worksheet Protection

- Protecting your work sheet
- Protecting range with password
- Protecting your Workbook and Excel Files
- Sharing a workbook
- Opening and editing a shared workbook

10) What-IF Analysis

- Goal Seek
- Data Tables
- Scenario Manager

11) Import and Export

- Import a text file by opening it in excel
- Import a text file by connecting to it
- Export data to a text file
- Changing the delimiter
- Change the separator in all .CSV text file

Chapter 9, 10 & 11 **Duration: 1 Hr**

12) Working with Macros and VBA

- Display the developer Tab
- Changing Macro security Settings
- Recording and running a Macro
- Delete a Macro
- VBA (Visual Basic Application)
- Advantages and features
- VBA Message Box , Comments
- InputBox using VBA
- Sub and Functions using VBA
- VBA Constants , variables
- VBA Operators
- Loops
- VBA Decisions
- User form in VBA

Chapter 12 **Duration: 11 hrs**

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DEPARTMENT OF MANAGEMENT STUDIES

Microsoft Excel
Assessment Test
Each Question Carries by 1 Marks

Date 23.12.2023 **Time 3.00 PM to 4.00 PM(1 hr)**

1. What is the intersection of a column and a row on a worksheet called ?

(a) Column
(b) Value
(c) Address
(d) Cell

2. What type of chart is useful for comparing values over categories ?

(a) Pie Chart
(b) Column Chart
(c) Line Chart
(d) Dot Graph

3. How do you display current date only in MS Excel?
A. Date ()
B. Today ()
C. Now ()
D. Time ()

4. How do you wrap the text in a cell?

A. Format cells font
B. Format cells protection
C. Format cells number
D. Format cells alignment

5. What does COUNTA () function do?
A. Counts cells having alphabets
B. Counts empty cells

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C. Counts cells having number
D. Counts non-empty cells

6. What is the short cut key to highlight the entire column?

A. Ctrl + C
B. Ctrl + Enter
C. Ctrl + Page Up
D. Ctrl + Space Bar

7. In the formula, which symbol specifies the fixed columns or rows?
A. $
B. *
C. %
D. ;

8. You can convert existing excel worksheet data an charts to an HTML document by using
A. FTP wizard
B. Internet assistant wizard
C. Intranet wizard
D. Import wizard

9. A circular reference is
A. Geometric modeling tool
B. A cell that points to a drawing object
C. A formula that either directly or indirectly depends on

10. Which of following is Not one of Excel's what-if function?
A. Goal seek
B. Solver
C. Scenario manager
D. Auto Outline

11. When you insert an excel file into a word document. The data are
A. Hyperlinked placed in a word table
B. Linked
C. Embedded
D. Use the word menu bar and toolbars

12. Which of the following is not information you can specify using the solver?
A. Input cells
B. Constraints
C. Target cell
D. Changing cells

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13. You can check the conditions against _____ when applying conditional formatting
A. Cell value
B. Formula
C. Both of above
D. None of above

14. Which of the following is not true regarding Conditional Formatting?
A. You can add more than one condition to check
B. You can set condition to look for Bold and apply Italics on them
C. You can apply Font border and pattern formats that meets the specified conditions
D. You can delete any condition from Conditional Formatting dialog box if it is not required.

15. Which of the following is invalid statement?
A. Sheet tabs can be colored
B. Some picture can be applied as a background of a sheet
C. You can set the column width automatically fit the amount of text
D. The width of a row and be specified manually or fit automatically

16. You can use the formula palette to
A. Format cells containing numbers
B. Create and edit formula containing functions
C. Enter assumptions data
D. Copy a range of cells

17. When a range is selected, how can you activate the previous cell?
A. Press the Alt key
B. Press Tab
C. Press Enter
D. None of above

18. Which of the following format you can decide to apply or not in AutoFormat dialog box?
A. Number format
B. Border format
C. Font format
D. All of above

19. How can you remove borders applied in cells?
A. Choose None on Border tab of Format cells
B. Open the list on Border tool in Format Cell toolbar then choose first tool (none)
C. Both of above
D. None of above

20. Where can you set the shading color for a range of cells in Excel?
A. Choose required color form Patterns tab of Format Cells dialog box

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B. Choose required color on Fill Color tool in Formatting toolbar
C. Choose required color on Fill Color tool in Drawing toolbar
D. All of above

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Microsoft Excel

Assessment Test

Each Question Carries by 1 Marks

Answer Key

1.C	6.D	11.B	16.B
2.A	7.B	12.A	17.D
3.B	8.A	13.C	18.D
4.D	9.D	14.B	19.C
5.D	10.D	15.D	20.D

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Internal Quality Assurance Cell (IQAC)

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF MANAGEMENT STUDIES

List of Students Enrolled for Certificate course – MS Excel

Academic Year: 2023-24 **Batch: 22-24**

Year: II

SL NO	Register Number	NAME	MARKS
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6	MLM22MBA14	ALWIN EAPPACHEN	16
7	MLM22MBA16	AMAL VIJAYAKUMAR	18
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10	MLM22MBA26	ARJUN SHAJI	18
11	MLM22MBA27	ARPITHA KRISHNA	17
12	MLM22MBA30	ASWATHI S NAIR	19
13	MLM22MBA31	ATHIRA K SAJEEV	18
14	MLM22MBA33	AYANA JOSE	18
15	MLM22MBA39	DEVIKA PRASANTH	16
16	MLM22MBA40	GEOMON JOY	18
17	MLM22MBA41	GEORGI K SAMSON	14
18	MLM22MBA45	JOSHMI JOSEPH	16
19	MLM22MBA48	JOYAL SABU	18

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28	MLM22MBA66	NOORA AJI	18
29	MLM22MBA69	PRAVEENA PRASADKUMAR	18
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36	MLM22MBA02	ABHIGITH M J	14
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39	MLM22MBA10	AKHILA SASIKUMAR	19
40	MLM22MBA12	AKHIN SAJI	16
41	MLM22MBA13	ALANA A	18
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56	MLM22MBA82	SHILPA SANTHOSH	17
57	MLM22MBA84	SNEHA ELAISE GEORGE	18
58	MLM22MBA86	SONA SOMAN	16
59	MLM22MBA92	TOBY PAUL	17
60	MLM22MBA93	VIJAY VINAYAN	14

Co-ordinator

HOD

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Mangalam College Of Engineering
Department of Management Studies
Add On Course Excell

Sl.No	Student	25/11/23	2/12/2023	9/12/2023	16/12/2024	23/12/2023	Attend %
1	ABEEGA MARIYAM SANTHOSH	P	P	P	P	P	100
2	ABIN RAJESH	P	P	P	P	P	100
3	ADITHYA MOHANAN	P	P	P	P	P	100
4	AISWARYA MANO	P	P	P	P	P	100
5	AKHIL JOY	P	P	P	P	P	100
6	ALWIN EAPPACHEN	P	P	A	P	P	80
7	AMAL VIJAYAKUMAR	P	P	P	P	P	100
8	ANJANA PRASAD	P	P	P	P	P	100
9	ARATHI REJI	P	P	P	P	P	100
10	ARJUN SHAJI	P	P	P	P	P	100
11	ARPITHA KRISHNA	P	P	P	P	P	100
12	ASWATHI S NAIR	P	P	P	P	P	100
13	ATHIRA K SAJEEV	P	P	P	P	P	100
14	AYANA JOSE	P	P	P	A	P	80
15	DEVIKA PRASANTH	P	P	P	P	P	100
16	GEOMON JOY	P	P	P	P	P	100
17	GEORGI K SAMSON	P	A	P	P	P	80
18	JOSHMI JOSEPH	P	P	P	P	P	100
19	JOYAL SABU	P	P	P	P	P	100
20	KARTHI KRISHNA	P	P	P	P	P	100
21	KIRAN K KUTTAPPAN	P	P	P	P	P	100
22	MAHIMAMOL C MADHU	P	P	P	P	P	100
23	MATHEWS K FREDY	P	P	P	P	P	100
24	MEERA BIJU	P	P	P	P	P	100
25	NIMMYA THANKACHAN	P	P	P	P	P	100
26	NIRMAL JESWIN MATHEW	P	P	P	P	P	100
27	NIYAS A P	P	P	P	P	P	100
28	NOORA AJI	P	P	P	P	P	100
29	PRAVEENA PRASADKUMAR	P	P	P	P	P	100
30	SAM MATHEW ABRAHAM	P	P	P	P	P	100
31	SARANGI S	P	P	P	P	P	100
32	SARATH B NAIR	P	P	P	P	P	100
33	SIBIN THOMAS	P	P	P	P	P	100
34	SONA ANNA SAM	P	A	P	P	P	80
35	SURYA S NAIR	P	P	P	P	P	100
36	ABHIGITH M J	P	P	P	P	P	100

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37	AISWARYA KRISHNAN	P	P	P	P	P	100
38	AKASH KUMAR S	P	P	P	P	P	100
39	AKHILA SASIKUMAR	P	P	P	P	P	100
40	AKHIN SAJI	P	P	P	P	P	100
41	ALANA A	P	P	P	P	P	100
42	AMAL P CHERIAN	P	P	P	P	P	100
43	ANSAL SAJI	P	P	P	P	P	100
44	ANURENJANA K	P	P	P	P	P	100
45	ASHMI PHILO SEBASTIAN	P	P	P	P	P	100
46	BIBIN JOSEPH	P	P	P	P	P	100
47	DAVIS BABY	P	A	P	P	P	80
48	JUHI ANN MARY GEORGE	P	P	P	P	P	100
49	JWALA S	P	P	P	P	P	100
50	LINCY SARA KURIAN	P	P	P	P	P	100
51	MARY ASHMY ANTONY	P	P	P	P	P	100
52	MERIN SARA ABRAHAM	P	P	P	P	P	100
53	RIYA GEORGE NADACKAL	P	P	P	P	P	100
54	SARGON VARGHESE M PANICKARUPARAMPIL	P	A	P	P	P	80
55	SHAMLA M	P	P	P	P	P	100
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57	SNEHA ELAISE GEORGE	P	P	P	P	P	100
58	SONA SOMAN	P	P	P	P	P	100
59	TOBY PAUL	P	P	P	P	P	100
60	VIJAY VINAYAN	P	P	P	P	P	100

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Mangalam college of Engineering

Department Of Management Studies
Course Feedback Form
Course Title: Ms Excel
Date :16/3/2024 Venue: Lab
Please Fill The Short Questionnaire To Make The Course Better

Name *

Ansal Saji

Semester *

3

Branch *

MBA

THE DESIGN OF THE COURSE *

A.Where the Objectives of the Course Clear to you?

- [x] Yes
- [ ] No

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B. The Course Contents met with your expectations *

- ○ Strongly disagree
- ○ Disagree
- ○ NeutralAgree
- ◉ Strongly agree
- ○

C.The lecture Sequence was well Planned *

- ○ Strongly disagree
- ○ Disagree
- ○ NeutralAgree
- ◉ Strongly agree
- ○

D.The Contents were Illustrated with *

- ○ No Examples
- ○ Few Examples
- ◉ Adequate Examples

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B.The Teaching Aids Were Effectively Used *

- ○ Strongly disagree
- ○ Disagree
- ○ NeutralAgree
- ◉ Strongly agree
- ○

C.The Course Material Handed Out Was Adequate *

- ○ Strongly disagree
- ○ Disagree
- ○ NeutralAgree
- ◉ Strongly agree
- ○

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E.The Level of the Course was *

- ○ Too Low
- ○ Low
- ○ Medium
- ◉ High
- ○ Too High

THE CONTENT F THE COURSE *

A.The Lectures were Clear and Easy To Understand

- ○ Strongly Disagree
- ○ Disagree
- ○ NeutralAgree
- ○ Strongly Agree
- ◉

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D.Please Give Overall Rating Of the Course *

- ○ 100%-90%
- ◉ 90%-80%
- ○ 80%-70%
- ○ 70%-60%
- ○ 60%-50%
- ○ Below 50%

Please Comment on the Strength of the Course and way It was Conducted *

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Please Comment on the Weakness of the Course and way It was Conducted *

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This form was created inside of Mangalam College of Engineering. Kerala - India..

Google Forms

HoD.

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Mangalam college of Engineering

Department Of Management Studies
Course Feedback Form
Course Title: Ms Excel
Date :16/3/2024 Venue: Lab
Please Fill The Short Questionnaire To Make The Course Better

Name *

Aiswarya Mano

Semester *

S3

Branch *

MBA

THE DESIGN OF THE COURSE *
A.Where the Objectives of the Course Clear to you?

- [x] Yes
- [ ] No

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B. The Course Contents met with your expectations *

- ○ Strongly disagree
- ○ Disagree
- ○ Neutral
- ○ Agree
- ◉ Strongly agree

C.The lecture Sequence was well Planned *

- ○ Strongly disagree
- ○ Disagree
- ○ Neutral
- ○ Agree
- ◉ Strongly agree

D.The Contents were Illustrated with *

- ○ No Examples
- ○ Few Examples
- ◉ Adequate Examples

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E.The Level of the Course was *

- ○ Too Low
- ○ Low
- ○ Medium
- ◉ High
- ○ Too High

THE CONTENT F THE COURSE *

A.The Lectures were Clear and Easy To Understand

- ○ Strongly Disagree
- ○ Disagree
- ○ Neutral
- ○ Agree
- ◉ Strongly Agree

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B.The Teaching Aids Were Effectively Used *

- ○ Strongly disagree
- ○ Disagree
- ○ Neutral
- ○ Agree
- ◉ Strongly agree

C.The Course Material Handed Out Was Adequate *

- ○ Strongly disagree
- ○ Disagree
- ○ Neutral
- ○ Agree
- ◉ Strongly agree

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D.Please Give Overall Rating Of the Course *

- (●) 100%-90%
- ( ) 90%-80%
- ( ) 80%-70%
- ( ) 70%-60%
- ( ) 60%-50%
- ( ) Below 50%

Please Comment on the Strength of the Course and way It was Conducted *

The teaching faculties support

Please Comment on the Weakness of the Course and way It was Conducted *

Nothing

This form was created inside of Mangalam College of Engineering. Kerala - India..

Google Forms

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MANAGEMENT STUDIES
Consolidated Course Feedback

MS Excel

Academic Year: 2023-2024 **Batch 2022-2024**

Year: Semester III

	Questionnaire	Total Response	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	60	40	17	3		
B.	The course contents met with your expectations.	60	39	17	4		
C.	The lecture sequence was well planned	60	40	16	4		
D.	The contents were illustrated with Examples	60	48	10	2		
E.	The level of the course was easy to understand	60	40	15	5		
F.	The course contents compared with your expectations	60	38	20	2		
G.	The course exposed you to new knowledge and practices	60	40	17	3		
H.	Will you recommend this course to your colleagues?	60	39	17	4		
A.	The lectures were clear and easy to understand	60	48	10	2		
B.	The teaching aids were effectively used	60	39	16	5		
C.	The course material handed out was adequate	60	39	18	3		
D.	The instructors encouraged interaction and were helpful	60	39	17	4		
E.	Please give overall rating of the course	60					
	90% - 100%	41					
	80% - 90%	10					
	70% - 80%	9					
	60% - 70%						
	50% - 60%						
	below 50%						

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House of G-TEC, Calicut - 673 002, India

www.gteceducation.com

G-TEC EDUCATION
— G-TEC Group of Institutions —

Registration No. : 1694745

Certificate No. : 381947

Sl. No. : 1200912



Certificate Of Merit

This is to certify that Mr / Ms.

ASWATHI S NAIR

has successfully completed a course entitled

CERTIFICATE COURSE IN MS EXCEL

with a duration of **36 HOURS**

from **ETTUMANOOR , KOTTAYAM** *centre with* **A** *grade*

Course completed in the month of **MARCH** *Year* **2024**

Controller of Examination

15.06.2024
Date of issue

Training & Testing Partners

Grade: 40% - 49% = D, 50% - 59% = C, 60% - 69% = B, 70% - 79% = B+, 80% - 89% = A, 90% - 94% = A+, > 95% = S

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Registration No. : 1694752

Certificate No. : 382215

Sl. No. : 1219959



Certificate Of Merit

This is to certify that Mr / Ms.

JWALA S

has successfully completed a course entitled

CERTIFICATE COURSE IN MS EXCEL

with a duration of **36 HOURS**

from **ETTUMANOOR , KOTTAYAM** *centre with* **S** *grade*

Course completed in the month of **MARCH** *Year* **2024**

Controller of Examination

19.06.2024
Date of issue

Training & Testing Partners

Grade: 40% - 49% = D, 50% - 59% = C, 60% - 69% = B, 70% - 79% = B+, 80% - 89% = A, 90% - 94% = A+, > 95% = S

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DEPARTMENT OF MANAGEMENT STUDIES

FOR ACADEMIC YEAR 2023-2024

ADD ON COURSE STARTS ON
20-04-2024

Tally Prime

Payroll
in Tally Prime

TRAINING
SESSION WITH

ELEVATE
TECHNOLOGIES

COORDINATOR

MS. TINTA BABY

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF MANAGEMENT STUDIES

Circular

Certificate Course –Payroll

The Department of Management Studies is planning to conduct a certificate course for fourth Semester MBA students. Hence it is informed to the students to enroll their names for the Payroll course which will start on 20/04/2024. Students are asked to enroll their names to their respective class advisor on or before 14.04.2024 .The course syllabus is attached.

Name of the Course: Payroll

Course Duration: 30 Hours

5 Saturdays from 20/04/2024

Time Duration: 9.00 AM-04.00 PM

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF MANAGEMENT STUDIES

1.	Academic Year	: 2023-24
2.	Tile of the Course	Payroll
3.	Objective of the Course	The main objective of the course was to provide the students with basics of payroll administration with the help of Tally which help in proper compensation and salary disbursement
4.	Prerequisite	: Nil
5.	Requirement	: Nil
6.	Beneficiary	: S4 MBA Students
7.	Date and Duration of the Course	: 20/04/2024 to 18/05/2024
8.	Proposed Timing	: 9.00 AM to 04.00 PM (6 hours per day 5 Saturdays)
9.	No of Hours Required	: 30 Hours
10.	Internal Cordinator	: Ms.Tinta Baby
11.	Course Registration Fees	: Rs 600
12.	Contents of Courses	: Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: CAD Center Kottayam

Tinta

COURSE COORDINATOR

HOD

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PAYROLL USING TALLY PRIME

Syllabus

Module-1 **Introduction to Tally prime**

- *1.1* create company
- *1.2* create and alter group
- *1.3* create and alter ledger account
- *1.4* voucher entry

Module-2 **Enable Payroll in tally prime**

- 2.1 Enabling Payroll in Tally Prime
- 2.2 F12 (Configuring Payroll)
- 2.3 Configuring Print Options for Payroll

Module-3 **Payroll Masters**

- 3.1 Creating Employee Groups
- 3.2 create unit(work)
- 3.3 create attendance / production type
- 3.4 create pay head
- 3.5 create employees

Module-4 **vouchers**

- 4.1 Attendance Voucher
- 4.2 Payroll voucher

Module-5 **Payroll Reports**

- 5.1 Pay Slip
- 5.2 Pay sheet
- 5.3 Payroll statement
- 5.4 Payment advice
- 5.5 Payroll register
- 5.6 Attendance sheet
- 5.7 Attendance register
- 5.8 Payroll statutory reports

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Internal Quality Assurance Cell (IQAC)

MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF MANAGEMENT STUDIES

List of Students Enrolled for Certificate course – Payroll

Academic Year: 2023-24 **Batch: 22-24**

Year: S4

No	REGISTER NO	NAME
1	MLM22MBA66	Noora Aji
2	MLM22MBA22	Ansal Saji
3	MLM22MBA85	Sona Anna Sam
4	MLM22MBA93	Vijay Vinayan
5	MLM22MBA25	Arathi Reji
6	MLM22MBA89	Surya S Nair
7	MLM22MBA49	Juhi Ann Mary George
8	MLM22MBA31	Athira K Sajeev
9	MLM22MBA36	Chandana S Suresh
10	MLM22MBA05	Adithya Mohanan
11	MLM22MBA17	Amritha Saju
12	MLM22MBA38	Deepu P Dinesh
13	MLM22MBA33	Ayana Jose
14	MLM22MBA03	Abhirami Mol KS
15	MLM22MBA26	Arjun Saji
16	MLM22MBA23	Anu John
17	MLM22MBA77	Sarangi S
18	MLM22MBA15	Amal P Cherian
19	MLM22MBA06	Aiswarya Krishnan
20	MLM22MBA37	Davis Baby

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21	MLM22MBA45	Joshmi Joseph
22	MLM22MBA07	Aiswarya Mano

Course Cordinator

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Mangalam College Of Engineering
Department of Management Studies
Add On Course Payroll Marks

Sl.No	Student	Marks
1	Noora Aji	28
2	Ansal Saji	24
3	Sona Anna Sam	23
4	Vijay Vinayan	27
5	Arathi Reji	22
6	Surya S Nair	24
7	Juhi Ann Mary George	21
8	Athira K Sajeev	26
9	Chandana S Suresh	25
10	Adithya Mohanan	24
11	Amritha Saju	23
12	Deepu P Dinesh	24
13	Ayana Jose	22
14	Abhirami Mol KS	25
15	Arjun Saji	26
16	Anu John	24
17	Sarangi S	25
18	Amal P Cherian	23
19	Aiswarya Krishnan	24
20	Davis Baby	23
21	Joshmi Joseph	24
22	Aiswarya Mano	26

Linta Baby
Co ordinator

HOD.

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Mangalam College Of Engineering
Department of Management Studies
Add On Course Payroll Attendance

Sl.No	Student	20/4/24	28/4/24	5/5/2024	12/5/2024	18/5/24	Attend %
1	Noora Aji	P	P	P	P	P	100
2	Ansal Saji	P	A	P	P	P	80
3	Sona Anna Sam	P	P	P	P	P	100
4	Vijay Vinayan	P	P	P	P	P	100
5	Arathi Reji	P	P	P	P	P	100
6	Surya S Nair	P	P	P	P	P	100
7	Juhi Ann Mary George	P	P	P	P	P	100
8	Athira K Sajeev	P	P	P	P	P	100
9	Chandana S Suresh	P	P	P	P	P	100
10	Adithya Mohanan	P	P	P	P	P	100
11	Amritha Saju	P	P	P	P	P	100
12	Deepu P Dinesh	P	P	P	P	A	80
13	Ayana Jose	P	P	P	P	P	100
14	Abhirami Mol KS	P	P	P	P	P	100
15	Arjun Saji	P	P	P	P	P	100
16	Anu John	P	P	P	P	P	100
17	Sarangi S	P	A	P	P	P	80
18	Amal P Cherian	P	P	P	P	P	100
19	Aiswarya Krishnan	P	P	P	P	P	100
20	Davis Baby	P	P	P	P	P	100
21	Joshmi Joseph	P	P	P	P	P	100
22	Aiswarya Mano	P	P	P	P	P	100

Tinta Baby
Coordinator

HOD.

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MANAGEMENT STUDIES
Consolidated Course Feedback

Payroll

Academic Year: 2023-2024 **Batch 2022-2024**

Year: Semester IV

	Questionnaire	Total Response	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	THE DESIGN OF THE COURSE						
A.	Were objectives of the course clear to you?	22	18	2	2	-	
B.	The course contents met with your expectations.	22	17	3	2		
C.	The lecture sequence was well planned	22	18	3	1		
D.	The contents were illustrated with examples	22	16	4	2		
E.	The level of the course was easy to understand	22	16	3	3		
F.	The course contents compared with your expectations	22	17	2	3		
G.	The course exposed you to new knowledge and practices	22	18	3	1		
H.	Will you recommend this course to your colleagues?	22	17	3	2	1	
A.	The lectures were clear and easy to understand	22	17	3	2		
B.	The teaching aids were effectively used	22	18	3	1		
C.	The course material handed out was adequate	22	16	3	3		
D.	The instructors encouraged interaction and were helpful	22	18	3	1		
		22	17	3	2		
E.	Please give overall rating of the course	22					
	90% - 100%	17					
	80% - 90%	3					
	70% - 80%	2					
	60% - 70%						
	50% - 60%						
	below 50%						

Course Coordinator

HOD/MBA

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Question paper

Payroll using Tally Prime

Choose the correct answer from the options provided at each of the following questions. (each question carries 1 mark)

1. Tally package is developed by .....
   a) Peutronics
   b) Tally solutions
   c) Coral software
   d) Vedika software
2. In general the Financial year shall be from .....
   a) First April of any year
   b) 31st march of any year
   c) All of them are true
3. Payroll auto fill is done through
   a) CTRL + A
   b) ALT + A
   c) CTRL + U
   d) ALT + F
4. Which shortcut key is used to shut opened company in tally
   a) F1
   b) ALT + F1
   c) F3
   d) ALT + F3
5. A person who owes money to the business is a .....
   a) Debtor
   b) Creditor

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c) Investor
d) Supplier

6. Accounting principles are divided in to two type. These are
   a) Accounting concept
   b) Accounting conventions
   c) Accounting standard
   d) Both A and B
7. There are ..... predefined ledgers
   a) One
   b) Two
   c) Tree
   d) Four
8. How can you record the payment of salaries to employees in tally
   a) Payroll voucher
   b) Stock summary
   c) Voucher entry
   d) Trial balance
9. How can you access the Gateway of Tally using shortcut keys?
   a) CTRL + G
   b) ALT + G
   c) SHIFT + CTRL + G
   d) SHIFT + ALT + G
10. How do you open the Payroll Vouchers in Tally Prime using shortcut keys?
   a) Alt + F12
   b) CTRL + F12
   c) CTRL + F11
   d) ALT + F11

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Short answer questions

11. What is payroll accounting? ***2 mark***
12. Why is Payroll Accounting Important? ***5 mark***
13. What are the different types of accounting vouchers in tally prime? ***5 mark***
14. What are the three golden rules of accounting? ***3 mark***

Practical question

15. Create a company for *Malavika Privet limited*

Part -1

Enter following transaction in appropriate voucher.

Commenced business with cash	14000
Cash received from Anika	5000
Paid rent in cash	4500
Purchased goods for cash	1000
Sold goods for cash	6500
Paid commission	3000
Payment maid to ram	1200
Stationary purchased for cash	120
Paid for advertisement	450
Sold goods for cash	2500
Deposit cash into bank	175000

5 mark

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Part -2

Following are the details of employees of the company.

Employees details

Sl no	name	under	Basic pay	bonus	designation	Employee no
1	Thara	Marketing	20000	1000	Manager	A001
2	Tharun	Sales	18000	1500	Head	A002
3	Sara	Account	15000	1200	Clerk	A003
4	Jan	HR	21000	1300	Manager	A004
5	Rose	Sales	18000	1000	Clerk	A005
6	Veena	Account	15000	1000	Head	A006
7	Anu	marketing	19500	1400	clerk	A007

ATTENDENCE DETAILS

Sl no	name	under	Present	OVERTIME
1	Thara	Marketing	25	10
2	Tharun	Sales	28	12
3	Sara	Account	26	9
4	Jan	HR	30	15
5	Rose	Sales	26	20
6	Veena	Account	27	16
7	Anu	Marketing	31	11

HRA 21%
TA 15%
PF 12%

Unit: days and Hours

Create employee's salary slip from above details.

20 mark

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Payroll using Tally Prime

Answers

Choose the correct answer

1. (A) Tally solutions
2. (A) First April of any year
3. (B) ALT +A
4. (B) ALT +F1
5. (a) debtor
6. (d) both a and b
7. (b) two
8. (a) payroll voucher
9. CTRL + G
10. (a)ALT + F12

Short answer questions

11. Payroll Accounting is a process of maintaining, analysing, and verifying the financial records of an organization. It encompasses payroll functions such as calculating salaries, management of benefits and compensation withholding taxes and deductions.
12. Payroll accounting is needed to keep track of your financial records and business expenses related to payroll, whether it's employer benefits payments, other deductions, or federal taxes withholdings

    Payroll accounting is typically necessary for you to have an overall understanding of how much your employee's cost. It gives you an understanding of the incremental cost of every employee you hire, helping you make an informed decision on whether you need to hire full-time employees, part-time employees, or contractors to add to your workforce.

    Payroll accounting focuses exclusively on employee-related expenses. And unlike managerial accounting, it doesn't require complex analysis to base important payroll-related decisions.
13. **PAYMENT:** Press F5 key to open this voucher. Transactions related to company payments should be recorded in this voucher. The payment made by the company may be through cash, cheque, online payment or any other mode. If the company makes a payment, it should be entered in this voucher.

    RECIEPT: If the F6 key pressed, this voucher will open. If the company gets the money, that transactions should be recorded in this voucher. The amount that

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came to the company could be in the form of cash. Be it in cheque form or online. If the company gets the money, it should be registered in this voucher.

CONTRA: Press the F4 key to open this voucher. This contra voucher should be recorded when the company deposits or withdraws money from its bank account. Also, if the amount is transferred from bank to bank or transferred cash to cash , then the entry should be made in this voucher.

PURCHASE: The key to opening the purchase voucher is F9. If the company makes the purchases, the transactions related to them should be recorded in this. The purchase made by the company may be for borrowed or cash. Also, the purchase made by the company may be in the form of goods or service form. If the company purchases, it should be recorded in this voucher.

SALES: Sales Voucher is open if F8 key is pressed. Transactions related to sales are recorded in this voucher. If the company is selling for cash or on credit, it should be recorded in this sales voucher. The sales made the company may be in the form of goods or service. In all, transactions related to company sales should be recorded in this voucher.

DEBIT NOTE: This voucher is opened, if the ALT + F5 key is pressed. If the company returns the purchase commodity for any reason, it should be recorded in this voucher. We can also record interest calculations in this voucher.

CREDIT NOTE: ALT + F6 is the key for credit note voucher. If the company has returns of the goods sold for any reason, it should be recorded in this voucher. Transactions related to sales returns come into this voucher. Moreover, interest calculations also be recorded in this.

JOURNAL: F7 is the key to open Journal voucher. Entries related to adjustment methods are recorded in this. Also, this voucher is used for tax calculations and tax adjustment entries.

14

Type of account	Rules
Personal Account	Debit the receiver and credit the giver
Real account	Debit what comes in and credit what goes out
Nominal account	Debit all expenses and losses Credit all income and gains

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Practical question

14. Part -1

    Cash balance: 230

    Part-2

    Display salary slip



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SKILL TECH ACADEMY

FLY TOWARDS YOUR GOALS

CERTIFICATE OF COMPLETION

TITLE : COURSE ON PAYROLL USING TALLY

AWARDED TO : ARATHI REJI

DURING : 19/04/2024 - 14/06/2024

STUDENT ID : ELE2023PR05

AT : KOTTYAM KERALA

Has successfully attended the workshop on microsoft excel. We extend our congratulation and appreciation for their active involvement and meaningful contribution during workshop

NAWAZ PASHA
DIRECTOR

SKILL TECH ACADEMY
01/08/2023
FRAZER TOWN

SKILLTECH ACADEMY
#144/B, 2nd Main Road, Prakash nagar, Rajaji nagar, Bengaluru

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SKILL TECH ACADEMY

CERTIFICATE OF COMPLETION

TITLE : COURSE ON PAYROLL USING TALLY
AWARDED TO : ATHIRA K SAJEEV
DURING : 19/04/2024 - 14/06/2024
STUDENT ID : ELE2023PR08
AT : KOTTYAM KERALA

Has successfully attended the workshop on microsoft excel. We extend our congratulation and appreciation for their active involvement and meaningful contribution during workshop

NAWAZ PASHA
DIRECTOR

SKILL TECH ACADEMY
01/09/2023
FRAZER TOWN

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SKILLTECH ACADEMY
#144/B, 2nd Main Road, Prakash nagar, Rajaji nagar, Bengaluru

2023-2024

Sl.No	Academic year	Name of Add on /Certificate programs offered	Number of students enrolled in the year
1	2023-2024	Mastering Arduino for IOT	43
2	2023-2024	Block chain technology	43



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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF COMPUTER APPLICATIONS

Ref: MLM/MCA/CC/2023-2024/ 10 Date: 31/03/2024

Submitted to the Principal approval

We have proposed during this to conduct the certificate course on **"BLOCK CHAIN TECHNOLOGY"** for our PG students semester (2023-24). Tentative timings and course fees details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Explanation:

This course provides a comprehensive understanding of Blockchain Technology,its architecture,and its applications.Students will learn about the fundamentals of crypto currency,smart contracts,and decentralized applications.

S.No	Name of Course	Course Instructors	Course Duration	Approx. course fee	Target students (Year/Branch)
1	Block Chain Technology	Ms.Ashwani Vijayachandran	40 Hrs	25000/-	MCA Ist Year

Thanking you,

Course I/C Ashwani HOD/MCA Principal

Copy to: .

1.CSE Department file

2. Department Notice Board

3. IQAC

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DEPARTMENT OF COMPUTER APPLICATIONS

Department of Computer Applications

2023-2024

Detailed Syllabus

Module 1: Introduction to Blockchain

1.1. Blockchain definition and history

1.2. Blockchain types (public, private, consortium)

1.3. Blockchain benefits (security, transparency, immutability)

Module 2: Blockchain Architecture

2.1. Blockchain components (nodes, network, consensus)

2.2. Blockchain data structures (blocks, transactions)

2.3. Blockchain protocols (TCP/IP, HTTP)

Module 3: Cryptography and Security

3.1. Cryptographic algorithms (SHA-256, ECDSA)

3.2. Digital signatures and wallets

3.3. Blockchain security threats and measures

Module 4: Blockchain Applications

4.1. Blockchain in finance (payment systems, lending)

4.2. Blockchain in healthcare (medical records, telemedicine)

4.3. Blockchain in voting systems

Module 5: Blockchain Industry Trends and Future Directions

5.1. Blockchain industry trends and adoption

5.2. Emerging technologies (AI, IoT)

.....

Prepared by ,

Ms.Ashwani Vijayachandran

Approved by

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF COMPUTER APPLICATIONS

List of Students Enrolled for Certificate Course - Certification on Block Chain Technology

Academic Year:2023-2024 **Batch:2023-2025**

Semester : II

Sl.No	Roll No.	Name
1	MLM23MCA-2001	ABHIRAM A K
2	MLM23MCA-2002	ABIN VARGHESE
3	MLM23MCA-2003	ABITHAMOL C F
4	MLM23MCA-2004	AISHWARYA RAVIKUMAR
5	MLM23MCA-2005	AKASH PRAKASHAN
6	MLM23MCA-2006	AKSAMOL SIMON
7	MLM23MCA-2007	ALAN BABY
8	MLM23MCA-2008	ALBIN SABU
9	MLM23MCA-2009	ALVIN JOSEPH
10	MLM23MCA-2010	ANANDU AJIKUMAR
11	MLM23MCA-2011	ANANDU SURESH
12	MLM23MCA-2012	ANGITH PANICKER
13	MLM23MCA-2013	ANJANA R
14	MLM23MCA-2014	ARCHA DAS
15	MLM23MCA-2015	ARJUN M B
16	MLM23MCA-2016	ARJUN P SAJI
17	MLM23MCA-2018	ASWIN K.P
18	MLM23MCA-2019	ASWIN KRISHNA M
19	MLM23MCA-2020	ATHIRA PRAKASH
20	MLM23MCA-2021	ATHULLAYA S
21	MLM23MCA-2022	BIBIN BINOY
22	MLM23MCA-2023	DEVANARAYANAN M
23	MLM23MCA-2024	GIBIN SKARIA PHILIP
24	MLM23MCA-2025	GRIGORY RAJEEV
25	MLM23MCA-2026	HEBAL THOMAS
26	MLM23MCA-2027	JOHN JOSE
27	MLM23MCA-2028	KRISHNAVENI EK
28	MLM23MCA-2029	KRISHNENDHU KM
29	MLM23MCA-2030	MAHESH K M

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DEPARTMENT OF COMPUTER APPLICATIONS

30	MLM23MCA-2031	MEGHA ANISH
31	MLM23MCA-2032	NANDHAKUMAR K.S
32	MLM23MCA-2033	NANDHU SOMAN
33	MLM23MCA-2034	NEBIN P SABU
34	MLM23MCA-2035	PARVANA DILEEP
35	MLM23MCA-2036	PARVATHY B LAL
36	MLM23MCA-2037	PARVATHY MOHANAN
37	MLM23MCA-2038	REEMA SOSA THOMAS
38	MLM23MCA-2039	REVATHI S KUMAR
39	MLM23MCA-2040	RIYA ANN REJI
40	MLM23MCA-2041	ROJIN ROY
41	MLM23MCA-2042	ZAINA ZAKKER
42	MLM23MCA-2043	SUHANA SHEREEF
43	MLM23MCA-2044	VISAL P D

Course Coordinator

HOD

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DEPARTMENT OF COMPUTER APPLICATIONS

Department of Computer Applications

Certificate Course Details(Blockchain Technology)

Period of Training – 02/04/2024 to 22/04/2024(5 hours)

Sl.No	Roll no	Name	2/4/24	3/4/24	4/4/24	10/4/24	12/4/24	15/4/24	18/4/24	22/4/24
1	MLM23MCA-2001	ABHIRAM A K								
2	MLM23MCA-2002	ABIN VARGHESE								
3	MLM23MCA-2003	ABITHAMOL C F								
4	MLM23MCA-2004	AISHWARYA RAVIKUMAR								
5	MLM23MCA-2005	AKASH PRAKASHAN								
6	MLM23MCA-2006	AKSAMOL SIMON								
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13	MLM23MCA-2013	ANJANA R								
14	MLM23MCA-2014	ARCHA DAS								
15	MLM23MCA-2015	ARJUN M B								
16	MLM23MCA-2016	ARJUN P SAJI								
17	MLM23MCA-2018	ASWIN K.P								
18	MLM23MCA-2019	ASWIN KRISHNA M								
19	MLM23MCA-2020	ATHIRA PRAKASH								
20	MLM23MCA-2021	ATHULLAYA S								

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21	MLM23MCA-2022	BIBIN BINOY								
22	MLM23MCA-2023	DEVANARAYANAN M								
23	MLM23MCA-2024	GIBIN SKARIA PHILIP								
24	MLM23MCA-2025	GRIGORY RAJEEV								
25	MLM23MCA-2026	HEBAL THOMAS								
26	MLM23MCA-2027	JOHN JOSE								
27	MLM23MCA-2028	KRISHNAVENI EK								
28	MLM23MCA-2029	KRISHNENDHU KM								
29	MLM23MCA-2030	MAHESH K M								
30	MLM23MCA-2031	MEGHA ANISH								
31	MLM23MCA-2032	NANDHAKUMAR K.S								
32	MLM23MCA-2033	NANDHU SOMAN								
33	MLM23MCA-2034	NEBIN P SABU								
34	MLM23MCA-2035	PARVANA DILEEP								
35	MLM23MCA-2036	PARVATHY B LAL								
36	MLM23MCA-2037	PARVATHY MOHANAN								
37	MLM23MCA-2038	REEMA SOSA THOMAS								
38	MLM23MCA-2039	REVATHI S KUMAR								
39	MLM23MCA-2040	RIYA ANN REJI								
40	MLM23MCA-2041	ROJIN ROY								
41	MLM23MCA-2042	ZAINA ZAKKER								
42	MLM23MCA-2043	SUHANA SHEREEF								
43	MLM23MCA-2044	VISAL P D								

Course coordinator

HOD

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DEPARTMENT OF COMPUTER APPLICATIONS

Mastering Arduino Using IOT

Assesment test

Each question carry 1 mark each

Date :22/04/2024 **Time :3 pm to 4 pm**

1. What is the primary purpose of Blockchain technology?

a) Secure online payments

b) Transparent data storage

c) Decentralized ledger management

d) Cybersecurity

2. Which of the following is a characteristic of Blockchain?

a) Centralized control

b) Immutable data

c) Slow transaction processing

d) Limited scalability

3. What is a block in Blockchain?

a) A single transaction

b) A collection of transactions

c) A network of nodes

d) A cryptographic algorithm

4. Which consensus algorithm is used in Bitcoin?

a) Proof of Stake (PoS)

b) Proof of Work (PoW)

c) Delegated Proof of Stake (DPoS)

d) Byzantine Fault Tolerance (BFT)

5. What is mining in Blockchain?

a) Verifying transactions

b) Creating new blocks

c) Solving complex mathematical problems

d) All of the above

6. Which of the following is a type of Blockchain?

a) Public Blockchain

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b) Private Blockchain

c) Consortium Blockchain

d) All of the above

7. What is Smart Contract in Blockchain?

a) Self-executing contract

b) Decentralized application

c) Cryptographic protocol

d) Digital wallet

8. Which programming language is commonly used for Blockchain development?

a) Java

b) Python

c) Solidity

d) C++

9. What is the role of nodes in Blockchain?

a) Validate transactions

b) Store data

c) Provide network connectivity

d) All of the above

10. What is Blockchain's primary advantage?

a) Scalability

b) Security

c) Transparency

d) Speed

11. What is the difference between Blockchain and Bitcoin?

a) Blockchain is Bitcoin

b) Bitcoin uses Blockchain

c) Blockchain is cryptocurrency

d) Blockchain is technology, Bitcoin is application

12. Which industry is most likely to benefit from Blockchain?

a) Finance

b) Healthcare

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c) Supply Chain Management

d) All of the above

13. What is the purpose of cryptographic hash functions in Blockchain?

a) Data encryption

b) Data compression

c) Data integrity

d) Data authentication

14. What is a fork in Blockchain?

a) Network upgrade

b) Protocol change

c) Chain split

d) Transaction reversal

15. Which of the following is a challenge faced by Blockchain?

a) Scalability

b) Regulation

c) Interoperability

d) All of the above

16. What is the role of wallets in Blockchain?

a) Store private keys

b) Manage public addresses

c) Facilitate transactions

d) All of the above

17. How does Blockchain ensure data security?

a) Encryption

b) Decentralization

c) Immutable ledger

d) All of the above

18. What is the difference between permissionless and permissioned Blockchain?

a) Accessibility

b) Security

c) Scalability

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d) Consensus mechanism

19. Which of the following Blockchain platforms supports Smart Contracts?

a) Ethereum

b) Hyperledger Fabric

c) Corda

d) All of the above

20. What is the potential use case of Blockchain in voting systems?

a) Secure voting

b) Transparent results

c) Immutable records

d) All of the above

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DEPARTMENT OF COMPUTER APPLICATIONS

Blockchain Technology

Assesment test

Each question carry 1 mark each

Answer key

1.C	**11.D**
2.B	**12.D**
3.A	**13.C**
4.B	**14.C**
5.D	**15.D**
6.D	**16.D**
7.A	**17.D**
8.C	**18.A**
9.D	**19.D**
10.B	**20.D**

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DEPARTMENT OF COMPUTER APPLICATIONS

Certficate course :Block chain Technology

Academic year : 2023-2024

Batch :2023-2025

Mark Sheet

Sl No.	Name	Mark(20)	Out of 100
1	ABHIRAM A K	18	90
2	ABIN VARGHESE	15	75
3	ABITHAMOL C F	19	95
4	AISHWARYA RAVIKUMAR	19	95
5	AKASH PRAKASHAN	18	90
6	AKSAMOL SIMON	15	75
7	ALAN BABY	19	95
8	ALBIN SABU	19	95
9	ALVIN JOSEPH	18	90
10	ANANDU AJIKUMAR	15	75
11	ANANDU SURESH	19	95
12	ANGITH PANICKER	15	75
13	ANJANA R	20	100
14	ARCHA DAS	16	80
15	ARJUN M B	20	100
16	ARJUN P SAJI	19	95
17	ASWIN K.P	18	90
18	ASWIN KRISHNA M	15	70
19	ATHIRA PRAKASH	15	70
20	ATHULLAYA S	19	95
21	BIBIN BINOY	18	90

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22	DEVANARAYANAN M	15	75
23	GIBIN SKARIA PHILIP	20	100
24	GRIGORY RAJEEV	16	80
25	HEBAL THOMAS	20	100
26	JOHN JOSE	19	95
27	KRISHNAVENI EK	18	90
28	KRISHNENDHU KM	15	75
29	MAHESH K M	19	95
30	MEGHA ANISH	18	90
31	NANDHAKUMAR K.S	15	75
32	NANDHU SOMAN	19	95
33	NEBIN P SABU	19	95
34	PARVANA DILEEP	16	80
35	PARVATHY B LAL	20	100
36	PARVATHY MOHANAN	19	95
37	REEMA SOSA THOMAS	18	90
38	REVATHI S KUMAR	15	70
39	RIYA ANN REJI	15	70
40	ROJIN ROY	19	95
41	ZAINA ZAKKER	18	90
42	SUHANA SHEREEF	16	80
43	VISAL P D	15	75

Course Coordinaator

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DEPARTMENT OF COMPUTER APPLICATIONS

Name of the Course: Block Chain Technology

Duration: 40 days

Venue: N-305

Name and class of Students: Alvin Joseph [1st year]

Fill your feedback by answering the following questions

Sl.no	Overall are you satisfied with	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting		✓			
2	The lecture sequence was well planned		✓			
3	The duration of the course was sufficient for the material covered.		✓			
4	The course exposed you to new knowledge and experience.		✓			
5	Course Content meet your expectations.		✓			
6	Overall rating of the session.		✓			

Suggestions if any:

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DEPARTMENT OF COMPUTER APPLICATIONS

Name of the Course: Block chain Technology

Duration: 40 days

Venue: N 305

Name and class of Students: Abhiram. A.K (1st year)

Fill your feedback by answering the following questions

Sl.no	Overall are you satisfied with	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting	✓				
2	The lecture sequence was well planned	✓				
3	The duration of the course was sufficient for the material covered.		✓			
4	The course exposed you to new knowledge and experience.	✓				
5	Course Content meet your expectations.	✓				
6	Overall rating of the session.		✓			

Suggestions if any:

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DEPARTMENT OF COMPUTER APPLICATIONS

Name of the Course: Block Chain Technology

Duration: 40 Days

Venue: N305

Name and class of Students: Abin Vaughese (First year)

Fill your feedback by answering the following questions

Sl.no	Overall are you satisfied with	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting	✓				
2	The lecture sequence was well planned		✓			
3	The duration of the course was sufficient for the material covered.	✓				
4	The course exposed you to new knowledge and experience.			✓		
5	Course Content meet your expectations.		✓			
6	Overall rating of the session.	✓				

Suggestions if any:

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DEPARTMENT OF COMPUTER APPLICATIONS
Consolidated course Feedback

Certificate Course on Blockchain Technology

Academic Year:2023-2024 **Batch:2023-2025**

Year:II Semester

Sl No.	Questionaire	Total Response	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting	43	30	13	-	-	-
2	The lecture sequence was well planned.	43	43	-	-	-	-
3	The duration of the course was sufficient for the material covered	43	-	10	33	-	-
4	The course exposed you to new knowledge and practices.	43	30	13	-	-	-
5	course content meet with your expectations	43	25	10	8	-	-
6	Overall rating of the session	43	30	13	-	-	-

Course Coordinator Ashwani

HOD

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FACEIN TECHNOLOGIES PVT LTD

CERTIFICATE OF COMPLETION

This is to certify that Megha Anish from Department of computer applications, Mangalam College of Engineering completed the certificate course on Blockchain Technology from 02/04/2024 to 22/04/2024

During the certificate course, he/she demonstrated exemplary dedication, enthusiasm & professionalism

KOCHI

AUTHORISED SIGNATORY

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ACEIN TECHNOLOGIES PVT LTD

CERTIFICATE OF COMPLETION

This is to certify that Arjun M B from Department of computer applications, Mangalam College of Engineering completed the certificate course on Blockchain Technology from 02/04/2024 to 22/04/2024

During the certificate course, he/she demonstrated exemplary dedication, enthusiasm & professionalism

KOCHI

AUTHORISED SIGNATORY

DEPT. OF COMPUTER APPLICATIONS • MANGALAM COLLEGE OF ENGINEERING • ETTUMANOOR - 686 631

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
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ACEIN TECHNOLOGIES PVT LTD

CERTIFICATE OF COMPLETION

This is to certify that Anandu Suresh from Department of computer applications, Mangalam College of Engineering completed the certificate course on Blockchain Technology from 02/04/2024 to 22/04/2024

During the certificate course, he/she demonstrated exemplary dedication, enthusiasm & professionalism

KOCHI

AUTHORISED SIGNATORY

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DEPARTMENT OF COMPUTER APPLICATIONS

Ref: MLM/MCA/CC/2023-2024/ 11 Date: 17/10/2023

Submitted to the Principal approval

We have proposed during this to conduct the certificate course on **"MASTERING ARDUINO USING IOT"** for our PG students semester (2023-24). Tentative timings and course fees details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Explanation:

This course provides a comprehensive understanding of Blockchain Technology, its architecture,and its applications.Students will learn about the fundamentals of crypto currency,smart contracts,and decentralized applications.

S.No	Name of Course	Course Instructors	Course Duration	Approx. course fee	Target students (Year/Branch)
1	MASTERING ARDUINO USING IoT	Ms.Ashwani Vijayachandran	30 Hrs	30000/-	MCA Ist Year

Thanking you,

Course I/C HOD/MCA Principal

Copy to: .

1.CSE Department file

2. Department Notice Board

3. IQAC

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DEPARTMENT OF COMPUTER APPLICATIONS

Department of Computer Applications

2023-2024

Detailed Syllabus

Week 1: Introduction to Arduino and Robotics

- Introduction to Arduino:
- Introduction to Robotics:
    - Core concepts of robotics
    - Types of robots (autonomous, remote-controlled)
    - Basic components of a robot: sensors, actuators, microcontrollers

Week 2: Basic Electronics and Circuitry

- Basic Electronics Concepts:
    - Voltage, current, resistance
    - Ohm's Law and Kirchhoff's Laws
    - Digital and analog signals
- Circuit Building:
    - Breadboard usage
    - Soldering techniques
    - Basic circuit diagrams and prototyping

Week 3: Interfacing Sensors with Arduino

- Sensor Basics:
    - Types of sensors (ultrasonic, infrared, line follower, etc.)
    - Sensor characteristics (range, accuracy, resolution)
- Interfacing Sensors:
    - Analog and digital sensor connections
    - Reading sensor values using Arduino
    - Sensor calibration and data processing

Week 4: Controlling Actuators with Arduino

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- Actuator Basics:
    - DC motors, servo motors, stepper motors
    - Motor drivers and H-bridges
- Controlling Actuators:
    - PWM techniques for motor speed control
    - Servo motor positioning
    - Stepper motor rotation

Week 5: Arduino Programming for Robotics

- Arduino Programming Language:
    - Variables, data types, operators
    - Control flow statements (if-else, loops)
    - Functions
- Robot Programming:
    - Reading sensor data
    - Controlling actuators based on sensor input
    - Implementing basic robot behaviors (line following, obstacle avoidance)

Week 6: Building a Line Follower Robot

- Robot Design and Construction:
    - Mechanical design and assembly
    - Sensor placement and wiring
    - Power supply considerations
- Programming the Line Follower:
    - Line detection algorithm
    - Motor control for line following
    - Calibration and tuning

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Prepared by ,

Ms.Ashwani Vijayachandran

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Approved by,

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF COMPUTER APPLICATIONS

List of Students Enrolled for Certificate Course - Certification on Mastering Arduino using IOT

Academic Year:2023-2024 **Batch:2023-2025**

Semester : I

Sl.No	Roll No.	Name
1	MLM23MCA-2001	ABHIRAM A K
2	MLM23MCA-2002	ABIN VARGHESE
3	MLM23MCA-2003	ABITHAMOL C F
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28	MLM23MCA-2029	KRISHNENDHU KM
29	MLM23MCA-2030	MAHESH K M
30	MLM23MCA-2031	MEGHA ANISH
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43	MLM23MCA-2044	VISAL P D

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DEPARTMENT OF COMPUTER APPLICATIONS

Department of Computer Applications

Certificate Course Details(Mastering Arduino using IOT)

Period of Training – 18/10/2023 to 07/11/2023 (6 hours)

Sl.No	Roll no	Name	18/10/23	19/10/23	21/10/23	5/10/23	6/11/23
1	MLM23MCA-2001	ABHIRAM A K					
2	MLM23MCA-2002	ABIN VARGHESE					
3	MLM23MCA-2003	ABITHAMOL C F					
4	MLM23MCA-2004	AISHWARYA RAVIKUMAR					
5	MLM23MCA-2005	AKASH PRAKASHAN					
6	MLM23MCA-2006	AKSAMOL SIMON					
7	MLM23MCA-2007	ALAN BABY					
8	MLM23MCA-2008	ALBIN SABU					
9	MLM23MCA-2009	ALVIN JOSEPH					
10	MLM23MCA-2010	ANANDU AJIKUMAR					
11	MLM23MCA-2011	ANANDU SURESH					
12	MLM23MCA-2012	ANGITH PANICKER					
13	MLM23MCA-2013	ANJANA R					
14	MLM23MCA-2014	ARCHA DAS					
15	MLM23MCA-2015	ARJUN M B					
16	MLM23MCA-2016	ARJUN P SAJI					
17	MLM23MCA-2018	ASWIN K.P					
18	MLM23MCA-2019	ASWIN KRISHNA M					
19	MLM23MCA-2020	ATHIRA PRAKASH					
20	MLM23MCA-2021	ATHULLAYA S					
21	MLM23MCA-2022	BIBIN BINOY					
22	MLM23MCA-2023	DEVANARAYANAN M					
23	MLM23MCA-2024	GIBIN SKARIA PHILIP					
24	MLM23MCA-2025	GRIGORY RAJEEV					
25	MLM23MCA-2026	HEBAL THOMAS					
26	MLM23MCA-2027	JOHN JOSE					
27	MLM23MCA-2028	KRISHNAVENI EK					
28	MLM23MCA-2029	KRISHNENDHU KM					
29	MLM23MCA-2030	MAHESH K M					
30	MLM23MCA-2031	MEGHA ANISH					
31	MLM23MCA-2032	NANDHAKUMAR K.S					
32	MLM23MCA-2033	NANDHU SOMAN					
33	MLM23MCA-2034	NEBIN P SABU					

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34	MLM23MCA-2035	PARVANA DILEEP					
35	MLM23MCA-2036	PARVATHY B LAL					
36	MLM23MCA-2037	PARVATHY MOHANAN					
37	MLM23MCA-2038	REEMA SOSA THOMAS					
38	MLM23MCA-2039	REVATHI S KUMAR					
39	MLM23MCA-2040	RIYA ANN REJI					
40	MLM23MCA-2041	ROJIN ROY					
41	MLM23MCA-2042	ZAINA ZAKKER					
42	MLM23MCA-2043	SUHANA SHEREEF					
43	MLM23MCA-2044	VISAL P D					

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Mastering Arduino using IOT

Assesment test

Each question carry 1 mark each

Date :22/04/2024 **Time :3 pm to 4 pm**

1. **What is the primary microcontroller used in Arduino boards?**
   - o a) Raspberry Pi
   - o b) Intel 8086
   - o c) ATmega328p
   - o d) ARM Cortex-M4
2. **Which of the following is NOT a fundamental component of a robot?**
   - o a) Sensor
   - o b) Actuator
   - o c) Power Supply
   - o d) Keyboard
3. **What is the basic unit of measurement for electric current?**
   - o a) Volt
   - o b) Ampere
   - o c) Ohm
   - o d) Watt
4. **Which sensor is commonly used to measure distance?**
   - o a) Light Sensor
   - o b) Temperature Sensor
   - o c) Ultrasonic Sensor
   - o d) Accelerometer
5. **What is PWM?**
   - o a) Pulse Width Modulation
   - o b) Pulse Width Maximum
   - o c) Power Wave Modulation
   - o d) Power Wave Maximum
6. **Which motor is best suited for precise angular movements?**
   - o a) DC Motor

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- b) Stepper Motor
- c) Servo Motor
- d) AC Motor

7. **What is the primary function of a breadboard?**
   - a) To power the Arduino board
   - b) To program the Arduino board
   - c) To temporarily connect electronic components
   - d) To permanently solder electronic components
8. **Which programming language is used to program Arduino boards?**
   - a) Python
   - b) C++
   - c) Java
   - d) Assembly
9. **What is the main purpose of a robot's controller?**
   - a) To provide power to the robot
   - b) To sense the environment
   - c) To control the robot's movements and actions
   - d) To communicate with other robots
10. **What is the significance of the setup() and loop() functions in Arduino programming?**
    - a) They define the input and output pins
    - b) They control the speed of the Arduino board
    - c) They define the initial setup and the main program loop
    - d) They handle error handling and debugging
11. **What is the process of teaching a robot to perform a task by demonstrating it?**
    - Programming
    - Teleoperation
    - Machine Learning
    - Learning from Demonstration
12. **Which type of robot is designed to work in hazardous environments?**
    - a) Domestic Robot
    - b) Industrial Robot

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- c) Service Robot
- d) Mobile Robot

13. What is the term for the ability of a robot to perceive its environment and respond accordingly?

- a) Autonomy
- b) Intelligence
- c) Perception
- d) Cognition

14. What is the main purpose of a robot's controller?

- a) To provide power to the robot
- b) To sense the environment
- c) To control the robot's movements and actions
- d) To communicate with other robots

15. Which of the following is a common obstacle avoidance algorithm used in robotics?

- a) Dijkstra's Algorithm
- b) A* Search Algorithm
- c) Breadth-First Search
- d) P-Controller

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Assesment test

Each question carry 1 mark each

Answer key

1. c) ATmega328p
2. d) Keyboard
3. b) Ampere
4. c) Ultrasonic Sensor
5. a) Pulse Width Modulation
6. c) Servo Motor
7. c) To temporarily connect electronic components
8. b) C++
9. c) To control the robot's movements and actions
10. c) They define the initial setup and the main program loop
11. d) Learning from Demonstration
12. b) Industrial Robot
13. c) Perception
14. c) To control the robot's movements and actions
15. b) A Search Algorithm

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DEPARTMENT OF COMPUTER APPLICATIONS

Certficate course :Mastering Arduino using IOT

Academic year : 2023-2024 **Batch :2023-2025**

Mark Sheet

Sl No.	Name	Mark(20)	Out of 100
1	ABHIRAM A K	14	70
2	ABIN VARGHESE	16	80
3	ABITHAMOL C F	20	100
4	AISHWARYA RAVIKUMAR	19	95
5	AKASH PRAKASHAN	18	90
6	AKSAMOL SIMON	15	75
7	ALAN BABY	20	100
8	ALBIN SABU	16	80
9	ALVIN JOSEPH	20	100
10	ANANDU AJIKUMAR	19	95
11	ANANDU SURESH	18	90
12	ANGITH PANICKER	15	75
13	ANJANA R	20	100
14	ARCHA DAS	16	80
15	ARJUN M B	20	100
16	ARJUN P SAJI	19	95
17	ASWIN K.P	18	90
18	ASWIN KRISHNA M	15	70
19	ATHIRA PRAKASH	15	70
20	ATHULLAYA S	19	95
21	BIBIN BINOY	18	90

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22	DEVANARAYANAN M	15	75
23	GIBIN SKARIA PHILIP	20	100
24	GRIGORY RAJEEV	16	80
25	HEBAL THOMAS	20	100
26	JOHN JOSE	19	95
27	KRISHNAVENI EK	18	90
28	KRISHNENDHU KM	15	75
29	MAHESH K M	19	95
30	MEGHA ANISH	18	90
31	NANDHAKUMAR K.S	15	75
32	NANDHU SOMAN	19	95
33	NEBIN P SABU	19	95
34	PARVANA DILEEP	18	90
35	PARVATHY B LAL	15	75
36	PARVATHY MOHANAN	19	95
37	REEMA SOSA THOMAS	19	95
38	REVATHI S KUMAR	18	90
39	RIYA ANN REJI	15	75
40	ROJIN ROY	19	95
41	ZAINA ZAKKER	19	95
42	SUHANA SHEREEF	18	90
43	VISAL P D	15	75

Course Coordinaator

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DEPARTMENT OF COMPUTER APPLICATIONS

Name of the Course: Mastering Arduino Using IoT

Duration: 30 Days

Venue: N305

Name and class of Students: Nandhu Soman S1 MCA

Sl.no	Overall are you satisfied with	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting	✓				
2	The lecture sequence was well planned	✓				
3	The duration of the course was sufficient for the material covered.		✓			
4	The course exposed you to new knowledge and experience.		✓			
5	Course Content meet your expectations.	✓				
6	Overall rating of the session.			✓		

Fill your feedback by answering the following questions

Suggestions if any:

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Name of the Course: Mastering using Arduino using IOT

Duration: 30 days

Venue: N365

Name and class of Students: Rajin Roy S1-MCA

Sl.no	Overall are you satisfied with	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting		✓			
2	The lecture sequence was well planned			✓		
3	The duration of the course was sufficient for the material covered.		✓			
4	The course exposed you to new knowledge and experience.		✓			
5	Course Content meet your expectations.		✓			
6	Overall rating of the session.		✓			

Fill your feedback by answering the following questions

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Suggestions if any:

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Name of the Course: Mastering Using Arduino Using IOT

Duration: 30 days

Venue: N305

Name and class of Students: Gibin Skaria Philip S1 MCA

Sl.no	Overall are you satisfied with	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting	✓	✓			
2	The lecture sequence was well planned	✓				
3	The duration of the course was sufficient for the material covered.	✓				
4	The course exposed you to new knowledge and experience.		✓			
5	Course Content meet your expectations.	✓				
6	Overall rating of the session.	✓				

Fill your feedback by answering the following questions

Suggestions if any:

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DEPARTMENT OF COMPUTER APPLICATIONS

Consolidated course Feedback

Certificate Course on Mastering Arduino using IOT

Academic Year:2023-2024 **Batch:2023-2025**

Year:II Semester

Sl No.	Questionaire	Total Response	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting	43	30	13	-	-	-
2	The lecture sequence was well planned.	43	25	10	8	-	-
3	The duration of the course was sufficient for the material covered	43	-	10	33	-	-
4	The course exposed you to new knowledge and practices.	43	35	5	3	-	-
5	course content meet with your expectations	43	40	-	3	-	-
6	Overall rating of the session	43	25	18	-	-	-

Course Coordinator

HOD

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TECHNOLOGIES
PVT LTD

CERTIFICATE OF COMPLETION

This is to certify that Krishnendhu K M from Department of computer applications, Mangalam College of Engineering completed the certificate course on Mastering Arduino for IOT from 18/10/2023 to 07/11/2023

During the certificate course, he/she demonstrated exemplary dedication, enthusiasm & professionalism

KOCHI

AUTHORISED SIGNATORY

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MANGALAM COLLEGE OF ENGINEERING
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PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
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ACEIN TECHNOLOGIES PVT LTD

CERTIFICATE OF COMPLETION

This is to certify that John Jose from Department of computer applications, Mangalam College of Engineering completed the certificate course on Mastering Arduino for IOT from 18/10/2023 to 07/11/2023

During the certificate course, he/she demonstrated exemplary dedication, enthusiasm & professionalism

KOCHI

AUTHORISED SIGNATORY

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CERTIFICATE OF COMPLETION

This is to certify that Arjun P Saji from Department of computer applications, Mangalam College of Engineering completed the certificate course on Mastering Arduino for IOT from 18/10/2023 to 07/11/2023

During the certificate course, he/she demonstrated exemplary dedication, enthusiasm & professionalism

KOCHI

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Add on course

CREO

SYLLABUS

Module 1:

Introduction- Introduction to CAD-CAM/CAE, Parametric Design, Associative, Feature Based Modelling, Parent and child relationship, Graphic User Interface of creo, Getting Started With creo Engineering, File types

Sketcher- Creation tools, Modifying tools, Dimensioning & Constraints, Sketcher Palette, Sketcher Relations

Module 2:

Part Modelling- Getting started With Part Modelling, Hase Features Extrude, Revolve, Sweep, Blend, Swept Blend, Variable Section Sweep and Helical sweep, Dunum Features and Cosmetic features.

View Manager, Engineering Features-Hole, Shell, Rib, Draft, Round and Chamfer.

Module 3:

Edit Features- Mirror, Pattern. Copy, Paste and Paste special, Feature Operations

Assembly Mode- Getting Started With Assembly, Bottom-up Approach, Assembly Constraints.

Top-down Approach, Interference & Clearance Checks, Exploded Views, Simplified Representation.

Drafting- Overview of Drafting, Creating Drawing Views, Insert Templates, Format, Show & Erase Tool

Module 4:

Creation of Dimensions, Symbol Creations & Placements

Bill of Materials, Drawing Tools, GD & T, Advanced options- User Defined Feature

Family table, Re-orient, ADV modelling tools Toroidal bend, Spinal bend, Pipe, Surface and Solid free forms

Module 5:

Introduction to Simulation- Wall creation tools Attached and Unattached, Bending-Creating bend, Unbend and Berid back, Extend wall, Notch, Punch, Corner Relief, Rip and Merge walls, Form, Flatten form, Deform area and Flat pattern

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1. What is the purpose and significance of congif.pro files?

Config.pro files are text files consisting of different configurations. These settings help control and define the behaviour of Creo applications. These files also have user macros, also known as map keys.

2. Explain parametric feature-based modelling.

Parametric feature-based modelling refers to modelling designs based on parameters and definitive features. You can create designs and models following requirements by creating instructions or features. Parametric modelling is useful when designing a part or assembly of products and machines.

3. What are the uses of datum planes?

Datum planes are useful in sketching and referencing planes. They act as the base and are helpful in dimension and alignment referencing other measurements. They also enable geometric tolerancing and creating cross-sections in sketches.

4. List the steps to take to display the default datum planes of one component in an assembly.

Answer: *To display a single component's default datum planes in an assembly, first empty the layer containing the planes. Next, check the plus sign in the dialogue box and select the components required for display. Finally, click on the show icon to display the default datum planes. This prevents undesirable external references to parent–child relationships.*

5. How would you create features to include in a user-defined feature (UDF)?

To make features for inclusion in a UDF, first check and restrict the number of parents. If there is a requirement to add many features to the UDF, make sure they share the maximum number of parents. This can help limit the prompts to move the UDF to another part, simplifying the creation process.

6. Name the different types of view sets in Creo.

View sets define the connections between 3D and 2D models to improve design accuracy and product performance. Creo determines the orthographic views, such as front, top, right, back, bottom and left and the isometric views as per the "up" and "front" directions. Different view sets can help display a magnified version of a machine or part–part positioning.

7. What is the purpose of using the display mode on drawing views?

Drawing views remove hidden lines from the environment. When selecting multiple views, only the "View Display" mode is available in the dialogue box. As each user's environment can be different, not using the display mode can alter the drawing view for others. This makes the usage of the display mode vital when working on drawing view sets.

8. What do you understand by datum planes created 'on the fly'?

Datum planes created "on the fly" suggest that the user created them during the creation of another model or design. Upon reaching the final design, these planes become redundant. You can create them through the "make datum" feature.

9. Define the meaning and usage of a trail file.

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Trail files create a record of every input, click and selection when designing. If you lose your progress or fail to save it, you can still retrieve these files. It is possible to analyse, correct and present the designing process by editing or replaying these files.

10. Define the Model Tree.

The Model Tree is a visual representation of a model's features and components. These appear in the same hierarchical order according to their order of generation in an assembly, showing the relations between the items or their generation sequence. The Model Tree is available under the "Navigator" tab.

Creo Questions

1. What are the assumptions that a sketcher makes?
2. How are one-side and both-sides extrusions different?
3. What is the difference between move and move text functions?
4. What are the uses of datum axes?
5. Define a drawing.dtl file and explain its uses.
6. What feature can help you both add and remove material?
7. Define a constraint relation.
8. What are drawing symbols?
9. Is it possible to add motion to a part?
10. What are the different tolerance formats?
11. Is it possible for a drawing to refer to more than a single assembly? Explain.
12. What is the use of the save status feature?
13. Explain the difference between dependent and independent copies of features.
14. What is the first view to add to a sketch?
15. Explain the meaning of the show dimension.
16. How is the file and erase tool different to the file and delete feature?
17. Explain the role of a construction circle and sketch centreline.
18. How can you open a Creo drawing in AutoCAD?
19. What is the proper method to add a model parameter to a drawing note?
20. Name one layer function that beginners avoid using.

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Program : Creo
Branch/Stream : Mechanical Engineering

Academic year :2023-2024 Even
Semester/Div : S6 ME A & B

Serial / Roll No.	Name of Student
1.	ADERSH P S
2.	AMALNATH K S
3.	ANANDHU B
4.	ANANTHAKRISHNAN B
5.	ARUN SANTHOSH
6.	ATHUL P ABHILASH
7.	BIBIN JOHN
8.	BIJIN BINOY
9.	FARSAN ASKER
10.	GOUTHAMKRISHNA S
11.	HARISANKAR P
12.	JAGATH CHANDRAN
13.	JOBIN K JOY
14.	JOEL BINOY JOSE
15.	JOMAL JOJI
16.	JUSTIN JOY
17.	REJATH RAJAN
18.	RITHIN RAJ K
19.	ROMIN ROY
20.	ROYAL MANI
21.	SAHIL SHAHUL
22.	SANDEEP SADANANDAN
23.	SARAN R
24.	SUHAIL SHAJI
25.	TONY VARGHESE
26.	VISHNU MANOJ
27.	VISHNU SURESH
28.	Y P MEENAKSHY
29.	ANAND MOHAN

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	SACHU SASINDRAN
31.	ABHISHEK D
32.	ADARSH K K
33.	ADARSH M
34.	ADHUL B
35.	ADWAITH AJITH
36.	ADWAITH K A
37.	AJAYGOSH M S
38.	AKSHAY MOHAN
39.	ALBIN BIJU
40.	AMAL JACOB
41.	AMAL T R
42.	AMBADY PRASANNAN
43.	ANANDHAKRISHNAN A B
44.	ANANDHAKRISHNAN P R
45.	ANANDHU K S
46.	ANANDU V PRADEEP
47.	ANANTHAKRISHNAN R
48.	ANIN JOSEPH
49.	ANSAL P HARIS
50.	ARUN JAYAPALAN
51.	ASHISH T A
52.	ASHWIN MADHU
53.	ASIF M S
54.	ASWIN P A
55.	JACOB JOGI
56.	KIRAN JOSE
57.	PRABHUDEV P
58.	SAFE R
59.	SANJAI D
60.	SAHUL SASANKAN

MSME-Technology Development Centre

Ministry of Micro, Small & Medium Enterprises,
Foundry Nagar, Agra-282006 (U.P)

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FEEDBACK FORM

Name of the Training Programme you attended	CREO
Trainer Name	Dr. MANIKANDAN H
Date of Training	07.11.2023 to 14.03.2024
What you liked in today's session?	Manufacturing module
How would you rate the trainer on the whole?	8.5/10
What you did not like?	More practical examples
What you did not understand?	coding
How is the knowledge of the trainer in the subject of training?	good
How effective was the trainer's communication during training?	good
Did you find anything missing/lacking or in short in the trainer in any of the aspects pertaining the training program?	More individual time for each unit
Would you like to be trained by the same trainer again at any time in future in any other program, if relevant to you & also the trainer?	yes
Any other/general feedback that you would like to give related to the training programme?	More individual hands on to be provided
Would you like us to organize this programme or any other training programme	yes
Call handling by coordinator	yes

Name & Signature

Thanks for your valuable feedback!

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Ministry of Micro, Small & Medium Enterprises,
Foundry Nagar, Agra-282006 (U.P)

PPDC

FEEDBACK FORM

1. Name of the Training Programme you attended	CREO
2. Trainer Name	Dr. MANIKANDAN H
3. Date of Training	07.11.2023 to 14.03.2024
4. What you liked in today's session?	Manufacturing module
5. How would you rate the trainer on the whole?	9.5/10
6. What you did not like?	more workout examples
7. What you did not understand?	Coding.
8. How is the knowledge of the trainer in the subject of training?	Good
9. How effective was the trainer's communication during training?	Good
10. Did you find anything missing/lacking or in short in the trainer in any of the aspects pertaining the training program?	more individual time for each unit
11. Would you like to be trained by the same trainer again at any time in future in any other program, if relevant to you & also the trainer?	yes
12. Any other/general feedback that you would like to give related to the training programme?	More individual hands on to be provided
13. Would you like us to organize this programme or any other training programme	yes
14. Call handling by coordinator	yes.

✓5. Excellent
4. Very good
3. Good
2. Satisfactory
1. Poor

Name & Signature

Shahul Chapparban

Thanks for your valuable feedback!

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Foundry Nagar, Agra-282006 (U.P)

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FEEDBACK FORM

Name of the Training Programme you attended	CREO
Trainer Name	Dr. MANIKANDAN H
Date of Training	07.11.2023 to 14.03.2024
What you liked in today's session?	MANUFACTURING MODULE
How would you rate the trainer on the whole?	9/10
What you did not like?	Examples in practical classes
What you did not understand?	Programming
How is the knowledge of the trainer in the subject of training?	Good
How effective was the trainer's communication during training?	Good
Did you find anything missing/lacking or in short in the trainer in any of the aspects pertaining the training program?	Total training time was found to be less
Would you like to be trained by the same trainer again at any time in future in any other program, if relevant to you & also the trainer?	Yes
Any other/general feedback that you would like to give related to the training programme?	More no of practicals need to be included
Would you like us to organize this programme or any other training programme	Yes
Call handling by coordinator	Yes

Name & Signature

Thanks for your valuable feedback!

MSME-Technology Development Centre

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PPDC

FEEDBACK FORM

1. Name of the Training Programme you attended	CREO
2. Trainer Name	Dr. MANIKANDAN H
3. Date of Training	07.11.2023 to 14.03.2024
4. What you liked in today's session?	MANUFACTURING MODULE
5. How would you rate the trainer on the whole?	8.5/10
6. What you did not like?	EXAMPLES IN PRACTICAL WERE LESS
7. What you did not understand?	PROGRAMMING
8. How is the knowledge of the trainer in the subject of training?	Good
9. How effective was the trainer's communication during training?	GOOD
10. Did you find anything missing/lacking or in short in the trainer in any of the aspects pertaining the training program?	Total training time was found to be less
11. Would you like to be trained by the same trainer again at any time in future in any other program, if relevant to you & also the trainer?	YES
12. Any other/general feedback that you would like to give related to the training programme?	More no of practicals to be included.
13. Would you like us to organize this programme or any other training programme	Yes
14. Call handling by coordinator	Yes

5. Excellent ✓
4. Very good
3. Good
2. Satisfactory
1. Poor

Name & Signature

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Thanks for your valuable feedback!

SYLLABUS

AutoCAD

Total hours: 48

MODULE 1: (8 hours)

Fundamentals of Engineering Drawings, Construction of plane and complex geometrical figures, Construction of Curves and Helix, Principles of Projections, Projections of Straight Lines and Solids, Section of Solids, Mechanical Parts Drawing

MODULE 2: (10 hours)

Fundamentals of Computers, Introduction, Computer Hardware and Software Concepts, Introduction of Personal Computer and Operating Systems WINDOWS-XP, Windows-7, File Management

MODULE 3: (10 hours)

Drawing using AutoCAD, Setting up a drawing starting from scratch, Setting up a drawing using a Wizard, Using and creating a template file, Opening an existing drawing, Screen layout, Pull-down menus, Screen icons, Command line

MODULE 4: (10 hours)

Single Line Text, Multiline Text, Explode, Hatch & Gradient, Drafting settings, Properties Tool Bar, Block (Make Block, Insert Block), Dimension style, Table Style, Isometric Drawings, Company Layout Designing, Drawings in Layer-International projects, Properties, Multi leader style

MODULE 5: (10 hours)

Design centre, Attribute, Inquiry – Area, Distance etc, Quick select, Filter, Draw order, Multi line style, Multi Line, Drawing Limits, Raster Image Reference, Hyper link, External References, Model-Title Block, Lay out ,Scaling, Scale List, View port, Plot Style manager

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AutoCAD

1. In AutoCAD 2D Modelling, which axis is not accessible for drafting?

A. X
B. Y
C. Z
D. WCS

Answer: C) Z

Explanation: Z axis is relevant to 3D modelling.

2. A Polyline can be broken into individual lines and arcs using which of the following command?

A. BREAK
B. TRIM
C. EXPLODE
D. OVERKILL

Answer: C) EXPLODE

Explanation: Explode command is used to separate polyline to individual entities.

3. Origin of the AutoCAD drawing space is,

A. 0,0
B. 1,0
C. 0,1
D. 1,1

Answer: A) 0,0

Explanation: (0,0) is the origin for AutoCAD.

4. Scrolling of mouse can perform which following action?

A. Zoom in / zoom out
B. pan & scan
C. extents / all
D. scale

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Answer: C) extents / all

Explanation: It is one of the shortcut methods to zoom in and out of the workspace.

5. In AutoCAD, the number of workspaces is,

A. 1
B. 2
C. 3
D. 4

Answer: B) 2

Explanation: 2D Modelling and 3D Modelling.

6. Is there any difference between Command Plot and Print?

A. plot command prints only big plans
B. The plot command for CNC (CAM)
C. No difference
D. print command can print up to A3 size paper

Answer: C) No difference

Explanation: No difference exists between Command Plot and Print.

7. Find the false statement in regards with "If an array is made associative".

A. You can't use Boolean operations on the array elements
B. To make the array non associative you need to use explode command on it
C. The array can be edited again by selecting it
D. The array can't be modified in any way once it is made associative

Answer: D) The array can't be modified in any way once it is made associative

Explanation: An associative array can be modified in AutoCAD.

8. An open area can be filled with which of the following gradient:

A. Gap
B. Tolerance
C. Transparency
D. Open

Answer: B) Tolerance

Explanation: Tolerance is one of the sub commands of hatching to fill to open area.

9. **The shortcut to start a table is,**

A. T
B. TA
C. TBL
D. TABLE

Answer: D) TABLE

Explanation: This command opens a table like that in office.

10. **What is the shortcut for zoom command?**

A. Z Command
B. Rotate mouse wheel
C. ZOOM Command
D. All of the above

Answer: D) All of the above

Explanation: All the above methods can be used to zoom in and out the workspace.

11. **To select a set of objects in the workspace, what should be done?**

A. By a crossing window drawn from right to left
B. By a crossing window drawn left to right
C. Shift + clicking on the objects
D. None of the above

Answer: A) By a crossing window drawn from right to left

Explanation: This control selects the objects present in the design space.

12. **A line shows its dimension as 14.52. What is the precision of this line?**

A. [0.0]
B. [0.00]
C. [0.000]
D. Display of length has nothing to do with precision

Answer: B) [0.00]

Explanation: Since there are two numbers after the decimal point.

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13. Model Tab and Layout Tab can be majorly distinguished as,

A. The Model tab is used for drawing in 3D and a Layout is used for drawing in 2D
B. The Model tab is where you create the drawing, and a Layout tab represents the sheet that you will plot or print on
C. The colour of the background
D. The Model tab displays the drawing you are copying from and the Layout tab is where you lay out the new drawing

Answer: B) The Model tab is where you create the drawing, and a Layout tab represents the sheet that you will plot or print on

Explanation: The option clearly explains the solution.

14. Shortcut key for Multileader in AutoCAD 2022,

A. ML
B. MLN
C. MLEADER
D. MULTI

Answer: C) MLEADER

Explanation: This command produces a multileader.

15. To bring a particular area of the workspace in focus, what command should be used?

A. Zoom Extents
B. Zoom Window
C. Zoom Dynamic
D. Zoom All

Answer: B) Zoom Window

Explanation: This command zooms only the required region.



MSME – PPDC – AutoCAD – Students List (S3 - 2021-2025 Batch)(December-17-2022)

S No	Register No	Name
01	MLM21ME001	ABHISHEK D
02	MLM21ME002	ADARSH K K
03	MLM21ME003	ADARSH M
04	MLM21ME005	ADHUL B
05	MLM21ME006	ADWAITH AJITH
06	MLM21ME007	ADWAITH K A
07	MLM21ME008	AJAYGOSH M S
08	MLM21ME010	AJITH RAJ
09	MLM21ME011	AKSHAY MOHAN
10	MLM21ME012	ALBIN BIJU
11	MLM21ME013	AMAL JACOB
12	MLM21ME016	AMAL T R
13	MLM21ME017	AMBADY PRASANNAN
14	MLM21ME018	ANANDHAKRISHNAN A B
15	MLM21ME019	ANANDHAKRISHNAN P R
16	MLM21ME021	ANANDHU K S
17	MLM21ME022	ANANDU V PRADEEP
18	MLM21ME024	ANANTHAKRISHNAN R
19	MLM21ME025	ANIN JOSEPH
20	MLM21ME026	ANSAL P HARIS
21	MLM21ME027	ARUN JAYAPALAN
22	MLM21ME029	ASHIK S
23	MLM21ME030	ASHISH T A
24	MLM21ME031	ASHWIN MADHU
25	MLM21ME032	ASIF MS
26	MLM21ME033	ASWIN P A
27	MLM21ME042	JACOB JOGI
28	MLM21ME053	KIRAN JOSE
29	MLM21ME055	PRABHUDEV P
30	MLM21ME060	SAFE R
31	MLM21ME063	SANJAI D
32	MLM21ME004	ADERSH P S
33	MLM21ME020	ANANDHU B
34	MLM21ME023	ANANTHAKRISHNAN B
35	MLM21ME028	ARUN SANTHOSH
36	MLM21ME035	ATHUL P ABHILASH
37	MLM21ME037	BIBIN JOHN
38	MLM21ME039	FARSAN ASKER
39	MLM21ME040	GOUTHAMKRISHNA S
40	MLM21ME041	HARISANKAR P
41	MLM21ME045	JOBIN K JOY
42	MLM21ME047	JOEL BINOY JOSE
43	MLM21ME056	REJATH RAJAN
44	MLM21ME058	ROMIN ROY
45	MLM21ME062	SANDEEP SADANANDAN
46	MLM21ME064	SARAN R
47	MLM21ME070	VISHNU HARIDAS
48	LMLM21ME074	ANAND MOHAN
49	LMLM21ME075	SACHU SASINDRAN
50	LMLM21ME076	MOHAMMAD BILAL A K

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एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Ministry of Micro, Small and Medium Enterprises

भारत सरकार की संस्था

Government of India Society

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 194460

प्रमाण-पत्र

Certificate

This is to certify that

Mr. Afsal V S

S/o Mr. Sirajudheen VA

has successfully completed the training

on

AUTO CAD (MECHANICAL)

from 18.11.2023 to 18.12.2023 (96 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

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MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

DATE : May 2, 2024
PLACE : AGRA

No. PPDC/Trg./OSP/2024-25/3103

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Ministry of Micro, Small and Medium Enterprises

भारत सरकार की संस्था

Government of India Society

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 194459

प्रमाण-पत्र

Certificate

This is to certify that

Mr. Alan Sebastian

S/o Mr. Sebastian George

has successfully completed the training

on

AUTO CAD (MECHANICAL)

from 18.11.2023 to 18.12.2023 (96 hrs.)

.at MSME-TDC, EC- Ettumanoor (Kerala)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

MSME-TDC (PPDC) AGRA

DATE : May 2, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2024-25/3102

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
Ministry of Micro, Small and Medium Enterprises
भारत सरकार की संस्था
Government of India Society
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Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 194458

प्रमाण-पत्र

Certificate

This is to certify that

Ms. Annapoorna B

D/o Mr. Biji S

has successfully completed the training

on

AUTO CAD (MECHANICAL)

from 18.11:2023 to 18.12.2023 (96 hrs.)

at MSME-TDC, EC- Ettumanoor (Kerala)

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MSME-TDC (PPDC) AGRA

DATE : May 2, 2024
PLACE : AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2024-25/3101

CEPF 01B

Course Enrolment

DEPARTMENT OF MECHANICAL ENGINEERING

MANGALAM COLLEGE OF ENGINEERING

Program	:	B Tech Minor	Academic year	:	2023-24
Branch/Stream	:	Chemical Engg	Semester/Div	:	III
Course Code & Name	:	ML1285 Material Science and Technology			

Roll No.	Reg. No.	Name of Student
1.	MLM22CH002	ADITHYA A ANANTH
2.	MLM22CH019	THEJUS J

Staff Advisor

Course in Charge

HOD

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INTERNAL EVALUATION SHEET

R. N.	Name	Series 1	Series 2	Att %	Average Att (10)	Assignment (15)	Series (25)		Grand total (50)
1	Adilbya Ameslo	46	49	92	10	15	23		49
2	Dejen T	46	48	96	10	15	23.5		49

Signature of Course-in-charge:

Verified by:

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SYLLABUS

MODULE - I

Earlier and present development of atomic structure- primary bonds: - secondary bonds - earlier and present development of atomic structure- primary bonds: - secondary bonds - classification of engineering materials- levels of structure- crystallography- structure–property relationships in materials - classification of engineering materials.

MODULE - II

Miller indices: - modes of plastic deformation - structure determination by X-ray diffraction - Classification of crystal imperfections- Diffusion in solids, fick's laws - dislocation density - mechanism of crystallization: homogeneous and heterogeneous nuclei formation - Hall - Petch theory.

MODULE - III

Phase diagrams: - Limitations of pure metals and need of alloying - classification of alloys, solid solutions, Hume Rothery's rule - strengthening mechanisms- Fatigue: - Stress cycles – fatigue tests, S-N curve - Ductile to brittle transition temperature (DBTT) in steels - Creep: Creep curves – creep tests - Super plasticity - introduction to super alloys.

MODULE - IV

Composites:- fiber and composite phase - polymer matrix composites - metal matrix composites - ceramic matrix composites - dielectric materials- conductors - resistor materials.

MODULE - V

Superconducting phenomenon - semi conductors- fabrication of integrated circuits - semiconductor devices.

Text Books

1. Callister William. D., Material Science and Engineering, John Wiley, 2014
2. Raghavan V, Material Science and Engineering, Prentice Hall, 2004

Reference

1. Avner H Sidney, Introduction to Physical Metallurgy, Tata McGraw Hill, 2009
2. Anderson J.C. *et.al.*, Material Science for Engineers, Chapman and Hall, 1990
3. Dieter George E, Mechanical Metallurgy, Tata McGraw Hill, 1976

Branch :

Year :

Semester :

Subject :

Code :

SCHEDULE OF WORK

Days	1	2	3	4	5	6	7
MON							
TUE							
WED							
THU						MET 285	MET 285
FRI						MET 285	MET 285
SAT							

MONTHLY ATTENDANCE SHEET

Month:

R. N.	Name	Absent (Monthly)	Absent (Cumulative)	Attendance %
1.	Adilbya A Abasth	2	4	92
2.	Bejus J	2	2	96

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MONTHLY ATTENDANCE SHEET

Month

DATE

Hour

| R. N. | Name | Count | | |

MANGALAM COLLEGE OF ENGINEERING

	Syllabus	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: MINOR		Academic Year: 2023-24
Course Code: MET 385	L-T-P Credits: 3-1-0-4	Course Name: MACHINE TOOLS ENGINEERING

Preamble

This course facilitate students to learn about various machine tools and operations performed on them. Theoretical foundation offered by this course must help the learners to make appropriate decisions vis-a-vis preliminary planning and selection of machine tools, acquiring adequate supervisory skills and to help the learners to efficiently interact with their peers to arrive at solutions for day-to-day shop floor problems.

Pre-requisites

NIL

Sl. NO	Module	Topics	Contact Hours	Exam Score
1	Module 1	Definition of machining–brief history of machining–role of machining in society. Introduction to metal cutting: Elements of cutting process– orthogonal cutting–mechanism of chip formation–machining variables -types of chips–chip breaker–geometry of single point cutting tool– tool nomenclature- speed, feed, depth of cut - cutting fluids- effect of machining variables on surface roughness- Cutting tool materials–types–application. Machinability–tool life and wear..	9	20
2	Module 2	General purpose machine tools - Lathe: principle of operation of lathe–construction details of lathe–work holding and tool holding parts of lathe– types of lathe and specification–machining time calculation on lathe–main operations. Drilling Machines: principle of operation-construction details- work holding and tool holding devices– types of drilling machine and specification. Twist drill geometry-specification–calculation of machining time in drilling.	9	20
3	Module 3	Milling machines: Principle of operation of milling machine-types and specifications–principal parts-work holding devices–types of milling cutters-elemental milling motions-up milling, down milling calculation of machining time. Grinding machines: classification –operations– surface, cylindrical and centerless grinding–grinding wheels–specification–types of abrasives, grain size Dressing and truing of grinding wheels–selection of grinding wheels.	9	20
4	Module 4	Machine tools with Computer Numeric Control: Principle of operation of CNC system–basic components of CNC system– classification of CNC systems– open loop control and closed loop control– point to point and continuous path control– absolute positioning and incremental positioning–CNC lathe–construction and operation - CNC milling machine–construction and operation (elementary treatment only)	9	20
5	Module 5	Non-conventional techniques in machining: Electric Discharge Machining (EDM): mechanisms of metal removal- elements of an EDM– spark generation– application of EDM - Wire-cut EDM-features. UltraSonic Machining (USM): mechanism of metal removal-elements of USM- applications. Water Jet Machining (WJM): mechanism of metal removal-elements of WJM- applications.	9	20

References

1. Serope Kalpakjian, Steven R. Schmid - Manufacturing Engineering and Technology, 8th ed. Pearson.
2. Chapman W.A.J., Workshop Technology, Viva books (P) Ltd, 1998.
3. Peter J. Hoffman, Eric S. Hopewell et al., Precision Machining Technology, Cengage Learning, 2014.
4. Malkin Stephen, Grinding Technology: Theory and application of Machining with Abrasives, Industrial press, 2008.

Text Books

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MANGALAM COLLEGE OF ENGINEERING

	Schedule	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: MINOR		Academic Year: 2023-24
Course Code: MET 385	L-T-P Credits: 3-1-0-4	Course Name: MACHINE TOOLS ENGINEERING

Day	I	II	III	IV	V	VI	VII	VIII
MONDAY								
TUESDAY						MET 385	MET 385	
WEDNESDAY						MET 385	MET 385	
THURSDAY								
FRIDAY								
SATURDAY								
SUNDAY								

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MANGALAM COLLEGE OF ENGINEERING

	Student List	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: MINOR		Academic Year: 2023-24
Course Code: MET 385	L-T-P Credits: 3-1-0-4	Course Name: MACHINE TOOL ENGINEERING

NO	Roll No.	Name	Gender	Reg. No.	Admission No.
1	12	HAPPY . K. DAS	female	MLM21CH013	16100
2	14	JOSHUA JOSE	male	MLM21CH015	15811

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MANGALAM COLLEGE OF ENGINEERING

	Internal Evaluation Report	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: MINOR		Academic Year: 2023-24
Course Code: MET 385	L-T-P Credits: 3-1-0-4	Course Name: MACHINE TOOLS ENGINEERING

Roll. NO	Student	Attendance		Assessments		Assignments			Score Summary			
		Count	%	Activity 1	Activity 2	Activity 1	Activity 2	Activity 3	Attendance	Assessments	Assignments	Total
				SC.	SC.	SC.	SC.	SC.	10	25	15	50
				40	40	5	5	5				
12	HAPPY . K. DAS	45/45	100	40	37	5	5	5	10	24.06	15	49
14	JOSHUA JOSE	45/45	100	40	37	5	5	5	10	24.06	15	49

Abbreviations: SC - Score, WT - Weightage

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MANGALAM COLLEGE OF ENGINEERING

	Attendance	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: MINOR		Academic Year: 2023-24
Course Code: MET 385	L-T-P Credits: 3-1-0-4	Course Name: MACHINE TOOLS ENGINEERING

Roll No.	Student	13/08/2023	19/08/2023	19/08/2023	20/08/2023	20/08/2023	02/09/2023	02/09/2023	03/09/2023	03/09/2023	09/9/2023	09/09/2023	16/09/2023	16/09/2023	23/09/2023	23/09/2023	27/09/2023	27/09/2023	27/09/2023	30/09/2023	30/09/2023	TA	%
		VII	VI	VII	VI	VII	VI	VII	VI	VII	VI	VII	VI	VII	VI	VII	I	II	III	VI	VII		
12	HAPPY K. DAS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	45/45	100
14	JOSHUA JOSE	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	45/45	100

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Assessments			
Code	Name	Maximum Score	% of Weightage
Activity 1	First Internal Examination(Minor)	40	100
Activity 2	Second Internal Examination (Minor)	40	100

Assignments			
Code	Name	Maximum Score	% of Weightage
Activity 1	Assignment 1	5	100
Activity 2	Assignment 2	5	100
Activity 3	Open Book Exam	5	100

Calculations:

Attendance:

Score of a student for Attendance= (no. of present/ max. no. of attendance) * Maximum score for attendance

Assessment / Assignment:

% of Score of a student for an Activity = (student score/ max. score of Activity) * (% of weightage of Activity / 100)

If best score selection applcable then only number of best scores from all exams will be considerd for % of Score of student in all Activity's

% of Score of student in all Activity's = sum(% of Score of a student for an Activity) / number of Activity's

Score of a student for Assessments = % of Score of student in all Activity's * Maximum score for Assessment

Total internal mark:

Total Score= Score of a student for Attendance + Score of a student for Assessments + Score of a student for Assignments

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MANGALAM COLLEGE OF ENGINEERING

	Syllabus	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: MINOR		Academic Year: 2023-24
Course Code: MET 386	L-T-P Credits: 3-1-0-4	Course Name: INDUSTRIAL ENGINEERING

Preamble

This course helps an engineering student to understand the functions and techniques of Industrial Engineering. It addresses economic aspects of the business decision and the concepts of human factors in design. The course involves productivity improvement methods, Work study, Method study and Time study. Industrial Engineering Tools and Techniques for Plant management including Plant layout and Material handling are also covered in this course. The students also will able understand Production Planning and Control process, and procedures. The other focus areas of Industrial Engineering, Quality practices, Project Management and Replacement technique are also part of this course.

Pre-requisites

Nil

Sl. NO	Module	Topics	Contact Hours	Exam Score
1	Module 1	Introduction to Industrial Engineering - Evolution of modern Concepts in Industrial Engineering - Functions of Industrial Engineering. Productivity- productivity measures- dynamics of productivity change- Techniques for improving productivity. Production costs concepts – Manufacturing Vs Purchase- problems- Economic aspects- C-V-P analysis – simple problems.. Ergonomics Man-Machine systems-Anthropometry Work place design and ergonomics - Value Engineering.	9	20
2	Module 2	Work study-procedure-concept of work content- techniques to reduce work content. Method Study-steps-recording techniques-operation process chart-flow process chart-two hand process chart-multiple activity chart. Diagrams- Flow diagrams-String diagrams. Micro-motion study-SIMO chart- critical examination. Principle of motion economy. Work measurement- techniques of work measurement - Time Study- - Steps in time study calculation of standard time (problems)- allowances.	9	20
3	Module 3	Plant location, plant layout and material handling- Type of layouts and characteristics – Tools and techniques for plant layout- travel chart – REL chart- Computer algorithms for layout design CRAFT-ALDEP (methods only)- Systematic layout planning -Line balancing– RPW (problem). Principles of material handling-selection and type of material handling equipment- Unit load concept- Automated Material Handling Systems- AGVs. Depreciation - Method of providing for depreciation- straight line method- Declining balance method- Sinking fund methods (Problems)	9	20
4	Module 4	Production Planning and control -Types of Production systems. Demand forecasting- Forecasting methods, Aggregate planning- methods- Master Production Schedule- techniques-order promising- Material Requirement Planning-bill of material product structure diagram- MRP record processing- Shop floor control - Scheduling flow shop and job shop scheduling methods, Johnson's algorithm-dispatching rules - Gantt charts. Introduction and need for a new product-product life cycle. Inventory Control, Inventory models – Basic model -price discounts -problems – determination of safety stock - Selective inventory control techniques	9	20
5	Module 5	Quality control - Statistical quality control –causes of variation in quality- control charts for X and R (problems). Process Capability- process capability index- Reliability-causes of failures- Bath tub curve.-System reliability. Introduction to concepts of, TQM, ISO, Six Sigma and Quality circles. Project management- Critical Path Method, PERT, crashing of networks Determination of economic life -Replacement policy-- Methods of replacement analysis.	9	20

References

1. E. S. Buffa, Modern Production management, John Wiley, 1983
2. Grant and Ieven Worth, Statistical Quality Control, McGraw Hill, 2000
3. Ralph M Barnes, Motion and Time Study, Wiley, 1980
4. Richard L. Francis, F. McGinnis Jr., John A. White, Facility Layout and Location: An Analytical Approach, 2nd Edition,1991

Text Books

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MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

1. Martand Telsang, Industrial Engineering & Production Management, S. Chand, Third revised edition 2018.
2. B. Kumar, Industrial Engineering Khanna Publishers, Tenth Edition 2015
3. Thomas E Vollmann , William L Berry , D Clay Whybark, F Robert Jacobs, Manufacturing Planning and Control for Supply Cha
Management, McGraw Hill
Education (India) Private Limited, Fifth Edition 2017
4. M Mahajan, Industrial Engineering & Production Management, Dhanpat Rai, 2015
5. O. P. Khanna, Industrial Engineering and Management, Dhanpat Rai, 2018

CIPAL
MANGALAM OF ENGINEERING
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MANGALAM COLLEGE OF ENGINEERING

	Schedule	ME
B Tech in Mechanical Engineering		Branch: B Tech in Mechanical Engineering
Semester: MINOR		Academic Year: 2023-24
Course Code: MET 386	L-T-P Credits: 3-1-0-4	Course Name: INDUSTRIAL ENGINEERING

Day	I	II	III	IV	V	VI	VII	VIII
MONDAY								
TUESDAY						MET 386	MET 386	
WEDNESDAY						MET 386	MET 386	
THURSDAY								
FRIDAY								
SATURDAY								
SUNDAY								

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MANGALAM COLLEGE OF ENGINEERING
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MANGALAM COLLEGE OF ENGINEERING

Internal Evaluation Report

ME

B.Tech in Mechanical Engineering | Branch: B.Tech in Mechanical Engineering

Semester: MINOR | Academic Year: 2023-24

Course Code: MET 386 | L-T-P Credits: 3-1-0-4 | Course Name: INDUSTRIAL ENGINEERING

Roll. NO	Student	Attendance		Assessments		Assignments			Score Summary			
		Count	%	Activity 1	Activity 2	Activity 1	Activity 2	Activity 3	Attendance	Assessments	Assignments	Total
				SC.	SC.	SC.	SC.	SC.	10	25	15	50
				40	40	5	5	5				
12	HAPPY . K. DAS	45/45	100	40	37	5	5	5	10	24.06	15	49
14	JOSHUA JOSE	45/45	100	40	37	5	5	5	10	24.06	15	49

Abbreviations: SC - Score, WT - Weightage

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Assessments

Code	Name	Maximum Score	% of Weightage
Activity 1	First Internal Examination (Minor)	40	100
Activity 2	Second Internal Examination (Minor)	40	100

Assignments

Code	Name	Maximum Score	% of Weightage
Activity 1	IE Assignment 1	5	100
Activity 2	IE Assignment 2	5	100
Activity 3	IE Open Book Exam	5	100

Calculations:

Attendance:

Score of a student for Attendance= (no. of present/ max. no. of attendance) * Maximum score for attendance

Assessment / Assignment:

% of Score of a student for an Activity = (student score/ max. score of Activity) * (% of weightage of Activity / 100)

If best score selection applicable then only number of best scores from all exams will be considerd for % of Score of student in all Activity's

% of Score of student in all Activity's = sum(% of Score of a student for an Activity) / number of Activity's

Score of a student for Assessments = % of Score of student in all Activity's * Maximum score for Assessment

Total internal mark:

Total Score= Score of a student for Attendance + Score of a student for Assessments + Score of a student for Assignments

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MANGALAM COLLEGE OF ENGINEERING

Student List

B.Tech in Mechanical Engineering	ME
Semester: MINOR	Branch: B.Tech in Mechanical Engineering
Course Code: MET 386	L-T-P Credits: 3-1-0-4
	Academic Year: 2023-24
	Course Name: INDUSTRIAL ENGINEERING

Sl. NO	Roll No.	Name	Gender	Reg. No.	Admission No.
1	12	HAPPY . K. DAS	female	MLM21CH013	16100
2	14	JOSHUA JOSE	male	MLM21CH015	15811

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MANGALAM COLLEGE OF ENGINEERING
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MANGALAM COLLEGE OF ENGINEERING

	Attendance	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: MINOR		Academic Year: 2023-24
Course Code: MET 386	L-T-P Credits: 3-1-0-4	Course Name: INDUSTRIAL ENGINEERING
Period: 29/01/2024-30/04/2024		

Roll. No	Student	Attendance Types	Present	Absent	Total	%
		P				
12	HAPPY . K. DAS	45	45	0	45	100
14	JOSHUA JOSE	45	45	0	45	100

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MANGALAM COLLEGE OF ENGINEERING
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MANGALAM COLLEGE OF ENGINEERING

Course Exit Survey Report

B.Tech in Mechanical Engineering	ME
Semester: MINOR	Branch: B.Tech in Mechanical Engineering
Course Code: MET 386	Academic Year: 2023-24
L-T-P Credits: 3-1-0-4	Course Name: INDUSTRIAL ENGINEERING

Q. No.	Question	CO	choices	Count	Avg.	%	Attainment Level
1	Are you able to understand the functions of Industrial Engineering, Economic aspects of business and Human factors in design	CO1	Disagree(0.000) Neutral(1.000) Agree(2.000) Strongly Agree(3.000)	0 0 0 2	3	100	3
2	Were you able to apply Principles of Work study, Method study and Work measurement techniques	CO2	Disagree(0.000) Neutral(1.000) Agree(2.000) Strongly Agree(3.000)	0 0 0 2	3	100	3
3	Are you able to develop layout for a manufacturing/service system and apply plant management and Material handling techniques.	CO3	Disagree(0.000) Neutral(1.000) Agree(2.000) Strongly Agree(3.000)	0 0 0 2	3	100	3
4	Are you able to evaluate Production Planning and Control techniques and Inventory control	CO4	Disagree(0.000) Neutral(1.000) Agree(2.000) Strongly Agree(3.000)	0 0 0 2	3	100	3
5	Were you able to analyse Quality practices, and Apply Project Management and Replacement techniques.	CO5	Disagree(0.000) Neutral(1.000) Agree(2.000) Strongly Agree(3.000)	0 0 0 2	3	100	3
No. of questions				5			
No. of students rated				2			

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	MANGALAM COLLEGE OF ENGINEERING	
	Course Exit Survey Report	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: MINOR		Academic Year: 2023-24
Course Code: MET 386	L-T-P Credits: 3-1-0-4	Course Name: INDUSTRIAL ENGINEERING

Attainment Level (CO1 / Question 1) = Compare Percentage with Attainment Level rubrics
Percentage = (Total Question Score * 100) / Maximum Question Score Maximum Question Score = Maximum score * No. of students rated for the question Total Question Score = SUM(Score for choice * No. of students choose the choice)

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MANGALAM COLLEGE OF ENGINEERING

	Syllabus	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: MINOR		Academic Year: 2023-24
Course Code: MET 286	L-T-P Credits: 3-1-0-4	Course Name: MANUFACTURING TECHNOLOGY

Preamble

1. To understand basic manufacturing processes of casting and welding
2. Provide a detailed discussion on the welding process and the physics of welding.
3. To understand mechanisms of material removal in LBM and EBM process
4. To introduce the different forming process of forging, extrusion and drawing.
5. To introduce the different fabrication of microelectronic devices

Pre-requisites

MET 255 - Material Science & Technology (Minor)

Sl. NO	Module	Topics	Contact Hours	Exam Score
1	MODULE 1	Metal casting - sand casting:- shell molding, evaporative pattern casting, investment casting, permanent mold casting, vacuum casting, slush casting, pressure casting, die casting, centrifugal casting, squeeze casting, semi solid metal forming, casting for single crystal, casting defects.		
2	MODULE 2	Powder metallurgy:-powder production methods; powder characteristics; blending, mixing; compaction of metal powders; sintering fundamentals and mechanisms; infiltration and impregnation - Welding: arc welding: non consumable electrodes; heat affected zone; quality, case study and weld ability of metals.		
3	MODULE 3	Consumable electrodes; electron and laser beam welding; heat affected zone; power density, weld quality, case study, applications - Brazing:- filler metals, fluxes, joint strength; brazing methods, applications -Soldering:- solders and fluxes - soldering methods - solder ability, case study, typical joint designs, applications.		
4	MODULE 4	Metal forging: quality, defects -Metal extrusion: process, defects, applications - Metal drawing process, drawing practice, defects, applications - Fabrication of microelectronic devices - crystal growing and wafer preparation - Film deposition - oxidation - Photo lithography		
5	MODULE 5	Different lithography methods - Etching, wet etching, dry etching- diffusion and Ion implantationmetallization and testing - wire bonding and packing - yield and reliability - fabrication of micro electro mechanical devices.		

References

1. https://nptel.ac.in/courses/103106075/
2. Principles of Metal Casting – Heine and Rosenthal
3. Materials and Processes in Manufacturing - Paul Degarma E and Ronald A. Kosher
4. Manufacturing Technology Foundry, Forming and Welding – P. N. Rao

Text Books

1. Serope Kalpakjian, Steven R. Schmid - Manufacturing Engineering and Technology, seventh edition, Pearson.

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MANGALAM COLLEGE OF ENGINEERING

Schedule	ME
B.Tech in Mechanical Engineering	Branch: B.Tech in Mechanical Engineering
Semester: MINOR	Academic Year: 2023-24
Course Code: MET 286 L-T-P Credits: 3-1-0-4	Course Name: MANUFACTURING TECHNOLOGY

Day	I	II	III	IV	V	VI	VII	VIII
MONDAY								
TUESDAY								
WEDNESDAY						MET286	MET286	
THURSDAY						MET286	MET286	
FRIDAY								
SATURDAY								
SUNDAY								

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MANGALAM COLLEGE OF ENGINEERING

Attendance

	ME
B.Tech in Mechanical Engineering	Branch: B.Tech in Mechanical Engineering
Semester: MINOR	Academic Year: 2023-24
Course Code: MET 256 L-T-P Credits: 3-1-0-4	Course Name: MANUFACTURING TECHNOLOGY

Roll. No	Student	Attendance Types	Present	Absent	Total	%
		P				
2	ADITHYA A ANANTH	41	41	0	41	100
17	THEJUS J	41	41	0	41	100

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MANGALAM COLLEGE OF ENGINEERING
KUTHAMPULLY

MANGALAM COLLEGE OF ENGINEERING

	Student List	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: MINOR		Academic Year: 2023-24
Course Code: MET 286	L-T-P Credits: 3-1-0-4	Course Name: MANUFACTURING TECHNOLOGY

Sl. NO	Roll No.	Name	Gender	Reg. No.	Admission No.
1	2	ADITHYA A ANANTH	male	MLM22CH002	16698
2	17	THEJUS J	male	MLM22CH019	16703

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MANGALAM COLLEGE OF ENGINEERING

Internal Evaluation Report

ME

B.Tech in Mechanical Engineering

Branch: B.Tech in Mechanical Engineering

Semester: MINOR

Academic Year: 2023-24

Course Code: MET 286

L-T-P Credits: 3-1-0-4

Course Name: MANUFACTURING TECHNOLOGY

Roll. NO	Student	Attendance		Assessments				Assignments						Score Summary			
		Count	%	Activity 1		Activity 2		Activity 1		Activity 2		Activity 3		Attendance	Assessments	Assignments	Total
				SC.	WT.	SC.	WT.	SC.	WT.	SC.	WT.	SC.	WT.	10	25	15	50
				40	100%	40	100%	10	100%	10	100%	10	100%				
2	ADITHYA A ANANTH	41/41	100	33	82.5	31	77.5	10	100	10	100	10	100	10	20	15	45
17	THEJUS J	41/41	100	32	80	31	77.5	10	100	10	100	10	100	10	19.69	15	45

Abbreviations: SC - Score, WT - Weightage

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Assessments			
Code	Name	Maximum Score	% of Weightage
Activity 1	first internal exam march 2024	40	100
Activity 2	second internal exam april 2024	40	100

Assignments			
Code	Name	Maximum Score	% of Weightage
Activity 1	assignment 1	10	100
Activity 2	assignment 2	10	100
Activity 3	open book exam	10	100

Calculations:

Attendance:

Score of a student for Attendance= (no. of present/ max. no. of attendance) * Maximum score for attendance

Assessment / Assignment:

% of Score of a student for an Activity = (student score/ max. score of Activity) * (% of weightage of Activity / 100)

If best score selection applcable then only number of best scores from all exams will be considerd for % of Score of student in all Activity's

% of Score of student in all Activity's = sum(% of Score of a student for an Activity) / number of Activity's

Score of a student for Assessments = % of Score of student in all Activity's * Maximum score for Assessment

Total internal mark:

Total Score= Score of a student for Attendance + Score of a student for Assessments + Score of a student for Assignments

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MANGALAM COLLEGE OF ENGINEERING

	Syllabus	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: Semester 4 A		Academic Year: 2023-24
Course Code: MET 296	L-T-P Credits: 3-1-0-4	Course Name: MATERIALS IN MANUFACTURING

Preamble

Understanding of the correlation between the chemical bonds and crystal structure of metallic materials to their mechanical properties.
Recognize the importance of deformation of metals at high temperature. Enrich knowledge of various behavior and property changes inside the material structure in
raised temperature and methods to strengthening the material. Provide in-depth proficiency in material science and engineering fields for elevated temperature
applications.

Pre-requisites

MET 202 - Metallurgy and Material Science

Sl. NO	Module	Topics	Contact Hours	Exam Score
1	MODULE 1	Atomic structure- chemical bonds-crystallography-miller indices - slip - dislocation - crystallizationfrank-reed source - Structural parameters in high-temperature deformed metals - dislocation structure - distances between dislocations in sub-boundaries - sub-boundaries as dislocation sources and obstacles -dislocations inside sub-grains - vacancy loops and helicoids - structural peculiarities of high - temperature deformation.		
2	MODULE 2	Characteristics of high-temperature materials - The super alloys as high-temperature materials- The requirement: the gas turbine engine- Larson–Miller approach for the ranking of creep performancedevelopment of the super alloys- Nickel as a high-temperature material: justification- super alloy production methods:- vacuum induction melting (VIM), vacuum arc remelting (VAR), VIM, electroslag remelting (ESR),VIM, ESR, VAR- Freckles, three rings, white spot- cleanliness.		
3	MODULE 3	Superalloys:- metallurgy, characteristics - wrought, cast superalloys, properties -crystal structures, phases in superalloys, Iron-Nickel-base superalloys, Nickel-base superalloys, Cobalt-base superalloys, - elements causing brittle phase formation, detrimental tramp elements, elements producing oxidation and hot corrosion resistance- microstructure, gamma prime, gamma double prime, Carbide and Boride phases, strengthening mechanisms- Heat treatment.		
4	MODULE 4	Single-crystal super alloys for blade applications:- solidification, heat transfer, defects - mechanical behavior, performance in creep, fatigue -Titanium: binary phase diagram - production of ingot - forgings - shear bands - pickling - Ti alloys - machining and welding of Titanium - Heat Treatment - properties of titanium aluminides - Niobium: production of niobium - niobium in steel making – niobium alloys characteristics and applications- Niobium products for the superalloy industry.		
5	MODULE 5	Molybdenum: Ferromolybdenum - production of molybdenum – properties - effect of molybdenum alloying– applications - TZM, TZC- Maraging steel:- reaction in austenite - austenite to martensite transformation- reaction in martensite - time of maraging - precipitate size - fracture toughness - welding and ageing attributes - superior features - applications - cobalt free maraging steel - intermetallics:- phase diagrams- Hume-Rothery phases- structures of MgCu2, MgZn2, MgNi2.		

References

1. Barrett, C. S. and Massalski, T. B. Structure of metals, Third edition. New York, N.Y., McGraw-Hill Book Company, 1966.
2. Decker, Raymond Frank, Source book on maraging steels: A comprehensive collection of outstanding articles from the periodical and reference literature, Published by American Society for Metals (1979).
3. Gerd Lutjering James C.Williams, Titanium, springer.
4. Roger C. Reed, The Super alloys Fundamentals and Applications, Cambridge university press.
5. Valim Levitin - High temperature strain of metals and alloys - physical fundamentals, WileyVCH (2006).
6. https://www.phase-trans.msm.cam.ac.uk/teaching.html

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Text Books

1. Callister William. D., Material Science and Engineering, John Wiley, 2014
2. Matthew J. Donachie, Stephen J. Donachie, Super alloys A Technical Guide, Second Edition, 2002 ASM International

MANGALAM COLLEGE OF ENGINEERING

Schedule	ME
B.Tech in Mechanical Engineering	Branch: B.Tech in Mechanical Engineering
Semester: Semester 4 A	Academic Year: 2023-24
Course Code: MET 296 L-T-P Credits: 3-1-0-4	Course Name: MATERIALS IN MANUFACTURING

Day	I	II	III	IV	V	VI	VII	VIII
MONDAY								
TUESDAY								
WEDNESDAY								
THURSDAY						MET296	MET296	
FRIDAY						MET296	MET296	
SATURDAY								
SUNDAY								

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MANGALAM COLLEGE OF ENGINEERING

Internal Evaluation Report

	ME
B.Tech in Mechanical Engineering	Branch: B.Tech in Mechanical Engineering
Semester: Semester 4 A	Academic Year: 2023-24
Course Code: MET 296	L-T-P Credits: 3-1-0-4
	Course Name: MATERIALS IN MANUFACTURING

Roll. NO	Student	Attendance		Assessments				Assignments				Score Summary			
		Count	%	Activity 1		Activity 2		Activity 1		Activity 2		Attendance	Assessments	Assignments	Total
				SC.	WT.	SC.	WT.	SC.	WT.	SC.	WT.	10	25	15	50
				40	100%	40	100%	15	100%	15	100%				
11	ADWAIT JOSHY	12/12	100	39	97.5	37	92.5	15	100	NA	0	10	23.75	15	49
16	ALAN SEBASTIAN	12/12	100	38	95	38	95	15	100	NA	0	10	23.75	15	49

Abbreviations: SC - Score, WT - Weightage

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Assessments

Code	Name	Maximum Score	% of Weightage
Activity 1	First Series Examination March 2024	40	100
Activity 2	Second Series Examination April 2024	40	100

Assignments

Code	Name	Maximum Score	% of Weightage
Activity 1	Assignment 1	15	100
Activity 2	Assignment 2	15	100

Calculations:

Attendance:

Score of a student for Attendance= (no. of present / max. no. of attendance) * Maximum score for attendance

Assessment / Assignment:

% of Score of a student for an Activity = (student score / max. score of Activity) * (% of weightage of Activity / 100)

If best score selection applicable then only number of best scores from all exams will be considerd for % of Score of student in all Activity's

% of Score of student in all Activity's = sum(% of Score of a student for an Activity) / number of Activity's

Score of a student for Assessments = % of Score of student in all Activity's * Maximum score for Assessment

Total internal mark:

Total Score= Score of a student for Attendance + Score of a student for Assessments + Score of a student for Assignments

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MANGALAM COLLEGE OF ENGINEERING

Internal Evaluation Report

ME

B.Tech in Mechanical Engineering | Branch: B.Tech in Mechanical Engineering

Semester: Semester 4 B | Academic Year: 2023-24

Course Code: MET 296 | L-T-P Credits: 3-1-0-4 | Course Name: MATERIALS IN MANUFACTURING

Roll. NO	Student	Attendance		Assessments				Assignments				Score Summary			
		Count	%	Activity 1		Activity 2		Activity 1		Activity 2		Attendance	Assessments	Assignments	Total
				SC.	WT.	SC.	WT.	SC.	WT.	SC.	WT.	10	25	15	50
				40	100%	40	100%	15	100%	15	100%				
10	GLODIN TONY	10/10	100	38	95	38	95	15	100	15	100	10	23.75	15	49
16	JISHNU SAJEEV	10/10	100	37	92.5	39	97.5	15	100	15	100	10	23.75	15	49

Abbreviations: SC - Score, WT - Weightage

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
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Assessments			
Code	Name	Maximum Score	% of Weightage
Activity 1	First Series Examination March 2024	40	100
Activity 2	Second Series Examination March 2024	40	100

Assignments			
Code	Name	Maximum Score	% of Weightage
Activity 1	Assignment 1	15	100
Activity 2	Assignment 2	15	100

Calculations:

Attendance:

Score of a student for Attendance= (no. of present/ max. no. of attendance) * Maximum score for attendance

Assessment / Assignment:

% of Score of a student for an Activity = (student score/ max. score of Activity) * (% of weightage of Activity / 100)

If best score selection applcable then only number of best scores from all exams will be considerd for % of Score of student in all Activity's

% of Score of student in all Activity's = sum(% of Score of a student for an Activity) / number of Activity's

Score of a student for Assessments = % of Score of student in all Activity's * Maximum score for Assessment

Total internal mark:

Total Score= Score of a student for Attendance + Score of a student for Assessments + Score of a student for Assignments

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MANGALAM COLLEGE OF ENGINEERING

	Attendance	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: Semester 4 A		Academic Year: 2023-24
Course Code: MET 296	L-T-P Credits: 3-1-0-4	Course Name: MATERIALS IN MANUFACTURING

Roll No	Student	Attendance Types	Present	Absent	Total	%
		P				
11	ADWAIT JOSHY	12	12	0	12	100
16	ALAN SEBASTIAN	12	12	0	12	100

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MANGALAM COLLEGE OF ENGINEERING
Ernakulam

MANGALAM COLLEGE OF ENGINEERING

	Student List	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: Semester 4 A		Academic Year: 2023-24
Course Code: MET 296	L-T-P Credits: 3-1-0-4	Course Name: MATERIALS IN MANUFACTURING

Sl. NO	Roll No.	Name	Gender	Reg. No.	Admission No.
1	11	ADWAIT JOSHY	male	MLM22ME011	16846
2	16	ALAN SEBASTIAN	male	MLM22ME016	16912

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MANGALAM COLLEGE OF ENGINEERING

	Attendance	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: Semester 4 B		Academic Year: 2023-24
Course Code: MET 296	L-T-P Credits: 3-1-0-4	Course Name: MATERIALS IN MANUFACTURING

Roll. No	Student	Attendance Types	Present	Absent	Total	%
		P				
10	GLODIN TONY	10	10	0	10	100
16	JISHNU SAJEEV	10	10	0	10	100

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MANGALAM COLLEGE OF ENGINEERING
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MANGALAM COLLEGE OF ENGINEERING

	Student List	ME
B.Tech in Mechanical Engineering		Branch: B.Tech in Mechanical Engineering
Semester: Semester 4 B		Academic Year: 2023-24
Course Code: MET 256	L-T-P Credits: 3-1-0-4	Course Name: MATERIALS IN MANUFACTURING

Sl. NO	Roll No.	Name	Gender	Reg. No.	Admission No.
1	10	GLODIN TONY	male	MLM22ME051	16852
2	16	JISHNU SAJEEV	male	MLM22ME057	16918



CERTIFICATE COURSE

ON

FOUNDATION IN MECHANICAL CAD

Course Content

- ✓ Introduction to autocad
- ✓ Basics tools
- ✓ Methods of creation of parts
- ✓ Assembly

Date: 27.07.2023

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: **Prof Rahul Krishnan, AP Mechanical Engineering**

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

VISION

To be a center of excellence in Mechanical Engineering by creating innovative and socially responsible technocrats to meet the global challenges

Mission

1. To provide qualitative technical knowledge in the domain of Mechanical Engineering to compete in the global scenario.

2. To nurture socially committed mechanical engineers through value based education.

3. To enhance the research ability of knowledge seekers for the changing needs of society.

MANGALAM COLLEGE OF ENGINEERING

Mangalam Hills, Vettimukal P O
Ettumanoor, Kottayam
686631

Time 09.00AM to 3.30PM

From

Head of the Department,
Mechanical Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 24/07/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

S.No	Name of Add on Course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	Foundation in Mechanical CAD	2022/S2	30Hrs	Mr. Rahul Krishnan

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-ME

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

Certificate Course – Foundation in Mechanical CAD

Detailed explanation about the course

Academic Year: 2022-2023 **Batch 2022-2026**

Year: I & II Semester

Department of Mechanical Engineering organized a certificate course on **Foundation in Mechanical CAD** for the Final Year B. Tech students (2022-2026 Batch) from 29th July 2022 to 8th August 2022. A total of 55 students were enrolled for the course. 22 lecture hours and 8 practical hours were provided during the course as per curriculum. A multiple choice based examination was conducted for the enrolled students at the end of the course. Certificates were provided for the participants after successful completion of the course.

No of students Registered	No of Students participated	No of Students Passed	No of students Eligible for Certificate
60	60	60	60

Course Coordinator

HOD / ME

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MANGALAM COLLEGE OF ENGINEERING
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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

Department of Mechanical Engineering

1.	Academic Year	: 2023-24
2.	Tile of the Course	: Foundation in Mechanical CAD
3.	Objective of the Course	:
4.	Prerequisite	: Nil
5.	Requirement	: Seminar Hall, CAD LAB
6.	Beneficiary	: S8 Students
7.	Date and Duration of the Course	:28.07.2023 to 08.08.2023(30 Hours)
8.	Proposed Timing	: 2:00 PM to 05:00 PM **(3 hours per day)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Mr. Rahul Krishnan AP (ME)
11.	Course Registration Fees	:Nil
12.	Contents of Courses	:Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	:Mechanical Seminar Hall, CAD Lab

COURSE COORDINATOR

HOD

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DEPARTMENT OF MECHANICAL ENGINEERING

Department of Mechanical Engineering

Circular

Ref: MLM/ ME/ Certificate Course / Circular / 2023-24/ 0127.01.2023

The Department of Mechanical Engineering is planned to conduct a certificate course for Final year students. So it is informed to the students to enroll their names for the Foundation in Mechanical CAD course which will start on 28.07.2023. Students are asked to enroll their names to their respective class advisor on or before 27.07.2023. The course syllabus is attached.

Name of the Course	: Foundation in Mechanical CAD
Course Duration	: 28.07.2023 -08.08.2023
Time Duration	: 2:00 PM-05:00 PM (3 hours per day)

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SYLLABUS (Add-on Course)

Subject Name: Foundation in Mechanical CAD

Subject Code: SCADM0075

Total hours: 30

MODULE 1: (8 hours)

Engineering Graphics – Industrial Overview, Codes &Standards, Projection, Industrial projects, AutoCAD Interface Line, Circle, Trim, Inquiry-Distance, Rectangle, Copy, Move, Rotate, Poly line , Mirror, polygon, Stretch, Fillet, Chamfer, Elipse arc, Region Array, Splines, Practice sessions

MODULE 2: (12 hours)

Single Line Text, Multiline Text, Explode, Hatch & Gradient, Drafting settings, Properties Tool Bar, Block (Make Block, Insert Block), Dimension style, Table Style, Isometric Drawings, Company Layout Designing, Drawings in Layer-International projects, Properties, Multi leader style

MODULE 3: (10 hours)

Design centre, Attribute, Inquiry – Area, Distance etc, Quick select, Filter, Draw order, Multi line style, Multi Line, Drawing Limits, Raster Image Reference, Hyper link, External References, Model-Title Block, Lay out ,Scaling, Scale List, View port, Plot Style manager

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

List of Students Enrolled for Certificate course – Foundation in Mechanical CAD

Academic Year: 2023-24 **Batch 2023-2027**

Year: I/II Semester

S. No.	Reg no.	Name of Student
1	MLM23ME001	AADHIL ABBAS
2	MLM23ME002	A ARAVIND
3	MLM23ME003	ABHINAND K G
4	MLM23ME004	ABHINAV J P
5	MLM23ME005	ABHINAW S K
6	MLM23ME006	ABHIRAM SP
7	MLM23ME007	ADHITHYAN K MOHAN
8	MLM23ME008	ADITH JOSEPH
9	MLM23ME009	ADITHYAN SAJI
10	MLM23ME010	ADITHYAN SURESH
11	MLM23ME011	AKASH S NAIR
12	MLM23ME012	AKSHAI S NAIR
13	MLM23ME013	ANANDAKRISHNAN V
14	MLM23ME014	ANURAG S
15	MLM23ME015	ARAVINDH A
16	MLM23ME016	ARAVIND MAHESWARAN
17	MLM23ME017	ARJUN ASHOK
18	MLM23ME018	ARUN VJ
19	MLM23ME019	BIPIN K J
20	MLM23ME020	DEVADETHAN D
21	MLM23ME021	DEVKRISHNAN P
22	MLM23ME022	DIUS BINOL
23	MLM23ME023	DOMINIC JOHN
24	MLM23ME024	DON MATHEW
25	MLM23ME025	G S ARJUN
26	MLM23ME026	HARIKRISHNAN B

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27	MLM23ME027	HARISH SURESH
28	MLM23ME028	HENRY JENU
29	MLM23ME029	IRFAN MUHAMMED
30	MLM23ME030	JAYAKRISHNAN J
31	MLM23ME031	JOLL GEORGEKUTTY
32	MLM23ME032	JOSEPH TV
33	MLM23ME033	JOYAL JOSEPH
34	MLM23ME034	KASINATH B. R
35	MLM23ME035	MAHIN SALEEM
36	MLM23ME036	MATHEW BENNY
37	MLM23ME037	MOHAMMED YASER
38	MLM23ME038	MUHAMMAD SIDAN BACKER C. K
39	MLM23ME039	MUHAMMED ASHIK PS
40	MLM23ME040	MUHAMMED ASLAM N
41	MLM23ME041	MUHAMMED NOUFAL
42	MLM23ME042	MUHAMMED SAHAL K. J
43	MLM23ME043	NANDAKISHOR CR
44	MLM23ME044	NIBIN JOSEPH
45	MLM23ME045	NIKHIL T NEBU
46	MLM23ME046	PRANAV P
47	MLM23ME047	RISHIKESH S NAIR
48	MLM23ME048	ROHITH S
49	MLM23ME049	SANAL NARAYANAN
50	MLM23ME050	SANIL SAJI
51	MLM23ME051	SHIJIN V S
52	MLM23ME052	SIVAPRASAD S
53	MLM23ME053	SOJITH A BAIJU
54	MLM23ME054	SREEHARI K B
55	MLM23ML055	SREENATH K S
56	MLM23ME056	SYAM SARAN P
57	MLM23ME057	VINAYAK REJILAL
58	MLM23ME058	VIPUL VINOD
59	MLM23ME059	VISMAYA VIJAYAN
60	MLM23ME060	YASHVANTH RAO

Course Coordinator

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHNAICAL ENGINEERING

Certificate Course – FOUNDATION IN MECHANICAL CAD

MARK SHEET

Academic Year: 2022-23 **Batch 2022-2026**

Year: I/II Semester

S. No.		Name of Student	Mark (20)	Out of 100
1	MLM23ME001	AADHIL ABBAS	16	80
2	MLM23ME002	A ARAVIND	15	75
3	MLM23ME003	ABHINAND K G	14	70
4	MLM23ME004	ABHINAV J P	19	95
5	MLM23ME005	ABHINAW S K	19	95
6	MLM23ME006	ABHIRAM SP	20	100
7	MLM23ME007	ADHITHYAN K MOHAN	15	75
8	MLM23ME008	ADITH JOSEPH	16	80
9	MLM23ME009	ADITHYAN SAJI	18	90
10	MLM23ME010	ADITHYAN SURESH	16	80
11	MLM23ME011	AKASH S NAIR	15	75
12	MLM23ME012	AKSHAI S NAIR	14	70
13	MLM23ME013	ANANDAKRISHNAN V	19	95
14	MLM23ME014	ANURAG S	19	95
15	MLM23ME015	ARAVINDH A	20	100
16	MLM23ME016	ARAVIND MAHESWARAN	15	75
17	MLM23ME017	ARJUN ASHOK	16	80
18	MLM23ME018	ARUN VJ	18	90
19	MLM23ME019	BIPIN K J	19	95
20	MLM23ME020	DEVADETHAN D	20	100
21	MLM23ME021	DEVKRISHNAN P	15	75
22	MLM23ME022	DIUS BINOL	16	80
23	MLM23ME023	DOMINIC JOHN	18	90
24	MLM23ME024	DON MATHEW	16	80
25	MLM23ME025	G S ARJUN	15	75
26	MLM23ME026	HARIKRISHNAN B	14	70
27	MLM23ME027	HARISH SURESH	19	95
28	MLM23ME028	HENRY JENU	19	95

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29	MLM23ME029	IRFAN MUHAMMED	20	100
30	MLM23ME030	JAYAKRISHNAN J	15	75
31	MLM23ME031	JOEL GEORGEKUTTY	16	80
32	MLM23ME032	JOSEPH TV	18	90
33	MLM23ME033	JOYAL JOSEPH	16	80
34	MLM23ME034	KASINATH B. R	15	75
35	MLM23ME035	MAHIN SALEEM	14	70
36	MLM23ME036	MATHEW BENNY	19	95
37	MLM23ME037	MOHAMMED YASER	19	95
38	MLM23ME038	MUHAMMAD SIDAN BACKER C. K	20	100
39	MLM23ME039	MUHAMMED ASHIK PS	15	75
40	MLM23ME040	MUHAMMED ASLAM N	16	80
41	MLM23ME041	MUHAMMED NOUFAL	18	90
42	MLM23ME042	MUHAMMED SAHAL K. J	19	95
43	MLM23ME043	NANDAKISHOR CR	20	100
44	MLM23ME044	NIBIN JOSEPH	15	75
45	MLM23ME045	NIKHIL T NEBU	16	80
46	MLM23ME046	PRANAV P	18	90
47	MLM23ME047	RISHIKESH S NAIR	16	80
48	MLM23ME048	ROHITH S	15	75
49	MLM23ME049	SANAL NARAYANAN	14	70
50	MLM23ME050	SANIL SAJI.	19	95
51	MLM23ME051	SHIJIN V S	19	95
52	MLM23ME052	SIVAPRASAD S	20	100
53	MLM23ME053	SOJITH A BAIJU	15	75
54	MLM23ME054	SREEHARI K B	16	80
55	MLM23ME055	SREENATH K S	18	90
56	MLM23ME056	SYAM SARAN P	15	75
57	MLM23ME057	VINAYAK REJILAL	16	80
58	MLM23ME058	VIPUL VINOD	18	90
59	MLM23ME059	VISMAYA VIJAYAN	16	80
60	MLM23ME060	YASHVANTH RAO	15	75

Course Coordinator

HoD ME

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHNAICAL ENGINEERING

Attendance of Certificate Course – FOUNDATION IN MECHANICAL CAD

Academic Year: 2023-24 **Batch 2023-2027**

Year: I/II Semester

S. No.	Name of Student	29	30	31	1	3	4	5	6	7	8	Total Attendance
1	AADHIL ABBAS	A	A	P	P	P	P	P	P	P	P	80
2	A ARAVIND	P	P	P	P	P	P	P	P	P	P	100
3	ABHINAND K G	P	P	P	P	P	P	P	P	P	P	100
4	ABHINAV J P	P	P	P	P	P	P	P	P	P	P	100
5	ABHINAW S K	P	P	P	P	P	P	P	P	P	P	100
6	ABHIRAM SP	P	P	P	P	P	P	P	P	P	P	100
7	ADHITHYAN K MOHAN	P	P	P	P	P	P	P	P	P	P	100
8	ADITH JOSEPH	P	P	P	A	A	A	P	P	P	P	70
9	ADITHYAN SAJI	P	P	P	P	A	A	P	P	P	P	80
10	ADITHYAN SURESH	P	P	P	P	P	P	P	P	P	P	100
11	AKASH S NAIR	P	P	P	P	P	P	P	P	P	P	100
12	AKSHAI S NAIR	P	P	P	P	P	P	P	P	P	P	100
13	ANANDAKRISHNAN V	P	P	P	P	P	P	P	P	P	P	100
14	ANURAG S	P	P	P	P	P	P	P	P	P	P	100
15	ARAVINDH A	P	P	P	P	P	P	P	P	P	P	100
16	ARAVIND MAHESWARAN	P	P	A	A	P	A	P	P	P	P	70
17	ARJUN ASHOK	P	P	P	P	P	P	P	P	P	P	100
18	ARUN VJ	P	P	P	P	P	P	P	P	P	P	100
19	BIPIN K J	P	P	A	P	P	P	P	P	P	P	70
20	DEVADETHAN D	P	P	P	A	A	P	P	P	P	P	80
21	DEVKRISHNAN P	P	P	P	P	P	P	P	P	P	P	100
22	DIUS BINOL	P	P	P	P	P	P	P	P	P	P	100
23	DOMINIC JOHN	P	P	P	P	P	P	P	P	P	P	100
24	DON MATHEW	P	P	P	P	P	P	P	P	P	P	100
25	G S ARJUN	P	P	P	P	A	A	A	P	P	P	70
26	HARIKRISHNAN B	P	P	P	P	P	P	A	A	P	P	80
27	HARISH SURESH	P	P	P	P	P	P	P	P	P	P	100
28	HENRY JENU	P	P	P	P	P	P	P	P	P	P	100
29	IRFAN MUHAMMED	P	P	P	P	P	P	P	P	P	P	100
30	JAYAKRISHNAN J	P	P	P	P	P	P	P	P	P	P	100
31	JOEL GEORGEKUTTY	P	P	P	P	P	P	P	P	P	P	100

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DEPARTMENT OF MECHNAICAL ENGINEERING

32	JOSEPH TV	P	P	P	P	P	P	P	P	P	P	100
33	JOYAL JOSEPH	P	P	P	P	P	P	P	P	P	P	100
34	KASINATH B. R	P	P	P	P	P	P	P	P	P	P	100
35	MAHIN SALEEM	P	P	P	A	A	A	P	P	P	P	70
36	MATHEW BENNY	P	P	P	A	A	P	P	P	P	P	80
37	MOHAMMED YASER	P	P	P	P	P	P	P	P	P	P	100
38	MUHAMMAD SIDAN BACKER C. K	P	P	P	P	P	P	P	P	P	P	100
39	MUHAMMED ASHIK PS	P	P	P	P	P	P	P	P	P	P	100
40	MUHAMMED ASLAM N	P	P	P	P	P	P	P	P	P	P	100
41	MUHAMMED NOUFAL	P	P	P	P	P	P	P	P	P	P	100
42	MUHAMMED SAHAL K. J	P	P	P	A	A	P	P	P	P	P	80
43	NANDAKISHOR CR	P	P	P	P	P	P	P	P	P	P	100
44	NIBIN JOSEPH	P	P	P	P	P	P	P	P	P	P	100
45	NIKHIL T NEBU	P	P	P	P	P	P	P	P	P	P	100
46	PRANAV P	P	P	P	P	P	P	P	P	P	P	100
47	RISHIKESH S NAIR	P	P	P	P	P	P	P	P	P	P	100
48	ROHITH S	P	P	A	P	A	A	P	P	P	P	70
49	SANAL NARAYANAN	P	P	P	P	P	A	A	P	P	P	80
50	SANIL SAJI	P	P	P	P	P	P	P	P	P	P	100
51	SHIJIN V S	P	P	P	P	P	P	P	P	P	P	100
52	SIVAPRASAD S	P	P	P	P	P	A	A	A	P	P	70
53	SOJITH A BAIJU	P	P	P	P	P	P	P	A	A	P	80
54	SREEHARI K B	P	P	P	P	P	P	P	P	P	P	100
55	SREENATH K S	P	P	P	P	P	P	A	A	P	P	80
56	SYAM SARAN P	P	P	P	A	A	P	P	P	P	P	80
57	VINAYAK REJILAL	P	P	P	P	P	P	P	P	P	P	100
58	VIPUL VINOD	P	P	P	P	P	P	P	P	P	P	100
59	VISMAYA VIJAYAN	P	P	P	P	P	P	P	P	P	P	100
60	YASHVANTH RAO	P	P	P	P	P	P	P	P	P	P	100

Course Coordinator

HoD ME

Subject Name: Foundation Course in Mechanical CAD

1. How many workspaces are available in AutoCAD?
   a) 2
   b) 3
   c) 4
   d) 5

3

2. Which of the following workspaces are available in AutoCAD?
   a) 3D basics
   b) 3D modelling
   c) Drafting and Annotation
   d) All of the above

All of the above

3. Which of the following is the extension for AutoCAD drawing file?
   a) DWG
   b) ACTD
   c) ACD
   d) None of the above

DWG

4. To obtain parallel lines, concentric circles and parallel curves _____ is used.
   a) Copy
   b) Fillet
   c) Offset v
   d) None of the Above

Off Set

5. What are the Advantages of AutoCAD?
   a) Improve the quality of designs
   b) Increase the productivity of the designer
   c) Creates drawings with accuracy and quickly
   d) All of the above

All of the above

6. In SolidWorks, a polygon is considered as a combination of which of the following entities?
   (a) Lines
   (b) Arcs
   (c) Splines
   d) None of these

7. Which of the following tools is used to create an automatic mirror line?
   (a) Dynamic Mirror Entities
   (b) Mirror
   (c) Automatic Mirror
   (d) None of these

8. Which of the following options is not displayed in the New SolidWorks Document dialog box?

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(a) Part
(b) Assembly
(c) Drawing
(d) Sketch

9. Which of the following tools is used to break a sketched entity into two or more entities?
(a) Split Entities
(b) Trim Sketch
(c) Break Curve
(d) Trim Curve

10. Which of the following Property Managers is displayed while drawing an elliptical arc?
(a) Arc Property Manager
(b) Ellipse Property Manager
(c) Elliptical Arc Property Manager
(d) None of these

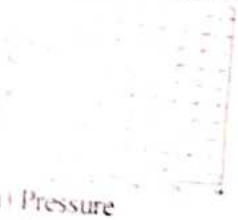
11. Which one is a post –processing Software?
a) Field View
b) CFD GEOM
c) CCM++
d) Typhon

12. Which is a pre- Processing Software?
a) ANSYS ICEM CFD
b) ANSYS Mechanical
c) ANSYS CFX
d) EnSight

13. Which of these plots are irrelevant to CFD post-processing?
a) Contourplots
b) Vectorplots
c) xyplots
d) Bar plots

14. Which plot will you choose if you want your users to read quantitative data from your data visualization?
a) Contour plot
b) Vector plot
c) xy plot
d) Mesh plot

15. Which of the following properties will need a plot like this?



a) Pressure
b) Temperature
c) Velocity
d) Lift

FEEDBACK FORM FMC

NAME OF THE STUDENT *

LEVEL

CLASS

[illegible]

1. Did you acquire engineering knowledge from the program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

2. Were you able to do some problem analysis and reach substantiated conclusions *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

3. Were you able to design solutions for complex engineering problems and design system components or processes *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

4. You were able to conduct investigations on complex problems acquire research-based and provide valid conclusions. *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

5. Were you able to understand any modern tool usage from this program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

6. Were you able to get information about engineer and society *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

7. Were you able to acquire knowledge about environment and sustainability *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

8. Were you able to improve or acquire knowledge about the professional ethics from the program *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

9. Were you able to improve individual and team work efforts from the program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

10. Did you benefit in communication or writing skills *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

11. Were you able to gain knowledge on project management and financial management *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

12. Did the program help in your lifelong learning process. *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

13. Were you able to identify, formulate design and analyze the contemporary challenges and engineering problems *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

14. Were you able to provide solutions by incorporating innovative ideas on product design and development to conquer the challenges in core mechanical sectors, business and other related fields. *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

How do you rate the overall conduction of the program *

	1	2	3	4	5	
Poor	○	○	○	○	◉	Very Good

Any other suggestion

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This form was created inside of Mangalam College of Engineering and Technology

FEEDBACK FORM FMC

NAME OF THE STUDENT *

CLASS

1. Did you acquire **engineering knowledge** from the program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

2. Were you able to do some **problem analysis** and reach substantiated conclusions *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

3. Were you able to design **solutions for complex engineering problems and design system components or processes**

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

4. You were able to conduct investigations on complex problems **acquire research-based and provide valid conclusions.**

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

5. Were you able to understand any **modern tool usage** from this program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

6. Were you able to get information about **engineer and society** *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

7. Were you able to acquire knowledge about **environment and sustainability** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

8. Were you able to improve or acquire knowledge about the **professional ethics** from the program *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

9. Were you able to improve **individual and team work** efforts from the program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

10. Did you benefit in **communication or writing skills** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

11. Were you able to gain knowledge on **project management and financial management** *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

12. Did the program help in your **lifelong learning process.** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

13. Were you able to **identify, formulate design and analyze the contemporary challenges and engineering problems**

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

14. Were you able to provide solutions by incorporating **innovative ideas on product design and development** to conquer the challenges in core mechanical sectors, business and other related fields

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

How do you rate the overall conduction of the program *

	1	2	3	4	5	
Poor	○	○	○	○	◉	Very Good

Any other suggestion

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MANGALAM COLLEGE OF ENGINEERING
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FEEDBACK FORM FMC

NAME OF THE STUDENT *

CLASS *

1. Did you acquire **engineering knowledge** from the program. *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

2. Were you able to do some **problem analysis** and reach substantiated conclusions *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

3. Were you able to design **solutions for complex engineering problems and design system components or processes** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

4. You were able to conduct investigations on complex problems,**acquire research-based and provide valid conclusions.** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

5. Were you able to understand any **modern tool usage** from this program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

6. Were you able to get information about **engineer and society** *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

7. Were you able to acquire knowledge about **environment and sustainability** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

8. Were you able to improve or acquire knowledge about the **professional ethics** from the program *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

9. Were you able to improve **individual and team work** efforts from the program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

10. Did you benefit in **communication** or writing skills *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

11. Were you able to gain knowledge on **project management and financial management** *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

12. Did the program help in your **lifelong learning process.** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

13. Were you able to **identify, formulate design and analyze the contemporary challenges and engineering problems** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

14. Were you able to provide solutions by incorporating **innovative ideas on product design and development** to conquer the challenges in core mechanical sectors, business and other related fields. *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

How do you rate the overall conduction of the program *

	1	2	3	4	5	
Poor	○	○	○	○	◉	Very Good

Any other suggestion

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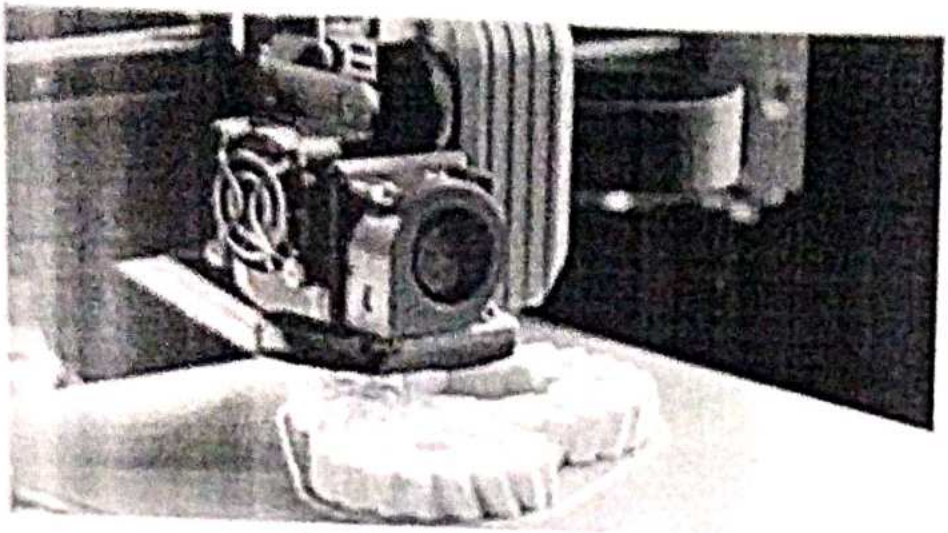
This form was created inside of Mangalam College of Engineering, Kerala - India



CERTIFICATE COURSE

ON

3D PRINTING

Content

- Introduction to 3D Printing
- Basics tools
- Methods of creation of parts
- Stl file and g-code generation
- Filaments used
- Types of 3D printer
- Variables used in parts generation

/08/2023

Coordinator: Mr Jishnu M, Asst. Professor, ME

VISION

To be a center of excellence in Mechanical Engineering by creating innovative and socially responsible technocrats to meet the global challenges

Mission

1. To provide qualitative technical knowledge in the domain of Mechanical Engineering to compete in the global scenario.

2. To nurture socially committed mechanical engineers through value based education.

3. To enhance the research ability of knowledge seekers for the changing needs of society.

Industry 4.0

MANGALAM COLLEGE OF ENGINEERING

Mangalam Hills, Vettimukal P O
Ettumanoor, Kottayam 686631

Time 9.00AM to 3.00PM

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
ETTUMANOOR

From

Head of the Department,
Mechanical Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 16/08/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024.

S. No	Name of Add on Course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	3D-Printing Technology	2023/S3	30Hrs	Mr. Jishnu M

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-ME

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

From

Head of the Department,
Mechanical Engineering,
Mangalam College of Engineering,
Ettumanoor.

To

The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 16/08/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

S. No	Name of Add on Course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	3D-Printing Technology	2023/S3	30Hrs	Mr. Jishnu M

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-ME

PRINCIPAL
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Ettumanoor

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

Certificate Course – 3D Printing Technology

Detailed explanation about the course

Academic Year: 2023-2024 **Batch 2022-2026**

Year: II & III Semester

Department of Mechanical Engineering organized a certificate course on **3D Printing Technology** for the 3rd semester B. Tech students (2022-2026 batch) from 1st September 2023 to 30th September 2023. A total of 53 students were enrolled for the course. 25 lecture hours and 5 practical hours were provided during the course as per curriculum. A multiple choice based examination was conducted for the enrolled students at the end of the course. Certificates were provided for the participants after successful completion of the course.

Course Coordinator **HOD / ME**

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

Department of Mechanical Engineering

1.	Academic Year	: 2023-24
2.	Tile of the Course	: 3D PRINTING TECHNOLOGY
3.	Objective of the Course	:To create understanding of the 3D Printing Technology, To understand the fundamentals of 3D Printing Technology
4.	Prerequisite	: Nil
5.	Requirement	: 3D Printing lab for practical class
6.	Beneficiary	: S3 Students
7.	Date and Duration of the Course	:01.09.2023 to 30.09.2023 (30 Hours)
8.	Proposed Timing	:04.00 PM to 08.00 PM **(4 hours on every Saturday & Sunday)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Mr. Jishnu M / AP (ME)
11.	Course Registration Fees	:Nil
12.	Contents of Courses	:Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: 3D Printing Lab

COURSE COORDINATOR

HOD

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Ettumanoor

Course Code: MEExxx	3D Printing Technology					
Pre-requisite: NIL		L	T	P	J	C
		25	0	5	0	0

Module	Topics	L Hrs	P
1	3D Printing (Additive Manufacturing): Introduction and Classification, Advantages and Applications, Additive Vs Conventional manufacturing process	5	1
2	CAD for additive manufacturing: CAD data formats, data translation, data loss. STL format	5	1
3	Additive manufacturing Techniques-FDM Introduction to fusion deposition modelling process, process parameter, process selection for various applications	5	1
4	Materials: Polymers, metal, non-metals, ceramics, various forms of raw materials and their desired properties	5	1
5	Additive manufacturing equipment- design and process parameter	5	1
6	Hands on session: 3D modelling of a single component, assembly of CAD modelled components, Exercise on CAD data exchange, generation of .stl files, printing of product on an available AM machine.		
	Total Lecture Hours	**30**	

 # Mode: Flipped Class Room [Lecture to be videotaped], Industrial visit to see different types of equipment's,. Lectures by Experts from Industry (two or more sessions)

Mode of Evaluation	
Recommended by the Board of Studies on:	
Date of Approval by the Academic Council:	
Syllabus Compiled by:	

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

List of Students Enrolled for Certificate course – 3D Printing Technology

Academic Year: 2023-2024 **Batch 2022-2026**

Year: III Semester

S. No	Roll No.	Name of the students
1.	MLM22ME039	Aslam B Kabeer
2.	MLM22ME042	Badusha K S
3.	MLM22ME043	Chacko Peter
4.	MLM22ME044	C M Ananth Krishna
5.	MLM22ME045	Devadathan V S
6.	MLM22ME046	Devanand J
7.	MLM22ME047	D Yedhuraj
8.	MLM22ME048	Ebin Mathew Skaria
9.	MLM22ME049	George T Stephen
10.	MLM22ME051	Glodin Tony
11.	MLM22ME052	Gokulraj
12.	MLM22ME053	Gokul Srihari
13.	MLM22ME054	Harish N Omanakuttan
14.	MLM22ME055	Jestin Sam Biju
15.	MLM22ME056	Jibin Tomy
16.	MLM22ME057	Jishnu Sajeev
17.	MLM22ME058	Jishnu Vasu
18.	MLM22ME059	Jiss John Joseph
19.	MLM22ME060	Jithu Sam
20.	MLM22ME061	Jubin Biju
21.	MLM22ME062	Karthikeyan M S
22.	MLM22ME063	Mebin Emmanuel
23.	MLM22ME064	Midhun Mohan
24.	MLM22ME066	Muhammed Fayas
25.	MLM22ME067	Nibil Snobil

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26.	MLM22ME069	N S Viswanadhan
27.	MLM22ME070	Philip Paul
28.	MLM22ME071	Renil V Roy
29.	MLM22ME072	Salaf Sabeer
30.	MLM22ME073	Sam James
31.	MLM22ME074	Sijo Joseph
32.	MLM22ME075	Sivakrishna S J
33.	MLM22ME076	Sreekanth A S
34.	MLM22ME078	Visal K S
35.	MLM22ME079	Vishnu Lal
36.	MLM22ME080	Vishnu Nampoothiri K.E
37.	MLM22ME081	Vishnu Shaji
38.	MLM22ME082	Vivek Manu
39.	LMLM22ME087	Aswin Krishnan U
40.	MLM22ME001	Abhijith Aniyan
41.	MLM22ME002	Abhijith Manoj P
42.	MLM22ME003	Abhilash Sebastian
43.	MLM22ME004	Abhinav K Binu
44.	MLM22ME005	Abhinav Shibu
45.	MLM22ME006	Abin Joseph
46.	MLM22ME007	Aboobaker Sidhique
47.	MLM22ME008	Adharsh P S
48.	MLM22ME009	Adithyan Krishna P R
49.	MLM22ME010	Adithyan P
50.	MLM22ME011	Adwait Joshy
51.	MLM22ME012	Afsal V S
52.	MLM22ME013	Ajith Shaji
53.	MLM22ME014	Akhil Shaji
54.	MLM22ME015	Alan K Rajesh
55.	MLM22ME016	Alan Sebastian
56.	MLM22ME017	Albin Biju

57.	MLM22ME018	Albin George
58.	MLM22ME019	Albin Thankachan
59.	MLM22ME020	Amalkrishnan
60.	MLM22ME021	Amal Shaji
61.	MLM22ME022	Amal V Thomas
62.	MLM22ME023	Amit Jacob T
63.	MLM22ME024	Anandakrishnan P
64.	MLM22ME026	Anandhu A S
65.	MLM22ME027	Ananthu A Pillai
66.	MLM22ME028	Anjali K A
67.	MLM22ME029	Annapoorna B
68.	MLM22ME030	Arjun Krishna U
69.	MLM22ME031	Arjun S Gorky
70.	MLM22ME032	Aromal S (Susheelan)
71.	MLM22ME033	Aromal S (Sugathakumar)
72.	MLM22ME034	Aromal Suresh
73.	MLM22ME035	Arun Ashley
74.	MLM22ME036	Arunshaji
75.	MLM22ME037	Ashik B

Course Coordinator

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

Certificate Course – 3D Printing Technology

Mark Sheet

Academic Year: 2023-2024 **Batch 2022-2026**

Year: III Semester

S. No	Roll No.	Name of the students	Marks (20)	Marks (100)
1.	MLM22ME039	Aslam B Kabeer	16	80
2.	MLM22ME042	Badusha K S	14	70
3.	MLM22ME043	Chacko Peter	15	75
4.	MLM22ME044	C M Ananth Krishna	18	90
5.	MLM22ME045	Devadathan V S	17	85
6.	MLM22ME046	Devanand J	19	95
7.	MLM22ME047	D Yedhuraj	15	75
8.	MLM22ME048	Ebin Mathew Skaria	14	70
9.	MLM22ME049	George T Stephen	19	95
10.	MLM22ME051	Glodin Tony	16	80
11.	MLM22ME052	Gokulraj	17	85
12.	MLM22ME053	Gokul Srihari	18	90
13.	MLM22ME054	Harish N Omanakuttan	20	100
14.	MLM22ME055	Jestin Sam Biju	20	100
15.	MLM22ME056	Jibin Tomy	19	95
16.	MLM22ME057	Jishnu Sajeev	19	95
17.	MLM22ME058	Jishnu Vasu	14	70
18.	MLM22ME059	Jiss John Joseph	17	85
19.	MLM22ME060	Jithu Sam	15	75
20.	MLM22ME061	Jubin Biju	15	75
21.	MLM22ME062	Karthikeyan M S	20	100
22.	MLM22ME063	Mebin Emmanuel	19	95
23.	MLM22ME064	Midhun Mohan	19	95

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24.	MLM22ME066	Muhammed Fayas	19	95
25.	MLM22ME067	Nibil Snobil	15	75
26.	MLM22ME069	N S Viswanadhan	14	70
27.	MLM22ME070	Philip Paul	19	95
28.	MLM22ME071	Renil V Roy	16	80
29.	MLM22ME072	Salaf Sabeer	17	85
30.	MLM22ME073	Sam James	18	90
31.	MLM22ME074	Sijo Joseph	20	100
32.	MLM22ME075	Sivakrishna S J	20	100
33.	MLM22ME076	Sreekanth A S	19	95
34.	MLM22ME078	Visal K S	19	95
35.	MLM22ME079	Vishnu Lal	14	70
36.	MLM22ME080	Vishnu Nampoothiri K.E	17	85
37.	MLM22ME081	Vishnu Shaji	15	75
38.	MLM22ME082	Vivek Manu	15	75
39.	LMLM22ME087	Aswin Krishnan U	20	100
40.	MLM22ME001	Abhijith Aniyan	19	95
41.	MLM22ME002	Abhijith Manoj P	16	80
42.	MLM22ME003	Abhilash Sebastian	14	70
43.	MLM22ME004	Abhinav K Binu	15	75
44.	MLM22ME005	Abhinav Shibu	18	90
45.	MLM22ME006	Abin Joseph	17	85
46.	MLM22ME007	Aboobaker Sidhique	19	95
47.	MLM22ME008	Adharsh P S	15	75
48.	MLM22ME009	Adithyan Krishna P R	14	70
49.	MLM22ME010	Adithyan P	19	95
50.	MLM22ME011	Adwait Joshy	16	80
51.	MLM22ME012	Afsal V S	17	85
52.	MLM22ME013	Ajith Shaji	18	90
53.	MLM22ME014	Akhil Shaji	19	80
54.	MLM22ME015	Alan K Rajesh	19	95

55.	MLM22ME016	Alan Sebastian	16	80
56.	MLM22ME017	Albin Biju	14	70
57.	MLM22ME018	Albin George	15	75
58.	MLM22ME019	Albin Thankachan	18	90
59.	MLM22ME020	Amalkrishnan	17	85
60.	MLM22ME021	Amal Shaji	19	95
61.	MLM22ME022	Amal V Thomas	17	85
62.	MLM22ME023	Amit Jacob T	19	95
63.	MLM22ME024	Anandakrishnan P	15	75
64.	MLM22ME026	Anandhu A S	14	70
65.	MLM22ME027	Ananthu A Pillai	19	95
66.	MLM22ME028	Anjali K A	16	80
67.	MLM22ME029	Annapoorna B	17	85
68.	MLM22ME030	Arjun Krishna U	18	90
69.	MLM22ME031	Arjun S Gorky	19	80
70.	MLM22ME032	Aromal S (Susheelan)	19	95
71.	MLM22ME033	Aromal S (Sugathakumar)	16	80
72.	MLM22ME034	Aromal Suresh	14	70
73.	MLM22ME035	Arun Ashley	15	75
74.	MLM22ME036	Arunshaji	18	90
75.	MLM22ME037	Ashik B	17	85

Course Coordinator

HOD / ME

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

Attendance of Certificate Course – 3D Printing Technology

Academic Year: 2023-2024 **Batch 2022-2026**

Year: III Semester

S. No	Roll No.	Name of the students	1	2	3	4	5	6	7	8	9	10	Total attendance
1.	MLM22ME039	Aslam B Kabeer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
2.	MLM22ME042	Badusha K S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
3.	MLM22ME043	Chacko Peter	✓	x	✓	✓	✓	x	✓	✓	✓	✓	80
4.	MLM22ME044	C M Ananth Krishna	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	90
5.	MLM22ME045	Devadathan V S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
6.	MLM22ME046	Devanand J	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	90
7.	MLM22ME047	D Yedhuraj	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
8.	MLM22ME048	Ebin Mathew Skaria	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
9.	MLM22ME049	George T Stephen	x	✓	✓	x	✓	✓	✓	✓	✓	✓	80
10.	MLM22ME051	Glodin Tony	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
11.	MLM22ME052	Gokulraj	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
12.	MLM22ME053	Gokul Srihari	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
13.	MLM22ME054	Harish N Omanakuttan	✓	✓	✓	x	x	✓	✓	✓	✓	✓	80
14.	MLM22ME055	Jestin Sam Biju	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
15.	MLM22ME056	Jibin Tomy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
16.	MLM22ME057	Jishnu Sajeev	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
17.	MLM22ME058	Jishnu Vasu	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	90
18.	MLM22ME059	Jiss John Joseph	x	✓	✓	✓	✓	✓	✓	✓	✓	x	80
19.	MLM22ME060	Jithu Sam	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
20.	MLM22ME061	Jubin Biju	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
21.	MLM22ME062	Karthikeyan M S	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	90
22.	MLM22ME063	Mebin Emmanuel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100

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23.	MLM22ME064	Midhun Mohan	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
24.	MLM22ME066	Muhammed Fayas	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
25.	MLM22ME067	Nibil Snobil	✓	x	✓	✓	✓	x	✓	✓	✓	80
26.	MLM22ME069	N S Viswanadhan	✓	✓	✓	✓	x	✓	✓	✓	✓	90
27.	MLM22ME070	Philip Paul	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
28.	MLM22ME071	Renil V Roy	✓	✓	✓	x	✓	✓	✓	✓	✓	90
29.	MLM22ME072	Salaf Sabeer	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
30.	MLM22ME073	Sam James	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
31.	MLM22ME074	Sijo Joseph	x	✓	✓	x	✓	✓	✓	✓	✓	80
32.	MLM22ME075	Sivakrishna S J	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
33.	MLM22ME076	Sreekanth A S	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
34.	MLM22ME078	Visal K S	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
35.	MLM22ME079	Vishnu Lal	✓	✓	✓	x	x	✓	✓	✓	✓	80
36.	MLM22ME080	Vishnu Nampoothiri K.E	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
37.	MLM22ME081	Vishnu Shaji	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
38.	MLM22ME082	Vivek Manu	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
39.	LMLM22ME087	Aswin Krishnan U	✓	✓	✓	✓	x	✓	✓	✓	✓	90
40.	MLM22ME001	Abhijith Aniyan	x	✓	✓	✓	✓	✓	✓	✓	x	80
41.	MLM22ME002	Abhijith Manoj P	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
42.	MLM22ME003	Abhilash Sebastian	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
43.	MLM22ME004	Abhinav K Binu	✓	✓	✓	✓	x	✓	✓	✓	✓	90
44.	MLM22ME005	Abhinav Shibu	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
45.	MLM22ME006	Abin Joseph	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
46.	MLM22ME007	Aboobaker Sidhique	✓	x	✓	✓	✓	x	✓	✓	✓	80
47.	MLM22ME008	Adharsh P S	✓	✓	✓	✓	x	✓	✓	✓	✓	90
48.	MLM22ME009	Adithyan Krishna P R	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
49.	MLM22ME010	Adithyan P	✓	✓	✓	x	✓	✓	✓	✓	✓	90
50.	MLM22ME011	Adwait Joshy	✓	✓	✓	✓	✓	✓	✓	✓	✓	100

51.	MLM22ME012	Afsal V S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
52.	MLM22ME013	Ajith Shaji	x	✓	✓	x	✓	✓	✓	✓	✓	✓	80
53.	MLM22ME014	Akhil Shaji	x	✓	✓	x	✓	✓	✓	✓	✓	✓	80
54.	MLM22ME015	Alan K Rajesh	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	90
55.	MLM22ME016	Alan Sebastian	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
56.	MLM22ME017	Albin Biju	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
57.	MLM22ME018	Albin George	✓	x	✓	✓	✓	x	✓	✓	✓	✓	80
58.	MLM22ME019	Albin Thankachan	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	90
59.	MLM22ME020	Amalkrishnan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
60.	MLM22ME021	Amal Shaji	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	90
61.	MLM22ME022	Amal V Thomas	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	90
62.	MLM22ME023	Amit Jacob T	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
63.	MLM22ME024	Anandakrishnan P	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	90
64.	MLM22ME026	Anandhu A S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
65.	MLM22ME027	Ananthu A Pillai	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
66.	MLM22ME028	Anjali K A	x	✓	✓	x	✓	✓	✓	✓	✓	✓	80
67.	MLM22ME029	Annapoorna B	x	✓	✓	x	✓	✓	✓	✓	✓	✓	80
68.	MLM22ME030	Arjun Krishna U	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	90
69.	MLM22ME031	Arjun S Gorky	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
70.	MLM22ME032	Aromal S (Susheelan)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
71.	MLM22ME033	Aromal S (Sugathakumar)	✓	x	✓	✓	✓	x	✓	✓	✓	✓	80
72.	MLM22ME034	Aromal Suresh	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	90
73.	MLM22ME035	Arun Ashley	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100
74.	MLM22ME036	Arunshaji	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	90
75.	MLM22ME037	Ashik B	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	90

Course Coordinator **HOD / ME**

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

Certificate Course – 3D Printing Technology
Question Paper

Academic Year: 2023-2024 *Batch 2022-2026*
Year: II & III Semester *Time: 30 Minutes*
Max. Marks: 20

1) What is the tool we use to fix sharp edges?
   A. fix
   B.part
   C.smooth
   D.chamfer
2) What tool do we use to cut a hole into a shape?
   A. Scale
   B.Extrude
   C.Combine
   D.None of the above
3) What is the shortcut to re-size a model?
   A. r B.s C.p D.t
4) The view cube always rotates things in 3 dimensions except when we turn on .....
   A. flat views
   B.camera views
   C.architect views
   D.orthographic views
5) What is the file format we would save from Google Drawing?
   A. svg B.stl C.gif D.None of the above
6) Could we do 3d modeling on both a mac and windows computer?
   A. Yes
   B.No
7) What does PLA stand for?
   A. Polyester Liquid Acid
   B.Polylactic Augment
   C.Polylactic Acid
   D.Potentially Loud Argement
8) What does SLS stand for?
   A. Selective Laser Solution
   B.Selective Liquid Sintering
   C.Selective Laser Sintering
   D.Standard Laser Selection
9) One of the most common uses of 3D printing in industry is to make
   A. Cars B.Food C.Computers D.Prototypes
10) What does CAD stand for?
   A. Computer Aided Design
   B.Computer Abled Design
   C.Computer Aligned Design
   D.Computer Archived Design

11) What is 3D printing?
A. It is the construction of a three-dimensional object from a CAD model
B.It is the construction of a two-dimensional object from a CAD model
C.It is the construction of a object from a CAD model
D.None of the above

12) 3D printing is also known as .....
A. HD Printing
B.3 Design Printing
C.Additive manufacturing
D.None of the above

13) What material is not used in 3D printing?
A. PLA
B.Nylon
C.PVC
D.ABS

14) The concept of 3D-printing was first described by .....
A. Murray Leinster
B.Larry Page
C.Sergery Bin
D.None of the above

15) What does the SLS stand for?
A. separated light sintering
B.Selective Laser Sintering
C.Selective lithographic solution
D.None of the above

16) What is the most important thing we should consider when making something in 3d?
A. Size
B.Quality
C.Gravity
D.Functionality

17) What is the file format we export to print?
A. stj
B.slt
C.stl
D.None of the above

18) What is the full form of 3d?
A. 2 Dimensions
B.3 Dimensions
C.3 Directions
D.None of the above

19) What can be 3d printed?
A. Movies
B.Sculptures
C.Computer graphics
D.All of the above

20) The lines of a model are called .....
A. lines B.points C.spaces D.edges

Course Coordinator **HOD / ME**

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

Certificate Course – 3D Printing Technology

Answer Key

Academic Year: 2023-2024 **Batch 2022-2026**

Year: II & III Semester

Max. Marks: 20 **Time: 30 Minutes**

1) What is 3D printing?
A. It is the construction of a three-dimensional object from a CAD model (1 Mark)

2) 3D printing is also known as .....
C. Additive manufacturing (1 Mark)

3) What material is not used in 3D printing?
D.ABS (1 Mark)

4) The concept of 3D-printing was first described by .....
B. Larry Page (1 Mark)

5) What does the SLS stand for?
C. Selective lithographic solution (1 Mark)

6) What is the most important thing we should consider when making something in 3d?
B. Quality (1 Mark)

7) What is the file format we export to print?
C. stl (1 Mark)

8) What is the full form of 3d?
B.3 Dimensions (1 Mark)

9) What can be 3d printed?
B. Sculptures (1 Mark)

10) The lines of a model are called .....
D. edges (1 Mark)

11) What is the tool we use to fix sharp edges?
A. fix (1 Mark)

12) What tool do we use to cut a hole into a shape?
B. Extrude (1 Mark)

13) What is the shortcut to re-size a model?
D.t (1 Mark)

14) The view cube always rotates things in 3 dimensions except when we turn on ..
D. orthographic views (1 Mark)

15) What is the file format we would save from Google Drawing?
B. stl (1 Mark)

16) Could we do 3d modeling on both a mac and windows computer?
A. Yes (1 Mark)

17) What does PLA stand for?
A. Polyester Liquid Acid (1 Mark)

18) What does SLS stand for?
C. Selective Laser Sintering (1 Mark)

19) One of the most common uses of 3D printing in industry is to make
D. Prototypes (1 Mark)

20) What does CAD stand for?
A. Computer Aided Design (1 Mark)

Course Coordinator **HOD / ME**

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DEPARTMENT OF MECHANICAL ENGINEERING

Consolidated feedback form

Sl. No		Strongly Disagree (1)	Disagree (2)	Partially agree (3)	Agree (4)	Strongly agree (5)
1	The course contents met with your expectations	0	0	17	27	10
2	The lecture sequence was well planned	0	0	21	25	12
3	The contents were illustrated wit	0	0	6	19	19
4	The level of the course was	0	0	17	27	10
5	The course contents compared with your expectations	0	0	21	25	12
6	The course exposed you to new knowledge and practices	0	0	14	19	11
7	Will you recommend this course to your colleagues?	0	0	17	27	10
8	The lectures were clear and easy to understand	0	0	21	25	12
9	The teaching aids were effectively used	0	0	6	19	19
10	The course material handed out was adequate	0	0	17	27	10
11	The instructors encouraged interaction and were helpful	0	0	17	27	10

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FEEDBACK FORM 3D Printing

NAME OF THE STUDENT *

CLASS *

1. Did you acquire **engineering knowledge** from the program. *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

2. Were you able to do some **problem analysis** and reach substantiated conclusions *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

3. Were you able to design **solutions for complex engineering problems and design system components or processes** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

4. You were able to conduct investigations on complex problems,**acquire research-based and provide valid conclusions.** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

5. Were you able to understand any **modern tool usage** from this program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

6. Were you able to get information about **engineer and society** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

7. Were you able to acquire knowledge about **environment and sustainability** *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

8. Were you able to improve or acquire knowledge about the professional **ethics** from the program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

9. Were you able to improve **individual and team work** efforts from the program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

10. Did you benefit in **communication or writing skills** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

11. Were you able to gain knowledge on **project management and financial management** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

12. Did the program help in your **lifelong learning process.** *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

13. Were you able to **identify, formulate design and analyze the contemporary challenges and engineering problems** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

14. Were you able to provide solutions by incorporating **innovative ideas on product design and development** to conquer the challenges in core mechanical sectors, business and other related fields. *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

How do you rate the overall conduction of the program *

	1	2	3	4	5	
Poor	○	○	○	○	◉	Very Good

Any other suggestion

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FEEDBACK FORM 3D Printing

NAME OF THE STUDENT *

CLASS *

1. Did you acquire **engineering knowledge** from the program *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

2. Were you able to do some problem analysis and reach substantiated conclusions *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

3. Were you able to assign solutions for complex engineering problems and design system components or processes

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

4. You were able to conduct investigations on complex problems acquire research based and provide valid conclusions

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

5. Were you able to understand any modern tool usage from this program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

6. Were you able to get information about engineer and society

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

7. Were you able to acquire knowledge about **environment and sustainability** *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

8. Were you able to improve or acquire knowledge about the professional ethics from the program

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

9. Were you able to improve **individual and team work efforts** from the program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

10. Did you benefit in **communication or writing skills** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

11. Were you able to gain knowledge on **project management and financial management** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

12. Did the program help in your **lifelong learning process** *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

13. Were you able to identify, formulate design and analyze the contemporary challenges and engineering problems

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

14. Were you able to provide solutions by incorporating innovative ideas on product design and development to conquer the challenges in core mechanical sectors, systems and other related fields

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

How do you rate the overall conduction of the program *

	1	2	3	4	5	
Poor	○	○	○	○	◉	Very Good

Any other suggestion

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FEEDBACK FORM 3D Printing

NAME OF THE STUDENT *

Asher P Kabeer

CLASS

[illegible] 3D Printing

1. Did you acquire **engineering knowledge** from the program. *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

2. Were you able to acquire knowledge about **environment and sustainability** *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

3. Were you able to improve or acquire knowledge about the professional **ethics** from the program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

9. Were you able to improve **individual and team work** efforts from the program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

10. Did you benefit in **communication** or writing **skills** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

11. Were you able to gain knowledge on **project management and financial management** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

2. Were you able to do some **problem analysis** and reach substantiated conclusions *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

3. Were you able to design **solutions for complex engineering problems and design system components or processes**

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

4. You were able to conduct investigations on complex problems, **acquire research-based and provide valid conclusions.**

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

5. Were you able to understand any **modern tool usage** from this program *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

6. Were you able to get information about **engineer and society** *

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

12. Did the program help in your **lifelong learning process.** *

	0	1	2	3	
Poorly accomplished	○	○	◉	○	Highly accomplished

13. Were you able to **identify, formulate design and analyze the contemporary challenges and engineering problems**

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

14. Were you able to provide solutions by incorporating **innovative ideas on product design and development** to conquer the challenges in core mechanical sectors, business and other related fields.

	0	1	2	3	
Poorly accomplished	○	○	○	◉	Highly accomplished

How do you rate the overall conduction of the program *

	1	2	3	4	5	
Poor	○	○	○	○	◉	Very Good

Any other suggestion

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MANGALAM COLLEGE OF ENGINEERING

Syllabus	ME
B.Tech in Mechanical Engineering	Branch: B.Tech in Mechanical Engineering
Semester: MINOR	Academic Year: 2023-24
Course Code: MET 286	L-T-P Credits: 3-1-0-4	Course Name: MANUFACTURING TECHNOLOGY

Preamble

1. To [illegible] and basic manufacturing processes of casting and welding
2. P[illegible] detail discussion on the welding process and the physics of welding.
3. To [illegible] mechanisms of material removal in EBM and EDM process
4. To [illegible] the different forming process of forging, extrusion and drawing.
5. To [illegible] the different fabrication of microelectronic devices

Pre-requisites

ME [illegible] Material Science & Technology (Minor)

Sl. NO	Topics	Contact Hours	Exam Score
1	Metal casting :-sand casting:- shell molding, evaporative pattern casting, investment casting, permanent mold casting, vacuum casting, slush casting, pressure casting, die casting, centrifugal casting, squeeze casting, semi solid metal forming, casting for single crystal, casting defects.		
2	Powder metallurgy :-powder production methods; powder characteristics; blending, mixing; compaction of metal powders; sintering fundamentals and mechanisms; infiltration and impregnation - Welding: arc welding: non consumable electrodes; heat affected zone; quality; case study and weld ability of metals.		
3	Consumable electrodes; electron and laser beam welding; heat affected zone; power density; weld quality; case study; applications - Brazing:- filler metals, fluxes, joint strength; brazing methods, applications -Soldering:- solders and fluxes - soldering methods - solder ability, case study, typical joint designs, applications.		
4	Metal forging: quality, defects -Metal extrusion: process, defects, applications - Metal drawing process, drawing practice, defects, applications - Fabrication of microelectronic devices - crystal growing and wafer preparation - Film deposition - oxidation - Photo lithography		
5	Different lithography methods - Etching, wet etching, dry etching- diffusion and Ion implantationmetallization and testing - wire bonding and packing - yield and reliability - Fabrication of micro electro mechanical devices.		

References

1. [illegible] in/courses/103106075/
2. P[illegible] tal Casting – Flinn and Rosenthal
3. M[illegible] rocesses in Manufacturing - Paul Degarma E and Ronald A. Kosher
4. M[illegible] Technology Foundry, Forming and Welding – P. N. Rao

Text Books

1. S[illegible] an, Steven R. Schmid - Manufacturing Engineering and Technology, seventh edi[illegible]

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Schedule	ME
B.Tech in Mechanical Engineering	Branch: B.Tech in Mechanical Engineering
Semester: MINOR	Academic Year: 2023-24
Course Code: MET 286 L-T-P Credits: 3-1-0-4	Course Name: MANUFACTURING TECHNOLOGY

Day	I	II	III	IV	V	VI	VII	VIII
MONDAY								
TUESDAY								
WEDNESDAY						MT	MT	
THURSDAY						MT	MT	
FRIDAY								
SATURDAY								
SUNDAY								

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Student List	ME
B.Tech in Mechanical Engineering	Branch: B.Tech in Mechanical Engineering
Semester: MINOR	Academic Year: 2023-24
MET 286	L-T-P Credits: 3-1-0-4	Course Name: MANUFACTURING TECHNOLOGY

Sl. NO	Roll No.	Name	Gender	Reg. No.	Admission No.
1	2	ADITHYA A ANANTH	male	MLM22CH002	16698
2	17	THEJUS J	male	MLM22CH019	16703

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MANGALAM COLLEGE OF ENGINEERING

Attendance	ME
B.Tech in Mechanical Engineering	Branch: B.Tech in Mechanical Engineering
Semester: MINOR	Academic Year: 2023-24
Course Code: MET 286 L-T-P Credits: 3-1-0-4	Course Name: MANUFACTURING TECHNOLOGY

Roll No	Student	Attendance Types	Present	Absent	Total	%
		P				
[redacted]	ADITHYA A ANANTH	41	41	0	41	100
[redacted]	TIEJUS J	41	41	0	41	100

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MANGALAM COLLEGE OF ENGINEERING

Internal Evaluation Report

ME

B.Tech in Mechanical Engineering | Branch: B.Tech in Mechanical Engineering

Semester: MINOR | Academic Year: 2023-24

Course Code: MET 286 | L-T-P Credits: 3-1-0-4 | Course Name: MANUFACTURING TECHNOLOGY

Roll. NO	Student	Attendance		Assessments				Assignments						Score Summary			
		Count	%	Activity 1		Activity 2		Activity 1		Activity 2		Activity 3		Attendance	Assessments	Assignments	Total
				SC.	WT.	SC.	WT.	SC.	WT.	SC.	WT.	SC.	WT.	10	25	15	50
				40	100%	40	100%	10	100%	10	100%	10	100%				
2	ADITHYA A ANANTH	41/41	100	33	82.5	31	77.5	10	100	10	100	10	100	10	20	15	45
17	THEJUS J	41/41	100	32	80	31	77.5	10	100	10	100	10	100	10	19.69	15	45

Abbreviations: SC - Score, WT - Weightage

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Assessments			
		Maximum Score	% of Weightage
Activity 1	first internal exam march 2024	40	100
Activity 2	second internal exam april 2024	40	100

Assignments			
Code	Name	Maximum Score	% of Weightage
Activity 1	assignment 1	10	100
Activity 2	assignment 2	10	100
Activity 3	open book exam	10	100

Calculations:

Attendance:

Score of a student for Attendance= (no. of present/ max. no. of attendance) * Maximum score for attendance

Assessment / Assignment:

% of Score of a student for an Activity = (student score/ max. score of Activity) * (% of weightage of Activity / 100)

If best score selection applcable then only number of best scores from all exams will be considerd for % of Score of student in all Activity's

% of Score of student in all Activity's = sum(% of Score of a student for an Activity) / number of Activity's

Score of a student for Assessments = % of Score of student in all Activity's * Maximum score for Assessment

Total internal mark:

Total Score= Score of a student for Attendance + Score of a student for Assessments + Score of a student for Assignments

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DEPARTMENT OF MECHANICAL ENGINEERING

IN ASSOCIATION WITH

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

Add On Course on

AUTO CAD (MECHANICAL)



18.11.2023
TO
18.12.2023



Duration
96 Hours

Syllabus

- Introduction to drafting software Auto CAD
- Assembly and part drawings of simple assemblies and subassemblies of machine parts

VISION

To be a center of excellence in Mechanical Engineering by creating innovative and socially responsible technocrats to meet the global challenges.

MISSION

1. To provide qualitative technical knowledge in the domain of Mechanical Engineering to compete in the global scenario.
2. To nurture socially committed Mechanical Engineers through value based education.
3. To enhance the research ability of knowledge seekers for the changing needs of society.

FACULTY COORDINATOR
Dr. Manikandan H

Mangalam
College of Engineering
Ettumanoor Kottayam

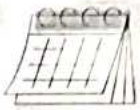
DEPARTMENT OF MECHANICAL ENGINEERING

IN ASSOCIATION WITH

MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)

Add On Course on

CREO PARAMETRIC



07.11.2023 to 14.03.2024

Syllabus

- Introduction to 3D coordinates, Solid Modelling, Part Drawing, Part Assembly.
- Manufacturing Module, Tool Workpiece system Design, Optimization in manufacturing, Selection of Proper production process, CNC Programme generation using CREO, Programe Transfer to CNC Machine



Duration 96 Hours

VISION

To be a center of excellence in Mechanical Engineering by creating innovative and socially responsible technocrats to meet the global challenges.

MISSION

1. To provide qualitative technical knowledge in the domain of Mechanical Engineering to compete in the global scenario.
2. To nurture socially committed Mechanical Engineers through value based education.
3. To enhance the research ability of knowledge seekers for the changing needs of society.

FACULTY COORDINATOR
Dr. Manikandan H

Mangalam College of Engineering
Ettumanoor Kottayam

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
Ministry of Micro, Small and Medium Enterprises
भारत सरकार की संस्था
Government of India Society
फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)
Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 207643

प्रमाण-पत्र

Certificate

This is to certify that

Mr. Albin Biju

S/o Mr. Bijumon V

has successfully completed the training

on

CREO PARAMETRIC

from 07.11.2023 to 14.03.2024 (96 hrs.)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

PLACE : AGRA
DATE : November 16, 2024

(RAJESH KUMAR PALANI)
EXTN.CENTRE INCHARGE/
PROGRAMME COORDINATOR

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2024-25/16286

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Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 207647

प्रमाण-पत्र

Certificate

This is to certify that

Mr. Bibin John

S/o Mr. Binu John

has successfully completed the training

on

CREO PARAMETRIC

from 07.11.2023 to 14.03.2024 (96 hrs.)

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DATE : November 16, 2024

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Ettumanoor

(RAJESH KUMAR PALANI)
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PROGRAMME COORDINATOR

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2024-25/16290

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सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

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Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 207642

प्रमाण-पत्र

Certificate

This is to certify that

Mr. Rejath Rajan

S/o Mr. Rajan K T

has successfully completed the training

on

CREO PARAMETRIC

from 07.11.2023 to 14.03.2024 (96 hrs.)

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DATE : November 16, 2024

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PROGRAMME COORDINATOR

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2024-25/16285

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र
MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
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Government of India Society
फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)
Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 207646

प्रमाण-पत्र

Certificate

This is to certify that

Mr. Amal Jacob

S/o Mr. Jacob Kuruvilla

has successfully completed the training

on

CREO PARAMETRIC

from 07.11.2023 to 14.03.2024 (96 hrs.)

PLACE : AGRA
DATE : November 16, 2024

PRINCIPAL
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Ettumanoor

(RAJESH KUMAR PALANI)
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PROGRAMME COORDINATOR

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2024-25/16289

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Ministry of Micro, Small and Medium Enterprises

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Government of India Society

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 207644

प्रमाण-पत्र

Certificate

This is to certify that

Mr. Adarsh M

S/o Mr. Mahendran P K

has successfully completed the training

on

CREO PARAMETRIC

from 07.11.2023 to 14.03.2024 (96 hrs.)

PLACE : AGRA
DATE : November 16, 2024

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

(RAJESH KUMAR PALANI)
EXTN.CENTRE INCHARGE/
PROGRAMME COORDINATOR

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2024-25/16287

एम.एस.एम.ई.- प्रौद्योगिकी विकास केन्द्र

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सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय

Ministry of Micro, Small and Medium Enterprises

भारत सरकार की संस्था

Government of India Society

फाउन्ड्री नगर, आगरा–282 006 (उ.प्र.)

Foundry Nagar, Agra-282 006 (U.P.)

Reg. No : 207645

प्रमाण-पत्र

Certificate

This is to certify that

Mr. Abhishek D

S/o Mr. Dileep Kumar K

has successfully completed the training

on

CREO PARAMETRIC

from 07.11.2023 to 14.03.2024 (96 hrs.)

PRINCIPAL
MANGALAM COLLEGE OF ENGINEERING
Ettumanoor

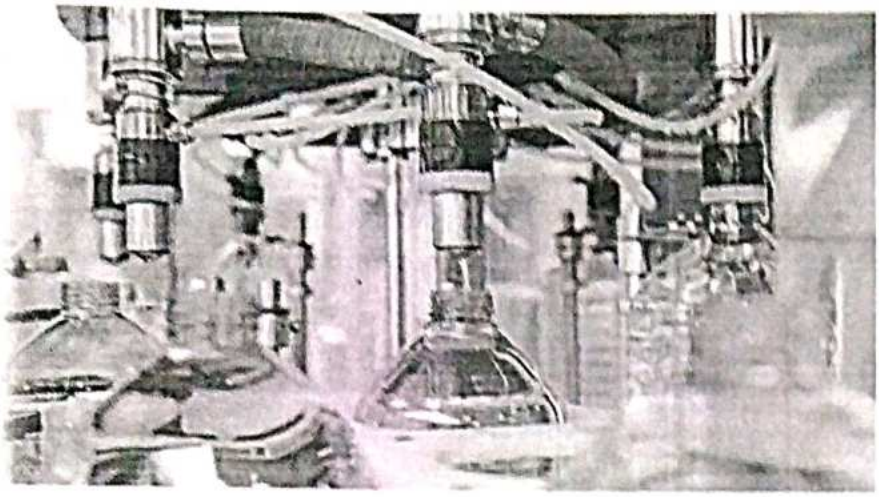
PLACE : AGRA
DATE : November 16, 2024

(RAJESH KUMAR PALANI)
EXTN.CENTRE INCHARGE/
PROGRAMME COORDINATOR

MSME-TDC (PPDC) AGRA

(SACHIN RAJPAL)
PRINCIPAL DIRECTOR

No. PPDC/Trg./OSP/2024-25/16288



CERTIFICATE COURSE
ON

INTRODUCTION TO WATER MANAGEMENT

Course Content

- ✓ Introduction to Water Management-
- ✓ Water purification systems
- ✓ Types of drip irrigation systems
- ✓ Watershed development and management

e: 13.05.2024

विश्वं शास्त्रे प्रतिष्ठितम्।

ordinator: Ms. ARUNEKHA C, Asst.Prof., Chemical Engineering

VISION

To be the center of excellence in the field of chemical engineering with high quality in academics and research

Mission

1. To develop innovative thinking with the spirit of innovation for the best professional exemplary.

2.To nurture highly skilled chemical engineers and technocrats.

3. To enhance the professionalism with the green engineering and promotion of advanced alternative technologies.

Industry 4.0

MANGALAM COLLEGE OF ENGINEERING
Mangalam Hills, Vettimukal P O
Ettumanoor, Kottayam 686631

Time 09.00AM to 3.30PM

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DEPARTMENT OF CHEMICAL ENGG.
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ETTUMANOOR - 686 631

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DEPARTMENT OF CHEMICAL ENGINEERING

Detailed Explanation of Course

Batch :2023-2027

Academic Year: 2023-2024

Year: I Year

The main objective of the course was to provide the students with a solid foundation in fundamental science of Water Management for chemical engineering, and technology in order for them to be effective innovators andentrepreneurs in the field of Chemical Engineering.

The course was offered for First year chemical students of Mangalam college of engineering. The course was designed with four modules and course was conducted from 13.05.2024 to 17.05.2024. Certificate was provided with students those who have 80 % of Attendance and scored 60 % in internal exam evaluation

No of students Registered	No of Students participated	No of Students Passed	No of students Eligible for Certificate
19	19	19	19

Course Coordinator

HOD/CHEM

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DEPARTMENT OF CHEMICAL ENGINEERING

INTRODUCTION TO WATER MANAGEMENT

Module	Topics	L Hrs
1	Introduction to Water Management- Introduction to the various sources of wastewater, brief about conventional, centralized, and decentralized treatment options. Basics on Sanitation and Liquid Waste Management. Introduction to Grey water and black water treatment options,	12
2	Water purification systems – Water purification systems in natural systems – Physical, chemical, and biological processes, Primary, Secondary and Treatment.	6
3	Types of drip irrigation systems – Design of drip irrigation systems; water and salt distribution; Emitter clogging; water treatment; Automation; Field performance and evaluation.	6
4	Watershed development and management- Watershed Development and Management Concept of watershed development and management; collection of hydrological data; watershed characteristics and hydrologic cycle; problems of land degradation	6

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From Head of the Department,
Chemical Engineering,
Mangalam College of Engineering,
Ettumanoor.

To The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 02/05/2024 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

S.No	Name of Add on Course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	INTRODUCTION TO WATER MANAGEMENT	2023/S3	30Hrs	Ms. Arunekha C

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-CHEM

DEPARTMENT OF CHEMICAL ENGG
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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

List of Students Enrolled for Certificate course – INTRODUCTION TO WATER MANAGEMENT

Academic Year: 2023-2024 Batch 2023-2027 Year: I Year

Sl.No	Roll No.	Name of the students
1	MLM23CH001	ABDUL JALEEL P N
2	MLM23CH002	ABIN P ANISH
3	MLM23CH003	AFINA NOUSHAD
4	MLM23CH007	AMBILY GHOSH
5	MLM23CH009	ANEENAKRISHNA E A
6	MLM23CH010	ANEETA SEBASTIAN
7	MLM23CH011	ANOOP A
8	MLM23CH012	ASWIN RENNY
9	MLM23CH013	CHRIS SAVIO P JOHN
10	MLM23CH014	DHANALEKSHMI B
11	MLM23CH015	GAUTHAM KRISHNA M A
12	MLM23CH016	HELAN ROSE BIJOY
13	MLM23CH017	LIJO SABSH
14	MLM23CH018	MIDHUN K M
15	MLM23CH019	SANUSHA UMESH
16	MLM23CH020	SREE HARI
17	MLM23CH021	SREERAM B NAIR
18	MLM23CH022	THASNI T
19	MLM23CH023	VAIDEHI A S

Course Coordinator

HOD/CHEM

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

Department of Chemical Engineering

1.	Academic Year	: 2023-24
2.	Tile of the Course	: INTRODUCTION TO WATER MANAGEMENT
3.	Objective of the Course	:To provide graduates with a solid foundation in fundamental science of Chemical engineering, and technology in order for them to be effective innovators andentrepreneurs in the field of Chemical Engineering.
4.	Prerequisite	: Nil
5.	Requirement	: Seminar Hall
6.	Beneficiary	: S2 Students
7.	Date and Duration of the Course	: 13.05.2024 -17.05.2024 (30 Hours)
8.	Proposed Timing	: 10.00 AM to 04.00 PM **(6 hours per day)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Arunekha C(Assistant Professor)
11.	Course Registration Fees	: Nil
12.	Contents of Courses	: Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: M306 classroom

COURSE COORDINATOR

HOD

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DEPARTMENT OF CHEMICAL ENGINEERING

Department of Chemical Engineering

Circular

Ref: MLM/ ME/ Certificate Course / Circular / 2023-24/ 04 **03.05.2023**

The Department of Chemical Engineering is planned to conduct a certificate course for Second year students. So, it is informed to the students to enroll their names for the course Fundamental of water management for Chemical Engineers which will start on 13.05.2024. Students are asked to enroll their names to their respective class advisor on or before 09.05.2024 The course syllabus is attached.

Name of the Course	: Introduction to Water Management
Course Duration	: 13.05.2024 -17.05.2024
Time Duration	: 10.00 AM-04.00 PM (6 hours per day)

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DEPARTMENT OF CHEMICAL ENGINEERING

Attendance of Certificate course – INTRODUCTION TO WATER MANAGEMENT

Batch 2023-2027

Academic Year: 2023-24

Year: I Year

SLNo	Roll No.	Name of the students	16	17	18	19	20	Total Attendance
1	MLM23CH001	ABDUL JALEEL P N	P	P	P	P	P	100
2	MLM23CH002	ABIN P ANISH	A	P	P	P	P	80
3	MLM23CH003	AFINA NOUSHAD	P	P	A	P	P	80
4	MLM23CH007	AMBILY GHOSH	P	P	P	P	P	100
5	MLM23CH009	ANEENAKRISHNA E A	P	P	A	P	P	80
6	MLM23CH010	ANEETA SEBASTIAN	P	P	P	P	P	100
7	MLM23CH011	ANOOP A	P	P	A	P	P	80
8	MLM23CH012	ASWIN RENNY	A	P	P	P	P	80
9	MLM23CH013	CHRIS SAVIO P JOHN	P	P	P	P	P	100
10	MLM23CH014	DHANALEKSHMI B	P	P	A	P	P	80
11	MLM23CH015	GAUTHAM KRISHNA M A	A	P	P	P	P	80
12	MLM23CH016	HELAN ROSE BIJOY	P	P	P	P	P	100
13	MLM23CH017	LIJO SAJISH	P	P	P	P	P	100
14	MLM23CH018	MIDHUN K M	P	P	P	A	P	80
15	MLM23CH019	SANUSHA UMESH	P	P	P	P	P	100
16	MLM23CH020	SREE HARI	P	P	P	A	P	80
17	MLM23CH021	SREERAM B NAIR	P	P	P	P	P	100
18	MLM23CH022	THASNI T	P	P	P	P	P	100
19	MLM23CH023	VAIDEHI A S	P	P	P	P	A	80

Course Coordinator

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

List of Students Enrolled for Certificate course INTRODUCTION TO WATER MANAGEMENT

Academic Year: 2023-2024 Batch 2023-2027 Year: I Year

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DEPARTMENT OF CHEMICAL ENGINEERING

List of Students Enrolled for Certificate course INTRODUCTION TO WATER MANAGEMENT

Academic Year: 2023-2024 **Batch: 2023-2027**

Year: I Year

Sl. No	Roll No.	Name of the students
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3	MLM23CH003	AFINA NOUSHAD
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16	MLM23CH020	SREE HARI
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19	MLM23CH023	VAIDEHI A S

Course Coordinator

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DEPARTMENT OF CHEMICAL ENGINEERING

Certificate course – INTRODUCTION TO WATER MANAGEMENT

Mark Sheet

Academic Year: 2023-2024

Batch 2023-2027

Year: I Year

Sl. No	Reg. No.	Name of the students	Marks (20)	Out of 100
1	MLM23CH001	ABDUL JALEEL P N	19	95
2	MLM23CH002	ABIN P ANISH	20	100
3	MLM23CH003	AFINA NOUSHAD	16	80
4	MLM23CH007	AMBILY GHOSH	20	100
5	MLM23CH009	ANEENAKRISHNA E A	16	80
6	MLM23CH010	ANEETA SEBASTIAN	17	85
7	MLM23CH011	ANOOP A	16	80
8	MLM23CH012	ASWIN RENNY	20	100
9	MLM23CH013	CHRIS SAVIO P JOHN	18	90
10	MLM23CH014	DHANALEKSHMI B	20	100
11	MLM23CH015	GAUTHAM KRISHNA M A	19	95
12	MLM23CH016	HELAN ROSE BIJOY	18	90
13	MLM23CH017	LIJO SAJISH	19	95
14	MLM23CH018	MIDHUN K M	20	100
15	MLM23CH019	SANUSHA UMESH	19	95
16	MLM23CH020	SREE HARI	17	85
17	MLM23CH021	SREERAM B NAIR	17	85
18	MLM23CH022	THASNI T	16	80
19	MLM23CH023	VAIDEHI A S	19	95

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DEPARTMENT OF CHEMICAL ENGINEERING

INTRODUCTION TO WATER MANAGEMENT

Assessment Test
Each Question Carries by 1 Marks

Date 17.05.2024 **Time 3.00 pm to 4.00 pm (1 hr.)**

Q1 What does SWOT stand for?
a) Solid Waste Operation and Treatment
b) Storm Water Operation and Treatment
c) Supercritical Water Oxidation
d) Storm and Wastewater Operation and Treatment

Q2 What is the combination of using a photocatalyst and UV or visible light for the treatment of wastewater and gaseous pollutants is called?
a) Photocatalysis
b) Super critical water oxidation
c) Advanced oxidation process
d) Wet air oxidation

Q3 In case of Moving Bed Bioreactor and Activated Sludge process which is the factor that limits the rate of the reaction?
a) temperature
b) pressure
c) pH
d) ionic composition

Q4 What is the value of activity coefficients for monovalent and divalent ions for a potable water at an ionic strength of 0.01 M?
a) 0.9 and 0.66 respectively.
b) 0.9 in both the cases
c) 0.66 and 0.9 respectively.
d) 0.66 in both the cases

Q5 Which process is employed to gain sufficient head for the wastewater?
a) Screening
b) Pumping
c) Oxidation
d) Fermentation

Q6. Nitrification efficiency is significantly suppressed as the temperature is _____
a) Increased
b) Decreased

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c) Neutral
d) Maintained

Q7 The part of the precipitation, snowmelt or irrigation water that appears in uncontrolled surface streams is generally called as _____
a) Sewers
b) Drains
c) Runoff
d) Rivers

Q8. What is an artificial channel for conveying water, typically in the form of a bridge across a valley or other gap called?
a) Aquifer
b) Canals
c) Aqueduct
d) Tunnel

Q9. Pressure variation for compressible fluid is maximum for which of the following kind of process?
a) Adiabatic
b) Quasi Static
c) Isothermal
d) None of the mentioned

Q10. What is the wastewater from kitchen sinks called?
a) Grey water
b) Black water
c) Yellow water
d) Brown water

Q11. The area of land where all the precipitation falls will flow downhill into a specific stream called _____
a) Reservoirs
b) Water tanks
c) Water towers
d) Drainage basin

Q12 The water supply consists of a connection point from where the fire fighters can tap water and is called as _____
a) Fire hydrant
b) Fire point
c) Water towers
d) Ditches

Q13. What is the lowest wastewater flow in hospitals?
a) 50 gpcd
b) 700 lpcd
c) 900 lpcd
d) 40 lpcd

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Q14 A graph showing discharge versus time past a specific point in a conduit carrying flow is called?
a) Water flow graph
b) Precipitation graph
c) Hydrograph
d) Variation graph

Q15 Which of the following is not correct with respect to installing the drainage system in the waterlogged land?
a) Increase in water amount in soil
b) Reduction in water amount on soil
c) Discharge of water through the system
d) Reducing waterlogging

Q16 What is the angle between the drains and inspection manholes?
a) 45°
b) 90°
c) 135°
d) 180°

Q17. Which of the following is having highest value of overall heat transfer coefficient?
a) Steam
b) Steam condensers
c) Feed water heaters
d) Alcohol condensers

Q18 Which of the following valves are used in high duty cycle applications?
a) Check valve
b) Clapper valve
c) Ceramic disc valve
d) Choke valve

Q19 What is the other name for the plug valve?
a) Needle valve
b) Slim valve
c) Poppet valve
d) Spool valve

Q20 Which Material of construction is preferred when the valves are going to be fitted for a desalination plant?
a) SS316 L
b) SS304
c) Duplex
d) SS 316

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INTRODUCTION TO WATER MANAGEMENT

Assessment Test

Each Question Carries by 1 Marks

Answer Key

1.C	6.B	11.D	16.D
2.A	7.C	12.A	17.C
3.A	8.C	13.B	18.C
4.A	9.C	14.C	19.B
5.B	10.A	15.A	20.C

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Consolidated Course Feedback
INTRODUCTION TO
WATER MANAGEMENT

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I Year

	Questionnaire	Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A.	Were objectives of the course clear to you?	19	19	0	-	-
B.	The course contents met with your expectations.	19	-	-	17	2
C.	The lecture sequence was well planned	19	-	-	19	0
D.	The contents were illustrated with	19	-	-	18	1
E.	The level of the course was	19	-	-	16	3
F.	The course contents compared with your expectations	19	-	-	18	1
G.	The course exposed you to new knowledge and practices	19	-	-	16	3
H.	Will you recommend this course to your colleagues?	19	-	-	19	0
A.	The lectures were clear and easy to understand	19	-	-	19	0
B.	The teaching aids were effectively used	19	-	-	19	0
C.	The course material handed out was adequate	19	-	-	18	1
D.	The instructors encouraged interaction and were helpful	19	-	-	19	0
E.	Were objectives of the course realized? Y	19	19	0	-	-
F.	Please give overall rating of the course					
	90% - 100%				16	
	80% - 90%				2	
	70% - 80%				1	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

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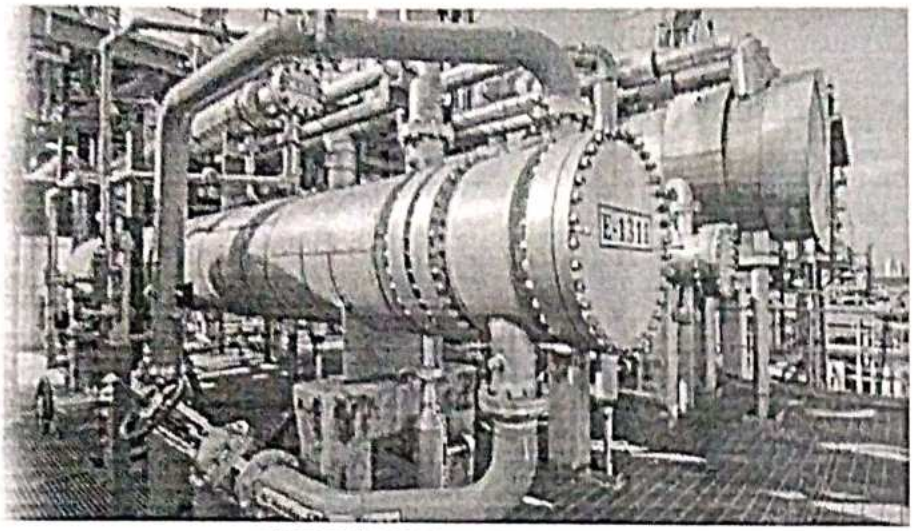

CERTIFICATE COURSE

ON

INTRODUCTION TO HEAT TRANSFER ENGINEERING

urse Content

- ✓ Introduction to Heat Transfer Engineering
- ✓ Types of Heat Exchangers
- ✓ Tube Constructions.
- ✓ Heat Exchangers basic process control

e: 20.11.2023

विश्वं शास्त्रे प्रतिष्ठितम्।

ordinator: Ms. ARUNEKHA C, Asst.Prof., Chemical Engineering

VISION

To be the center of excellence in the field of chemical engineering with high quality in academics and research

Mission

1. To develop innovative thinking with the spirit of innovation for the best professional exemplary.

2.To nurture highly skilled chemical engineers and technocrats.

3. To enhance the professionalism with the green engineering and promotion of advanced alternative technologies.

Industry 4.0

MANGALAM COLLEGE OF ENGINEERING
Mangalam Hills, Vettimukal P O
Ettumanoor, Kottayam 686631

Time 09.00AM to 3.30PM

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DEPARTMENT OF CHEMICAL ENGINEERING

Introduction to Heat Transfer Engineering

Module	Topics	L Hrs
1	Introduction to Heat Transfer Engineering develop the fundamental principles and laws of heat transfer and to explore the implications of these principles for system behavior. Fourier's law Conduction processes, Thermal resistance	12
2	Types of Heat Exchangers Shell & Tube Heat Exchangers: Overview Shell & Tube Heat Exchangers: Floating tube sheet Air coolers: Overview, Air coolers: Forced draft / Induced draft exchangers, Fired heaters overview	6
3	Tube Constructions. Introduction to tube construction, Tube side header, Finned tubes, Tube layout, Tube sheet, Single lance tube cleaner, Ultrasonic cleaning of heat exchangers,	6
4	Heat Exchangers basic process control Introduction to basic process control, Direct control system, Heat transfer for heat recovery, Back pressure control, Basic fired heater control.	6

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Detailed Explanation of Course

Academic Year: 2023-2024 **Batch :2022-2026**

Year: II Year

The main objective of the course was to provide the students with a solid foundation in fundamental science of to heat transfer engineering, and technology in order for them to be effective innovators andentrepreneurs in the field of Chemical Engineering.

The course was offered for Second year chemical students of Mangalam college of engineering. The course was designed with four modules and course was conducted from 20.11.2023 to 24.10.2023. Certificate was provided with students those who have 80 % of Attendance and scored 60 % in internal exam evaluation

No of students Registered	No of Students participated	No of Students Passed	No of students Eligible for Certificate
27	27	27	27

Course Coordinator

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DEPARTMENT OF CHEMICAL ENGINEERING

List of Students Enrolled for Certificate course – Introduction to heat transfer engineering

Academic Year: 2023-2024 Batch 2022-2026 Year: II Year

SLNo	Roll No.	Name of the students
1	MLM22CH001	ADARSH AJAYAKUMAR
2	MLM22CH002	ADITHYA A ANANTH
3	MLM22CH003	ADITHYA ANIL
4	MLM22CH004	ANAGHA SUNILKUMAR
5	MLM22CH005	ANEENA REJI
6	MLM22CH006	ANUDEEP MP
7	MLM22CH008	ATHUL KRISHNA B
8	MLM22CH009	BLESSON P JOHNSON
9	MLM22CH010	JOSHWA P D
10	MLM22CH011	KRISHNENDU P S
11	MLM22CH013	MALAVIKA PRABHAKARAN
12	MLM22CH014	MUHAMMED RAYYAN
13	MLM22CH015	NIKHIL K THOMAS
14	MLM22CH016	NIRANJAN PRAKASAN
15	MLM22CH017	RAYAN SUDHEER
16	MLM22CH018	SHAMLA N
17	MLM22CH019	THEJUS J
18	MLM22CH020	VIMAL VIJAY
19	MLM22CH021	YADHU KRISHNA E S
20	LMLM22CH022	AKSHAYDEV K S
21	LMLM22CH023	JEEVAN REJI
22	LMLM22CH024	KAVYA BABU
23	LMLM22CH025	MAHIN T. N
24	LMLM22CH026	MANAV SATHEESAN
25	LMLM22CH027	MUHAMMED BILAL KS
26	LMLM22CH028	MUHAMMED JABIR ANSARI
27	LMLM22CH029	NAYAN P MENON

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From Head of the Department,
Chemical Engineering,
Mangalam College of Engineering,
Ettumanoor.

To The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 17/11/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024;

S.No	Name of Add on Course	Year/ Semester	Total No of Hours	Faculty Coordinator
1	Introduction to heat transfer engineering	2023/S3	30Hrs	Ms. Aruneksha C

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-CHEM

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DEPARTMENT OF CHEMICAL ENGINEERING

Department of Chemical Engineering

Circular

Ref: MLM/ ME/ Certificate Course / Circular / 2023-24/ 03 **08.11.2023**

The Department of Chemical Engineering is planned to conduct a certificate course for Second year students. So, it is informed to the students to enroll their names for the course Chemical Engineering Fundamentals which will start on 20.11.2023. Students are asked to enroll their names to their respective class advisor on or before 16.11.2022 The course syllabus is attached.

Name of the Course : Introduction to heat transfer engineering

Course Duration : 20.11.2023 -24.11.2023

Time Duration : 10.00 AM-04.00 PM (6 hours per day)

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DEPARTMENT OF CHEMICAL ENGINEERING

Department of Chemical Engineering

1.	Academic Year	: 2023-24
2.	Tile of the Course	: Introduction to heat transfer engineering
3.	Objective of the Course	:To provide graduates with a solid foundation in fundamental science of Chemical engineering, and technology in order for them to be effective innovators andentrepreneurs in the field of Chemical Engineering.
4.	Prerequisite	: Nil
5.	Requirement	: Seminar Hall
6.	Beneficiary	: S3 Students
7.	Date and Duration of the Course	: 20.11.2023 -24.11.2023 (30 Hours)
8.	Proposed Timing	: 10.00 AM to 04.00 PM **(6 hours per day)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Arunekha C (Assistant Professor)
11.	Course Registration Fees	: Nil
12.	Contents of Courses	: Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: Online

COURSE COORDINATOR

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Attendance of Certificate course – Introduction to heat transfer engineering

Batch 2022-2026

Academic Year: 2023-24

Year: II Year

Sl.No	Roll No.	Name of the students	08	09	10	11	12	Total Attendance
1	MLM22CH001	ADARSH AJAYAKUMAR	P	P	P	A	P	80
2	MLM22CH002	ADITHYA A ANANTH	P	P	P	P	P	100
3	MLM22CH003	ADITHYA ANIL	P	P	A	P	P	80
4	MLM22CH004	ANAGHA SUNILKUMAR	P	P	P	P	P	100
5	MLM22CH005	ANEENA REJI	P	P	A	P	P	80
6	MLM22CH006	ANUDEEP MP	P	P	P	P	P	100
7	MLM22CH008	ATHUL KRISHNA B	P	P	P	P	P	100
8	MLM22CH009	BLESSON P JOHNSON	P	P	P	P	P	100
9	MLM22CH010	JOSHWA P D	P	P	P	P	P	100
10	MLM22CH011	KRISHNENDU P S	P	P	A	P	P	80
11	MLM22CH013	MALAVIKA PRABHAKARAN	A	P	P	P	P	80
12	MLM22CH014	MUHAMMED RAYYAN	P	P	P	P	P	100
13	MLM22CH015	NIKHIL K THOMAS	P	P	P	P	P	100
14	MLM22CH016	NIRANJAN PRAKASAN	P	P	P	A	P	80
15	MLM22CH017	RAYAN SUDHEER	P	P	P	P	P	100
16	MLM22CH018	SHAMLA N	P	P	P	A	P	80
17	MLM22CH019	THEJUS J	P	P	P	P	P	100
18	MLM22CH020	VIMAL VIJAY	P	P	P	P	P	100
19	MLM22CH021	YADHU KRISHNA E S	P	P	P	P	A	80
20	LML22CH022	AKSHAYDEV K S	P	P	P	A	P	80
21	LML22CH023	JEEVAN REJI	P	A	P	P	P	80
22	LML22CH024	KAVYA BABU	P	P	A	P	P	80
23	LML22CH025	MAHIN T. N	P	P	P	P	P	100
24	LML22CH026	MANAV SATHEESAN	P	P	P	A	P	80
25	LML22CH027	MUHAMMED BILAL KS	P	P	P	P	P	100
26	LML22CH028	MUHAMMED JABIR ANSARI	P	P	P	P	P	100
27	LML22CH029	NAYAN P MENON	P	P	P	P	P	100

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List of Students Enrolled for Certificate course – Introduction to heat transfer engineering

Academic Year: 2023-2024 Batch 2022-20256 Year: II Year

Sl. No	Roll No.	Name of the students
1	MLM22CH001	ADARSH AJAYAKUMAR
2	MLM22CH002	ADITHYA A ANANTH
3	MLM22CH003	ADITHYA ANIL
4	MLM22CH004	ANAGHA SUNILKUMAR
5	MLM22CH005	ANEENA REJI
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25	LMLM22CH027	MUHAMMED BILAL KS
26	LMLM22CH028	MUHAMMED JABIR ANSARI
27	LMLM22CH029	NAYAN P MENON

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DEPARTMENT OF CHEMICAL ENGINEERING

Certificate course – Introduction to heat transfer engineering

Mark Sheet

Batch 2022-2026

Academic Year: 2023-2024

Year: II Year

Sl. No	Reg. No.	Name of the students	Marks (20)	Out of 100
1	MLM22CH001	ADARSH AJAYAKUMAR	19	95
2	MLM22CH002	ADITHYA A ANANTH	16	80
3	MLM22CH003	ADITHYA ANIL	16	80
4	MLM22CH004	ANAGHA SUNILKUMAR	20	100
5	MLM22CH005	ANEENA REJI	16	80
6	MLM22CH006	ANUDEEP MP	17	85
7	MLM22CH008	ATHUL KRISHNA B	20	100
8	MLM22CH009	BLESSON P JOHNSON	20	100
9	MLM22CH010	JOSHWA P D	18	90
10	MLM22CH011	KRISHNENDU P S	20	100
11	MLM22CH013	MALAVIKA PRABHAKARAN	19	95
12	MLM22CH014	MUHAMMED RAYYAN	18	90
13	MLM22CH015	NIKHIL K THOMAS	17	85
14	MLM22CH016	NIRANJAN PRAKASAN	20	100
15	MLM22CH017	RAYAN SUDHEER	19	95
16	MLM22CH018	SHAMLA N	17	85
17	MLM22CH019	THEJUS J	17	85
18	MLM22CH020	VIMAL VIJAY	16	80
19	MLM22CH021	YADHU KRISHNA E S	19	95
20	LMLM22CH022	AKSHAYDEV K S	15	75
21	LMLM22CH023	JEEVAN REJI	19	95
22	LMLM22CH024	KAVYA BABU	15	75

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23	LMLM22CH025	MAHIN T. N	19	95
24	LMLM22CH026	MANAV SATHEESAN	16	80
25	LMLM22CH027	MUHAMMED BILAL KS	18	90
26	LMLM22CH028	MUHAMMED JABIR ANSARI	17	85
27	LMLM22CH029	NAYAN P MENON	20	100

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DEPARTMENT OF CHEMICAL ENGINEERING

List of Students Enrolled for Certificate course – Introduction to heat transfer engineering

Academic Year: 2023-2024 **Batch: 2022-2026**

Year: II Year

Sl. No	Roll No.	Name of the students
1	MLM22CH001	ADARSH AJAYAKUMAR
2	MLM22CH002	ADITHYA A ANANTH
3	MLM22CH003	ADITHYA ANIL
4	MLM22CH004	ANAGHA SUNILKUMAR
5	MLM22CH005	ANEENA REJI
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8	MLM22CH009	BLESSON P JOHNSON
9	MLM22CH010	JOSHWA P D
10	MLM22CH011	KRISHNENDU P S
11	MLM22CH013	MALAVIKA PRABHAKARAN
12	MLM22CH014	MUHAMMED RAYYAN
13	MLM22CH015	NIKHIL K THOMAS
14	MLM22CH016	NIRANJAN PRAKASAN
15	MLM22CH017	RAYAN SUDHEER
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27	LMLM22CH029	NAYAN P MENON

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Introduction to Heat Transfer Engineering

Assessment Test
Each Question Carries by 1 Marks

Date 24.11.2023 **Time 3.00 pm to 4.00 pm (1 hr.)**

Q1. What is heat transfer?
a) Flow of thermal energy from low-temperature reservoir to high-temperature reservoir
b) Flow of energy in the form of heat from high-temperature reservoir to low-temperature reservoir
c) Flow of thermal energy irrespective of reservoir temperature
d) None of the above

Q2 Heat transfer takes place according to which of the following law?
a) Newton's second law of motion
b) First law of thermodynamics
c) Newton's law of cooling
d) Second law of thermodynamics

Q3. Which of the following is an example of steady-state heat transfer?
a) Electric bulb cools down by the surrounding atmosphere
b) Chilling effect of cold wind on a warm body
c) Boilers and turbines
d) Cooling of I.C engine

Q4 Which of the following is the rate of heat transfer unit?
a) Watt
b) Pascal
c) Joule
d) Newton

Q5 A person prefers to sit by a fire during the cold winter months. Which of the following heat transfer types gives him with the most heat?
a) Convection and radiation together
b) Radiation will provide quick warmth
c) If it is near the fire, convection sounds good
d) Conduction from the fire

Q6. On which of the following does convective heat transfer coefficient doesn't depend?
a) Orientation of solid surface
b) Time
c) Surface area
d) Spaced

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Q7 In liquids and gases, heat transmission is primarily caused by
a) Convection
b) Radiation
c) Conduction
d) Conduction as well as convection

Q8. For conduction heat transfer, the heat energy propagation will be minimal for _____
a) Copper
b) Air
c) Water
d) Lead

Q9. The appropriate rate equation for convective heat transfer between a surface and adjacent fluid is prescribed by which law?
a) Newton's law of cooling
b) Kirchhoff's law
c) Newton's first law
d) Wein's displacement law

Q10. Why fins are provided on a heat transfer surface?
a) Pressure drop of the fluid should be minimized
b) Increase turbulence in flow for enhancing heat transfer
c) Surface area is maximum to promote the rate of heat transfer
d) Increase temperature gradient so as to enhance heat transfer

Q11. Which of the following occurs without a change in the internal energy?
a) Isochoric process
b) Isenthalpic process
c) Steady-state process
d) Isenthalpic process

Q12In which of the following cases provision of fins on a given heat transfer surface will be more effective?
a) Fewer but thin fins
b) large number of thin fins
c) large number of thick fins
d) Fewer but thick fins

Q13. Radiation heat transfer is characterized by
a) Movement of discrete packets of energy as electromagnetic waves
b) Due to bulk fluid motion, there is a transport of energy
c) There is the circulation of fluid by buoyancy effects
d) Thermal energy transfer as vibrational energy in the lattice structure of the material

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Q14The radiant heat transfer from a plate of 2.5 cm2 area at 1250 K to a very cold enclosure is 5.0 W. Determine the emissivity of the plate at this temperature
a) 0.544
b) 0.144
c) 0.044
d) 0.244

Q15 The non-dimensional parameter known as Stanton number is used in which of the following heat transfer?
a) Natural convection heat transfer
b) Unsteady state heat transfer
c) Condensation heat transfer
d) Forced convection heat transfer

Q16 What is the value of overall heat transfer coefficient ammonia condensers?
a) 200-750 W/m2 K
b) 250-2500 W/m2 K
c) 1500-1750 W/m2 K
d) 800-1400 W/m2 K

Q17. Which of the following is having highest value of overall heat transfer coefficient?
a) Steam
b) Steam condensers
c) Feed water heaters
d) Alcohol condensers

Q18. Which of the following causes irreversibility?
a) electrical resistance, magnetic hysteresis
b) friction, viscosity
c) inelasticity
d) all of the mentioned

Q19 What is the value of the overall heat transfer coefficient for air condensers?
a) 250-900 W/m2 K
b) 200-1950 W/m2 K
c) 350-780 W/m2 K
d) 200-350 W/m2 K

Q20 Which of the following statement is incorrect according to heat transfer?
a) Heat flow does not depend on temperature
b) A material medium is not necessary for heat transmission
c) The process of heat transfer is an irreversible process
d) For heat exchange, a temperature gradient must exist

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DEPARTMENT OF CHEMICAL ENGINEERING

Introduction to Heat Transfer Engineering

Assessment Test

Each Question Carries by 1 Marks

Answer Key

1.B	6.C	11.C	16.D
2.D	7.A	12.B	17.C
3.A	8.B	13.A	18.D
4.A	9.A	14.B	19.C
5.B	10.C	15.D	20.A

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Consolidated Course Feedback
Introduction to Heat Transfer Engineering

Academic Year: 2023-2024 **Batch 2022-2026**

Year: II Year

	Questionnaire	Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A.	Were objectives of the course clear to you?	27	27	0	-	-
B.	The course contents met with your expectations.	27	-	-	26	1
C.	The lecture sequence was well planned	27	-	-	25	2
D.	The contents were illustrated with	27	-	-	25	2
E.	The level of the course was	27	-	-	24	3
F.	The course contents compared with your expectations	27	-	-	26	1
G.	The course exposed you to new knowledge and practices	27	-	-	24	3
H.	Will you recommend this course to your colleagues?	27	-	-	27	0
A.	The lectures were clear and easy to understand	27	-	-	24	3
B.	The teaching aids were effectively used	27	-	-	27	0
C.	The course material handed out was adequate	27	-	-	27	0
D.	The instructors encouraged interaction and were helpful	27	-	-	27	0
E.	Were objectives of the course realized? Y	27	27	0	-	-
F.	Please give overall rating of the course					
	90% - 100%				21	
	80% - 90%				5	
	70% - 80%				1	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator **HOD/CHEM**

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CERTIFICATE COURSE
ON

CHEMICAL ENGINEERING FUNDAMENTALS

Course Content

- ✓ Introduction to chemical process engineering
- ✓ Process Engineering Drawings
- ✓ Mixture Properties
- ✓ Material and Energy Balances

Date: 09/10/2023

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Ms. ARUNEKHA C, AP CHEM

PRINCIPAL
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VISION

To be the center of excellence in the field of chemical engineering with high quality in academics and research.

Mission

1. To develop innovative thinking with the spirit of innovation for the best professional exemplary.

2.To nurture highly skilled chemical engineers and technocrats.

3. To enhance the professionalism with the green engineering and promotion of advanced alternative technologies.

Industry 4.0

MANGALAM COLLEGE OF ENGINEERING
Mangalam Hills,
Vettimukal P O
Ettumanoor, Kottayam
686631

Time 10.00AM to 4.00PM

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

Chemical Engineering Fundamentals

Module	Topics	L Hrs
1	Introduction to chemical process engineering Where can Process Engineers work and what are their duties; Various design phases of the project and The roles of Process Engineers in these phases	12
2	Process Engineering Drawings The main components of BFD and PFD; How they are developed and Their difference between BFD and PFD and the points which make them special The difference in Cause & Effect diagrams; Their importance in Risk Assessment and Utilization conditions and procedure	6
3	Mixture Properties Chemical and Physical properties in detail; How to distinguish chemical and physical properties and Intensive and extensive variables by working on the example Specific heat capacity and its calculation; Thermal conductivity and Fourier law and Thermal conductivity for liquids, gases, and mixtures	6
4	Material and Energy Balance The procedure for mass and material balance development and Their application in different industrial processes and equipment in detail Analyze thermodynamic processes that do affect the working principle of the process equipment; Acknowledge the difference among various processes; Address the disparity between heat and temperature and Specifically, open the meaning of expansion and compressions	6

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DEPARTMENT OF CHEMICAL ENGINEERING

Detailed Explanation of Course

Academic Year: 2023-2024 **Batch :2023-2027**

Year: I Year

The main objective of the course was to provide the students with a solid foundation in fundamental science of Chemical engineering, and technology in order for them to be effective innovators andentrepreneurs in the field of Chemical Engineering.

The course was offered for First year chemical students of Mangalam college of engineering. The course was designed with four modules and course was conducted from 09.10.2023 to 13.10.2023. Certificate was provided with students those who have 80 % of Attendance and scored 60 % in internal exam evaluation

No of students Registered	No of Students participated	No of Students Passed	No of students Eligible for Certificate
19	19	19	19

Course Coordinator

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

List of Students Enrolled for Certificate course – Chemical Engineering Fundamentals

Academic Year: 2023-2024 Batch 2023-2027 Year: I[st] Year

Sl.No	Roll No.	Name of the students
1	MLM23CH001	ABDUL JALEEL P N
2	MLM23CH002	ABIN P ANISH
3	MLM23CH003	AFINA NOUSHAD
4	MLM23CH007	AMBILY GHOSH
5	MLM23CH009	ANEENAKRISHNA E A
6	MLM23CH010	ANEETA SEBASTIAN
7	MLM23CH011	ANOOP A
8	MLM23CH012	ASWIN RENNY
9	MLM23CH013	CHRIS SAVIO P JOHN
10	MLM23CH014	DHANALEKSHMI B
11	MLM23CH015	GAUTHAM KRISHNA M A
12	MLM23CH016	HELAN ROSE BIJOY
13	MLM23CH017	LIJO SAJISH
14	MLM23CH018	MIDHUN K M
15	MLM23CH019	SANUSHA UMESH
16	MLM23CH020	SREE HARI
17	MLM23CH021	SREERAM B NAIR
18	MLM23CH022	THASNI T
19	MLM23CH023	VAIDEHI A S

Course Coordinator

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From Head of the Department,
Chemical Engineering,
Mangalam College of Engineering,
Ettumanoor.

To The Principal,
Mangalam College of Engineering,
Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 5/10/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

S.No	Name of Add on Course	Year/ Semester	Total No of Hours	Faculty Coordinator
1.	Chemical Engineering Fundamentals	2023/S1	30Hrs	Ms. Arunekha C

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

Thanking You,

Yours faithfully,

HoD-CHEM

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DEPARTMENT OF CHEMICAL ENGINEERING

Department of Chemical Engineering

Circular

Ref: MLM/ ME/ Certificate Course / Circular / 2023-24/ 02 09.10.2023

The Department of Chemical Engineering is planned to conduct a certificate course for First year students. So, it is informed to the students to enroll their names for the course Chemical Engineering Fundamentals which will start on 09.10.2023. Students are asked to enroll their names to their respective class advisor on or before 09.10.2023 The course syllabus is attached.

Name of the Course	: Chemical Engineering Fundamentals
Course Duration	: 09.10.2023 -13.10.2023
Time Duration	: 10.00 AM-04.00 PM (6 hours per day)

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DEPARTMENT OF CHEMICAL ENGINEERING

Department of Chemical Engineering

1.	Academic Year	: 2023-24
2.	Tile of the Course	: Chemical Engineering Fundamentals
3.	Objective of the Course	:To provide graduates with a solid foundation in fundamental science of Chemical engineering, and technology in order for them to be effective innovators andentrepreneurs in the field of Chemical Engineering.
4.	Prerequisite	: Nil
5.	Requirement	: Seminar Hall
6.	Beneficiary	: S1 Students
7.	Date and Duration of the Course	: 09.10.2023 -13.10.2023 (30 Hours)
8.	Proposed Timing	: 10.00 AM to 04.00 PM **(6 hours per day)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Arunekha C (Assistant Professor)
11.	Course Registration Fees	: Nil
12.	Contents of Courses	: Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: Online

COURSE COORDINATOR

HOD

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DEPARTMENT OF CHEMICAL ENGINEERING

List of Students Enrolled for Certificate course–Chemical Engineering Fundamentals

Academic Year:2023-2024 Batch 2023-20257 Year: I[st] Year

Sl. No	Roll No.	Name of the students
1	MLM23CH001	ABDULJALEELPN
2	MLM23CH002	ABINP ANISH
3	MLM23CH003	AFINANOUSHAD
4	MLM23CH007	AMBILYGHOSH
5	MLM23CH009	ANEENAKRISHNAEA
6	MLM23CH010	ANEETASEBASTIAN
7	MLM23CH011	ANOOPA
8	MLM23CH012	ASWINRENNY
9	MLM23CH013	CHRISSAVIOPJOHN
10	MLM23CH014	DHANALEKSHMIB
11	MLM23CH015	GAUTHAMKRISHNAMA
12	MLM23CH016	HELANROSEBIJOY
13	MLM23CH017	LIJOSAJISH
14	MLM23CH018	MIDHUNKM
15	MLM23CH019	SANUSHAUMESH
16	MLM23CH020	SREE HARI
17	MLM23CH021	SREERAMB NAIR
18	MLM23CH022	THASNIT
19	MLM23CH023	VAIDEHIAS

Course Coordinator

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DEPARTMENT OF CHEMICAL ENGINEERING

Attendance of Certificate course –Chemical Engineering Fundamentals

Academic Year: 2023-24 **Batch 2023-2027**

Year:I Year

Sl. No	Roll No.	Name of the students	08	09	10	11	12	Total Attendance
1	MLM23CH001	ABDULJALEELPN	P	P	P	A	P	80
2	MLM23CH002	ABINP ANISH	P	P	P	P	P	100
3	MLM23CH003	AFINANOUSHAD	P	P	A	P	P	80
4	MLM23CH007	AMBILYGHOSH	P	P	P	P	P	100
5	MLM23CH009	ANEENAKRISHNAEA	P	P	A	P	P	80
6	MLM23CH010	ANEETASEBASTIAN	P	P	P	P	P	100
7	MLM23CH011	ANOOPA	P	P	P	P	P	100
8	MLM23CH012	ASWINRENNY	P	P	P	P	P	100
9	MLM23CH013	CHRISSAVIOPJOHN	P	P	P	P	P	100
10	MLM23CH014	DHANALEKSHMIB	P	P	A	P	P	80
11	MLM23CH015	GAUTHAMKRISHNAMA	A	P	P	P	P	80
12	MLM23CH016	HELANROSEBIJOY	P	P	P	P	P	100
13	MLM23CH017	LIJOSAJISH	P	P	P	P	P	100
14	MLM23CH018	MIDHUNKM	P	P	P	A	P	80
15	MLM23CH019	SANUSHAUMESH	P	P	P	P	P	100
16	MLM23CH020	SREE HARI B NAIR	P	P	P	A	P	80
17	MLM23CH021	SREERAMB NAIR	P	P	P	P	P	100
18	MLM23CH022	THASNIT	P	P	P	P	P	100
19	MLM23CH023	VAIDEHIAS	P	P	P	P	A	80

CourseCoordinator **HOD/CHEM**

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DEPARTMENT OF CHEMICAL ENGINEERING

Certificate course – Chemical Engineering Fundamentals

Mark Sheet

Academic Year: 2023-2024 **Batch 2023-2027**

Year: I Year

Sl.No	Reg. No.	Name of the students	Marks (20)	Out of 100
1	MLM23CH001	ABDUL JALEEL P N	19	95
2	MLM23CH002	ABIN P ANISH	16	80
3	MLM23CH003	AFINA NOUSHAD	16	80
4	MLM23CH007	AMBILY GHOSH	20	100
5	MLM23CH009	ANEENAKRISHNA E A	16	80
6	MLM23CH010	ANEETA SEBASTIAN	17	85
7	MLM23CH011	ANOOP A	20	100
8	MLM23CH012	ASWIN RENNY	20	100
9	MLM23CH013	CHRIS SAVIO P JOHN	18	90
10	MLM23CH014	DHANALEKSHMI B	20	100
11	MLM23CH015	GAUTHAM KRISHNA M A	19	95
12	MLM23CH016	HELAN ROSE BIJOY	18	90
13	MLM23CH017	LIJO SAJISH	17	85
14	MLM23CH018	MIDHUN K M	20	100
15	MLM23CH019	SANUSHA UMESH	19	95
16	MLM23CH020	SREE HARI	17	85
17	MLM23CH021	SREERAM B NAIR	17	85
18	MLM23CH022	THASNI T	16	80
19	MLM23CH023	VAIDEHI A S	19	95

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DEPARTMENT OF CHEMICAL ENGINEERING

List of Students Enrolled for Certificate course – Chemical Engineering Fundamentals

Academic Year: 2023-2024 **Batch : 2023-2027**

Year: I Year

Sl.No	Roll No.	Name of the students
1	MLM23CH001	ABDUL JALEEL P N
2	MLM23CH002	ABIN P ANISH
3	MLM23CH003	AFRIA MOHSHAD
4	MLM23CH007	AMRIT V GHOSH
5	MLM23CH009	ANEENAKRISHNA E A
6	MLM23CH010	ANEETA SEBASTIAN
7	MLM23CH011	ANOOP A
8	MLM23CH012	ASWIN BENNY
9	MLM23CH013	CHRIS SAVIO P JOHN
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13	MLM23CH017	LIJO SATISH
14	MLM23CH018	MIDHUN K M
15	MLM23CH019	SANUSHA UMESH
16	MLM23CH020	SREE HARI
17	MLM23CH021	SREERAM B NAIR
18	MLM23CH022	THASNI T
19	MLM23CH023	VAIDEHI A S

Course Coordinator

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DEPARTMENT OF CHEMICAL ENGINEERING

Chemical Engineering Fundamentals

Assessment Test
Each Question Carries by 1 Marks

Date 13.08.2023 **Time 3.00 pm to 4.00 pm(1 hr)**

. Which of the mentioned is a principal mineral asset to India?
a) Coal
b) Rare Earths
c) Zinc
d) All of the mentioned

Q2 Which of the mentioned raw material does India lack in adequate quantity?
a) Iron ore
b) Petroleum
c) Manganese
d) Mica

Q3. Which of the following deals with the study of rates at which chemical reactions occur and the effect of various parameters on the rate?
a) Fluid Mechanics
b) Chemical Technology
c) Chemical Sciences
d) Chemical Kinetics

Q4.Catalyst is a substance that _____
a) Can either increase or decrease the speed of a chemical reaction
b) Alters the value of the equilibrium constant in a reversible chemical reaction
c) Increases the speed of a chemical reaction
d) Decreases the speed of a chemical reaction

Q5. Which of the following is true for fluidized catalytic beds?
a) There is no pressure drop
b) They come under the category of batch reactors
c) The bulk density is a function of the flow rate through the bed
d) They cannot be used for multi-phase chemical reactions

Q6. If the conversion of a first-order liquid phase reaction occurring in a CSTR is 75%, molar feed rate is 5 mol/min, the rate of the reaction is 5 mollitre.min then the volume of the reactor (in litre) is?
a) 0.33
b) 0.4
c) 0.75
d) 0.5

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Q7 Which of the following reactor arrangements causes fast deactivation?
a) Fluidised bed reactor
b) Batch for fluid and solid
c) Plug flow for fluid
d) Mixed flow for fluid

Q8. Which of the following is not a reversible reaction?
a) Oxidation of sulphur dioxide to sulphur trioxide
b) Ammonia formation from its elements
c) Formation of hydrogen bromide from its elements
d) Decomposition reaction of nitrogen pentoxide

Q9. Which of the following theories does not propose the temperature dependence of rate constant?
a) Transition state theory
b) Bohr's theory
c) Arrhenius theory
d) Collision theory

Q10. The equilibrium composition of liquid and vapour in a feed can be identified by,
a) intersection of q line with equilibrium line
b) intersection of q line with operating line
c) intersection of operating line with equilibrium line
d) None of the mentioned

Q11. Which of the following occurs without a change in the internal energy?
a) Isochoric process
b) Isenthalpic process
c) Steady-state process
d) Isenthalpic process

Q12. If a piston/cylinder with a cross-sectional size of 0.01 m2 is resting on the stops, what should the water pressure be to lift the piston with an outside pressure of 100 kPa?
a) 218kPa
b) 168kPa
c) 198kPa
d) 318kPa

Q13. Which of the following is the standard fixed point of thermometry?
a) The steam point
b) The triple point of water
c) The ice point
d) All of the mentioned

Q14. Heat flow into a system is ____, and heat flow out of the system is _____
a) positive, positive
b) negative, negative
c) negative, positive
d) positive, negative

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Q15 When more than one fluid stream enters or leaves the control volume, which of the following type of balance is taken?
a) mass balance
b) energy balance
c) mass balance and energy balance
d) none of the mentioned

Q16 Rate of energy increase within the control volume is given by
a) rate of energy inflow * rate of energy outflow
b) rate of energy inflow – rate of energy outflow
c) rate of energy inflow / rate of energy outflow
d) rate of energy inflow + rate of energy outflow

Q17. Which of the following statements are true for a mechanical energy reservoir(MER)?
a) all processes within an MER are quasi-static
b) it is a large body enclosed by an adiabatic impermeable wall
c) stores work as KE or PE
d) all of the mentioned

Q18. Which of the following causes irreversibility?
a) electrical resistance, magnetic hysteresis
b) friction, viscosity
c) inelasticity
d) all of the mentioned

Q19. If heat Q flows reversibly from the system to the surroundings at To, what will be the effect on entropy?
a) entropy of the system is reduced by Q/To
b) system has lost entropy to the surroundings
c) entropy increase of the surroundings is Q/To
d) all of the mentioned

Q20 The entropy change of a system between two identifiable equilibrium state is ___ when the intervening process is reversible or change of state is irreversible.
a) depends on the process
b) different
c) same
d) none of the mentioned

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DEPARTMENT OF CHEMICAL ENGINEERING

Chemical Engineering Fundamentals

Assessment Test

Each Question Carries by 1 Marks

Answer Key

1.A	6.C	11.C	16.B
2.B	7.A	12.C	17.D
3.D	8.C	13.B	18.D
4.A	9.B	14.D	19.D
5.C	10.C	15.C	20.C

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DEPARTMENT OF CHEMICAL ENGINEERING

Consolidated Course Feedback
Chemical Engineering
Fundamentals

Academic Year: 2022-2023 **Batch 2021-2025**

Year: I Year

	Questionnaire	Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A.	Were objectives of the course clear to you?	19	19	0	-	-
B.	The course contents met with your expectations.	19	-	-	18	1
C.	The lecture sequence was well planned	19	-	-	17	2
D.	The contents were illustrated with	19	-	-	17	2
E.	The level of the course was	19	-	-	16	3
F.	The course contents compared with your expectations	19	-	-	18	1
G.	The course exposed you to new knowledge and practices	19	-	-	16	3
H.	Will you recommend this course to your colleagues?	19	-	-	19	0
A.	The lectures were clear and easy to understand	19	-	-	16	3
B.	The teaching aids were effectively used	19	-	-	19	0
C.	The course material handed out was adequate	19	-	-	19	0
D.	The instructors encouraged interaction and were helpful	19	-	-	19	0
E.	Were objectives of the course realized? Y	19	19	0	-	-
F.	Please give overall rating of the course	19				
	90% - 100%				16	
	80% - 90%				2	
	70% - 80%				1	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator

HOD/CHEM

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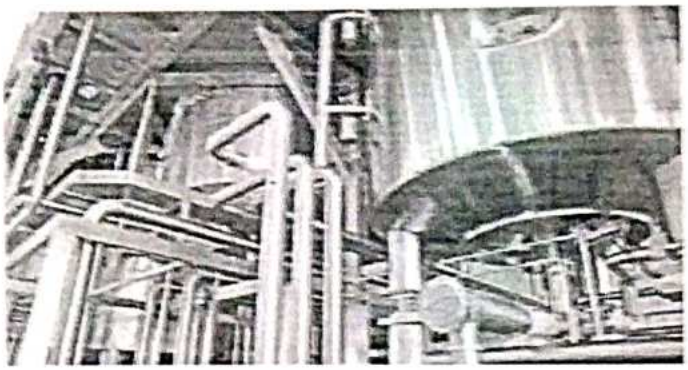

CERTIFICATE COURSE

ON

FLASH DISTILLATION IN CHEMICAL & PROCESS ENGINEERING

se Content

- ✓ REVIEW: Of Mass Transfer Basics
- ✓ Flash Distillation Theory - Concepts and Principles
- ✓ Application of Distillation in the Industry
- ✓ Material and Energy Balances for flash systems
- ✓ Adiabatic and Isothermal Operation

21/08/2023

विश्वं शास्त्रे प्रतिष्ठितम्।

Coordinator: Ms. Arunekha C, AP CHEM

VISION

To be the center of excellence in the field of chemical engineering with high quality in academics and research.

Mission

1. To develop innovative thinking with the spirit of innovation for the best professional exemplary.

2.To nurture highly skilled chemical engineers and technocrats.

3. To enhance the professionalism with the green engineering and promotion of advanced alternative technologies.

Industry 4.0

MANGALAM COLLEGE OF ENGINEERING

Mangalam Hills, Vettimukal P O

Ettumanoor, Kottayam 686631

Time 10.00AM to 4.00PM

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DEPARTMENT OF CHEMICAL ENGINEERING

Flash Distillation in Chemical & Process Engineering

Module	Topics	L Hrs
1	Flash Distillation Understanding the concept behind Flash Distillation, the vapor-liquid equilibrium and all other mass transfer interaction will allow you to understand and model Flash Drums and Flashing Systems.	12
2	Flash Distillation Theory - Concepts and Principles Principle of flash distillation, Construction of flash distillation, Working of flash distillation, Design of flash units, Calculation of bubble and dew points	6
3	Material and Energy Balances for flash systems Material and Energy balance: Facility as an energy system, Methods for preparing process flow, Material, and energy balance diagrams.	6
4	Adiabatic and Isothermal Operation Thermodynamic state variables and equation of state, Thermodynamic processes, Second law of thermodynamics, Reversible and irreversible processes	6

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

Detailed Explanation of Course

Academic Year: 2023-2024 **Batch :2022-2026**

Year: II Year

The main objective of the course was to provide the students with a solid foundation in fundamental science of flash distillation, engineering, and technology in order for them to be effective innovators andentrepreneurs in the field of Chemical Engineering.

The course was offered for Second year chemical students of Mangalam college of engineering. The course was designed with four modules and course was conducted from 21.08.2023 to 25.08.2023. Certificate was provided with students those who have 80 % of Attendance and scored 60 % in internal exam evaluation

No of students Registered	No of Students participated	No of Students Passed	No of students Eligible for Certificate
27	27	27	27

Course Coordinator

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

List of Students Enrolled for Certificate course–Flash Distillation in Chemical & Process Engineering

Academic Year:2023-2024 **Batch 2022-2026**

Year:II Year

Sl.No	RollNo.	Nameofthestudents
1	MLM22CH001	ADARSHAJAYAKUMAR
2	MLM22CH002	ADITHYAAANANTH
3	MLM22CH003	ADITHYAANIL
4	MLM22CH004	ANAGHASUNILKUMAR
5	MLM22CH005	ANEENAREJI
6	MLM22CH006	ANUDEEPMP
7	MLM22CH008	ATHULKRISHNAB
8	MLM22CH009	BLESSONPJOHNSON
9	MLM22CH010	JOSHWA PD
10	MLM22CH011	KRISHNENDUPS
11	MLM22CH013	MALAVIKAPRABHAKARAN
12	MLM22CH014	MUHAMMEDRAYYAN
13	MLM22CH015	NIKHILKTHOMAS
14	MLM22CH016	NIRANJANPRAKASAN
15	MLM22CH017	RAYANSUDHEER
16	MLM22CH018	SHAMLAN
17	MLM22CH019	THEJUS J
18	MLM22CH020	VIMALVIJAY
19	MLM22CH021	YADHUKRISHNA ES
20	LMLM22CH022	AKSHAYDEVK S
21	LMLM22CH023	JEEVANREJI
22	LMLM22CH024	KAVYABABU
23	LMLM22CH025	MAHIN T.N
24	LMLM22CH026	MANAVSATHEESAN
25	LMLM22CH027	MUHAMMEDBILALKS
26	LMLM22CH028	MUHAMMEDJABIRANSARI
27	LMLM22CH029	NAYANP MENON

CourseCoordinator

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From Head of the Department,
Chemical Engineering,
Mangalam College of
Engineering,Ettumanoor.

To ThePrincipal,
Mangalam College of
Engineering,Ettumanoor.

Respected Sir,

SUB: Permission for allocating faculty members and computer lab for Add on course/Certificate Course-Reg.

The department meeting is convened on 16/08/2023 for finalizing the Add on course/Certificate Courses for the academic year 2023-2024:

S.No	NameofAddonCourse	Year/ Semester	TotalNo ofHours	FacultyCoordinator
1.	Flash Distillation in Chemical & Process Engineering	2023/S3	30Hrs	Ms. Arunekha C

I request you kindly to nominate the faculty members for designing the curriculum for the above mentioned add on/ Certificate Courses.

ThankingYou,

Yours faithfully,

HoD-CHEM

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

Department of Chemical Engineering

Circular

Ref: MLM/ ME/ Certificate Course / Circular / 2023-24/ 01 18.08.2023

The Department of Chemical Engineering is planned to conduct a certificate course for Second year students. So, it is informed to the students to enroll their names for the course Flash Distillation in Chemical & Process Engineering which will start on 21.08.2023. Students are asked to enroll their names to their respective class advisor on or before 19.08.2023 The course syllabus is attached.

Name of the Course	: Flash Distillation in Chemical & Process Engineering
Course Duration	: 21.08.2023 -25.08.2023
Time Duration	: 10.00 AM-04.00 PM (6 hours per day)

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DEPARTMENT OF CHEMICAL ENGINEERING

Department of Chemical Engineering

1.	Academic Year	: 2023-24
2.	Tile of the Course	: Flash Distillation in Chemical & Process Engineering
3.	Objective of the Course	:To provide graduates with a solid foundation in fundamental science of flash distillation, engineering, and technology in order for them to be effective innovators andentrepreneurs in the field of Chemical Engineering.
4.	Prerequisite	: Nil
5.	Requirement	: Seminar Hall
6.	Beneficiary	: S3 Students
7.	Date and Duration of the Course	:21.08.2023 to 25.08.2023(30 Hours)
8.	Proposed Timing	: 10.00 AM to 04.00 PM **(6 hours per day)**
9.	No of Hours Required	: 30 Hours
10.	Internal Resources	: Arunekha C (Assistant Professor)
11.	Course Registration Fees	: Nil
12.	Contents of Courses	: Enclosed Separately
13.	Credits and Certification	: Those who have 80 % of Attendance and scored 60 % in internal exam evaluation
14.	Venue	: Online

COURSE COORDINATOR

HOD

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

List of Students Enrolled for Certificate course – Flash Distillation in Chemical & Process Engineering

Academic Year: 2023-2024 **Batch 2022-2026**

Year: II Year

Sl.No	Roll No.	Name of the students
1	MLM22CH001	ADARSH AJAYAKUMAR
2	MLM22CH002	ADITHYA A ANANTH
3	MLM22CH003	ADITHYA ANIL
4	MLM22CH004	ANAGHA SUNILKUMAR
5	MLM22CH005	ANEENA REJI
6	MLM22CH006	ANUDEEP MP
7	MLM22CH008	ATHUL KRISHNA B
8	MLM22CH009	BLESSON P JOHNSON
9	MLM22CH010	JOSHWA P D
10	MLM22CH011	KRISHNENDU P S
11	MLM22CH013	MALAVIKA PRABHAKARAN
12	MLM22CH014	MUHAMMED RAYYAN
13	MLM22CH015	NIKHIL K THOMAS
14	MLM22CH016	NIRANJAN PRAKASAN
15	MLM22CH017	RAYAN SUDHEER
16	MLM22CH018	SHAMLA N
17	MLM22CH019	THEJUS J
18	MLM22CH020	VIMAL VIJAY
19	MLM22CH021	YADHU KRISHNA E S
20	LMLM22CH022	AKSHAYDEV K S
21	LMLM22CH023	JEEVAN REJI
22	LMLM22CH024	KAVYA BABU
23	LMLM22CH025	MAHIN T. N
24	LMLM22CH026	MANAV SATHEESAN
25	LMLM22CH027	MUHAMMED BILAL KS
26	LMLM22CH028	MUHAMMED JABIR ANSARI
27	LMLM22CH029	NAYAN P MENON

Course Coordinator

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DEPARTMENT OF CHEMICAL ENGINEERING

Attendance of Certificate course – Flash Distillation in Chemical & Process Engineering

Academic Year: 2023-24 **Batch 2022-2026**

Year: II Year

S.No	Roll No.	Name of the students	19	20	21	22	23	Total Attendance
1.	MLM22CH001	ADARSH AJAYAKUMAR	P	P	P	A	P	80
2.	MLM22CH002	ADITHYA A ANANTH	P	P	P	P	P	100
3.	MLM22CH003	ADITHYA ANIL	P	P	P	P	P	100
4.	MLM22CH004	ANAGHA SUNILKUMAR	P	P	P	P	P	100
5.	MLM22CH005	ANEENA REJI	P	P	P	P	P	100
6.	MLM22CH006	ANUDEEP MP	P	A	P	P	P	80
7.	MLM22CH008	ATHUL KRISHNA B	P	P	P	A	P	80
8.	MLM22CH009	BLESSON P JOHNSON	P	P	P	A	P	80
9.	MLM22CH010	JOSHWA P D	P	P	P	P	P	100
10.	MLM22CH011	KRISHNENDU P S	P	P	P	P	P	100
11.	MLM22CH013	MALAVIKA PRABHAKARAN	A	P	P	P	P	80
12.	MLM22CH014	MUHAMMED RAYYAN	P	A	P	P	P	80
13.	MLM22CH015	NIKHIL K THOMAS	P	P	P	P	P	100
14.	MLM22CH016	NIRANJAN PRAKASAN	P	P	P	A	P	80
15.	MLM22CH017	RAYAN SUDHEER	P	P	P	P	P	100
16.	MLM22CH018	SHAMLA N	P	P	P	A	P	80
17.	MLM22CH019	THEJUS J	P	P	P	P	P	100
18.	MLM22CH020	VIMAL VIJAY	P	P	P	P	P	100
19.	MLM22CH021	YADHU KRISHNA E S	P	P	P	P	A	80
20.	LMLM22CH022	AKSHAYDEV K S	P	P	P	A	P	80
21.	LMLM22CH023	JEEVAN REJI	P	P	P	P	P	100

22.	LMLM22CH024	KAVYA BABU	P	P	P	P	A	80
23.	LMLM22CH025	MAHIN T. N	P	P	P	P	P	100
24	LMLM22CH026	MANAV SATHEESAN	P	P	P	A	P	80
25	LMLM22CH027	MUHAMMED BILAL KS	P	P	P	P	P	100
26	LMLM22CH028	MUHAMMED JABIR ANSARI	P	P	P	P	P	100
27 .	LMLM22CH029	NAYAN P MENON	P	P	P	P	P	100

Course Coordinator

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DEPARTMENT OF CHEMICAL ENGINEERING

Certificate course – Flash Distillation in Chemical & Process Engineering

Mark Sheet

Academic Year: 2023-2024

Year: II Year *Batch 2022-2026*

Sl.No	Reg. No.	Name of the students	Marks (20)	Out of 100
1.	MLM22CH001	ADARSH AJAYAKUMAR	15	75
2.	MLM22CH002	ADITHYA A ANANTH	19	95
3.	MLM22CH003	ADITHYA ANIL	20	100
4.	MLM22CH004	ANAGHA SUNILKUMAR	18	90
5.	MLM22CH005	ANEENA REJI	17	85
6.	MLM22CH006	ANUDEEP MP	17	85
7.	MLM22CH008	ATHUL KRISHNA B	16	80
8.	MLM22CH009	BLESSON P JOHNSON	20	100
9.	MLM22CH010	JOSHWA P D	18	90
10.	MLM22CH011	KRISHNENDU P S	20	100
11.	MLM22CH013	MALAVIKA PRABHAKARAN	19	95
12.	MLM22CH014	MUHAMMED RAYYAN	18	90
13.	MLM22CH015	NIKHIL K THOMAS	17	85
14.	MLM22CH016	NIRANJAN PRAKASAN	20	100
15.	MLM22CH017	RAYAN SUDHEER	19	95
16.	MLM22CH018	SHAMLA N	17	85
17.	MLM22CH019	THEJUS J	17	85
18.	MLM22CH020	VIMAL VIJAY	16	80
19.	MLM22CH021	YADHU KRISHNA E S	19	95
20.	LMLM22CH022	AKSHAYDEV K S	15	75
21.	LMLM22CH023	JEEVAN REJI	19	95

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

List of Students Enrolled for Certificate course – Flash Distillation in Chemical & Process Engineering

Academic Year: 2023-2024 **Batch: 2022-2026**

Year: II Year

Sl.No	Roll No.	Name of the students
1	MLM22CH001	ADARSH AJAYAKUMAR
2	MLM22CH002	ADITHYA A ANANTH
3	MLM22CH003	ADITHYA ANIL
4	MLM22CH004	ANAGHA SUNILKUMAR
5	MLM22CH005	ANEENA REJI
6	MLM22CH006	ANUDEEP MP
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8	MLM22CH009	BLESSON P JOHNSON
9	MLM22CH010	JOSHWA P D
10	MLM22CH011	KRISHNENDU P S
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17	MLM22CH019	THEJUS J
18	MLM22CH020	VIMAL VIJAY
19	MLM22CH021	YADHU KRISHNA E S
20	LMLM22CH022	AKSHAYDEV K S
21	LMLM22CH023	JEEVAN REJI
22	LMLM22CH024	KAVYA BABU
23	LMLM22CH025	MAHIN T. N
24	LMLM22CH026	MANAV SATHEESAN
25	LMLM22CH027	MUHAMMED BILAL KS
26	LMLM22CH028	MUHAMMED JABIR ANSARI
27	LMLM22CH029	NAYAN P MENON

Course Coordinator

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DEPARTMENT OF CHEMICAL ENGINEERING

Flash Distillation in Chemical & Process Engineering

Assessment Test
Each Question Carries by 1 Marks

Date: 25.08.2023 **Time 2.30 pm to 3.30 pm(1 hr)**

Q1. This set of Mass Transfer Multiple Choice Questions & Answers (MCQs) focuses on "Distillation – Flash Vaporization".
1. Flash vaporization is a
a) Equilibrium distillation
b) Differential distillation
c) Simple distillation
d) None of the mentioned

Q2. What happens to the liquid after preheating when enter to the cyclonic flash drum?
a) Starts to evaporate
b) Split with centrifugal force
c) Comes out in residue
d) None of the mentioned

Q3. Express the flash vaporization
a) Single stage operation
b) Multi component operation
c) Still operation
d) None of the mentioned

Q4. Find the distillate and the residue rates in mole/hr, if the feed rate is 100 mol/hr; The compositions of feed, distillate and residue in terms of mole fraction are 0.65, 0.9 and 0.2.
a) 36,64
b) 64,36
c) 20,80
d) 80,20

Q5. This set of Mass Transfer Multiple Choice Questions & Answers (MCQs) focuses on "Flash Vaporization Line (q-line)".
1. At what feed condition the slope of q line is infinity?
a) Saturated vapour
b) Saturated liquid
c) Superheated vapour
d) None of the mentioned

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Q6. Find the feed condition from the below distribution curve.
a) Saturated vapour
b) Saturated liquid
c) Superheated vapour
d) None of the mentioned

Q7. Consider a saturated liquid-vapour mixture, if the liquid flow rate inside the enriching and the stripping section of a fractionator is 50 and 40 mol/hr. Also the feed rate is 10 mol/hr. Find the feed condition.
a) Saturated vapour
b) Saturated liquid
c) Superheated vapour
d) None of the mentioned

Q8. At what feed condition the slope of the flash vaporization line becomes 0?
a) Saturated vapour
b) Saturated liquid
c) Superheated vapour
d) None of the mentioned

Q9. The point where the operating line and the equilibrium line meets in distillation methods is known as
a) Plait point
b) Q point
c) Pinch point
d) None of the mentioned

Q10. The equilibrium composition of liquid and vapour in a feed can be identified by,
a) intersection of q line with equilibrium line
b) intersection of q line with operating line
c) intersection of operating line with equilibrium line
d) None of the mentioned

Q11. If the feed enters the distillation column at its dew point, then the slope of the Flash vaporization operating line is
a) 0
b) 1
c) Between 0 and 1
d) Infinity

Q12. Which one is having highest emissivity?
a) Tarnished copper
b) Polished aluminum
c) Aluminum foil
d) Polished copper

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Q13. What is the value of emissivity for tarnished copper?
a) 0.78
b) 0.77
c) 0.76

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d) 0.75

Q14. Which one is having the lowest emissivity?
a) Polished stainless steel
b) White marble
c) Snow
d) Asphalt

Q15. Which one is having the lowest emissivity?
a) Snow
b) White marble
c) Concrete
d) Polished stainless steel

Q16. What is the unit of diffusion coefficient?
a) m2
b) s
c) m2 s
d) m2/s

Q17. What is the value of Schmidt number for hydrogen?
a) 0.23
b) 0.22
c) 0.21
d) 0.21

Q18. What is the molecular weight of Sulphur-dioxide?
a) 84
b) 74
c) 64
d) 54

Q19. The column used for differential distillation is_____
a) Still
b) Differential column
c) Batch column
d) None of the mentioned

Q20. The equation applicable for batch distillation is _____
a) Frenske's equation
b) Rayleigh equation
c) Wilke-chan equation
d) None of the mentioned

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DEPARTMENT OF CHEMICAL ENGINEERING

Flash Distillation in Chemical & Process Engineering

Assessment Test

Each Question Carries by 1 Marks

Answer Key

1.C	6.A	11.A	16.D
2.A	7.C	12.C	17.B
3.B	8.C	13.D	18.A
4.C	9.D	14.C	19.B
5.A	10.C	15.D	20.C

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DEPARTMENT OF CHEMICAL ENGINEERING

Consolidated Course Feedback
Flash Distillation in Chemical & Process Engineering

Academic Year: 2023-2024 **Batch 2022-2026**

Year: II Year

	Questionnaire	Total Response	Yes	No	Strongly Agree	Disagree
	THE DESIGN OF THE COURSE					
A.	Were objectives of the course clear to you?	27	27	0	-	-
B.	The course contents met with your expectations.	27	-	-	25	2
C.	The lecture sequence was well planned	27	-	-	24	3
D.	The contents were illustrated with	27	-	-	25	2
E.	The level of the course was	27	-	-	24	3
F.	The course contents compared with your expectations	27	-	-	27	0
G.	The course exposed you to new knowledge and practices	27	-	-	24	3
H.	Will you recommend this course to your colleagues?	27	-	-	27	0
A.	The lectures were clear and easy to understand	27	-	-	25	2
B.	The teaching aids were effectively used	27	-	-	27	0
C.	The course material handed out was adequate	27	-	-	27	0
D.	The instructors encouraged interaction and were helpful	27	-	-	27	0
E.	Were objectives of the course realized? Y	27	27	0	-	-
F.	Please give overall rating of the course					
	90% - 100%				20	
	80% - 90%				4	
	70% - 80%				3	
	60% - 70%				0	
	50% - 60%				0	
	below 50%				0	

Course Coordinator **HOD/CHEM**

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE
AND MACHINE LEARNING



Python for Data Science

MCE
&
Skill Hub

Who can Join?

- B.Tech (Any Stream)
- M.Tech(Any Stream)
- BCA/MCA/MBA

Enroll Now

Last Date for Registration
30th November 2023

Starts From 10th November

E-certificates will be provided for **Participants**

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Contact Us
9496813008/8138985642



MSME

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Ref: MLM/AIML/2023-2024/10 Date: 01/11/2023

Submitted to the Principal approval

We have proposed during this to conduct the certificate course on **"PYTHON FOR DATA SCIENCE"** for our UG students semester(2023-2024 even). Tentative timings and course fees details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Explanation:

Python for Data Science course teaches foundational skills in Python programming tailored for data analysis and machine learning. It starts with Python basics—variables, data types, loops, and functions—and progresses to essential data science libraries like Pandas for data manipulation, NumPy for numerical operations, and Matplotlib or Seaborn for data visualization. Students learn to clean and preprocess data, handle missing values, and perform exploratory data analysis to uncover patterns. The course often includes an introduction to machine learning, using libraries like Scikit-Learn, covering supervised and unsupervised learning techniques. By the end, students are equipped to tackle real-world data science projects, interpret data insights, and apply basic machine learning models.

S.No	Name of Course	Course Instructors	Course Duration	Approx. course fee	Taget students (Year/Branch)
1	Python for Data Science	Mr Abhijith M	45 hrs	1250/-	Btech Students

Thanking you.

Coordinator

HOD/AIML

HEAD OF DEPARTMENT
Dept of Artificial Intelligence & Machine Learning
Mangalam College of Engineering
Ettumanoor - 686 631

Principal

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING (AM)

Date: 15/11/2023

Notice: AM/2023-24/EVEN /Notices

NOTICE

The Department of Artificial Intelligence and Machine Learning is planning to offer an add-on course in Python for Data Science for the academic year 2023-2024 (even semester). The course will last for 3 months, and interested students can register on or before November 30, 2023.

Eligibility

Students pursuing any bachelor's degree can join the add-on course in Python for Data Science. Candidates must complete 45 hours (15 hours of practical and 30 hours of theory) and score more than 40% in both the written and practical examinations. Successful candidates will be issued a course certificate.

HoD

Copy to:

1. The Department Notice Board.
2. All staffs

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Registration Form_Python for Data Science

(Fill this form you really interested ,Prerequisite-No)

* Indicates required question

1. Email *

2. Name of the student *

3. Mail ID *

4. Course of Study *

Mark only one oval.

- B.Tech
- M.Tech
- Other

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5. Branch of Study *

Mark only one oval.

- CSE
- EEE
- ME
- AM
- CIVIL
- ECE
- CHEMICAL
- OTHER

6. Contact Number *

7. Present Address *

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8. Do you want to register this course? *

Mark only one oval.

- YES
- NO

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Python for Data Science

Syllabus

MODULE1: Why Python, Python IDE, Hello World Program, Variables & Names String Basics, List, Tuple, Dictionaries, Conditional Statements, For and While Loop, Functions, Numbers and Math Functions, Common Errors in Python

MODULE2: Functions as Arguments, List Comprehension, File Handling Debugging in Python, Class and Objects Lambda, Filters and Map Regular Expressions, Python PIP, Read Excel Data in Python, Iterators, Pickling, Python.

MODULE3 Introduction to Pandas Series Data Structure - Querying and Indexing Data Frame Data Structure - Querying, Indexing and loading Merging data frames Group by operation Pivot table Date/Time functionality Example: Manipulating DataFrame.

MODULE4: Data Modelling, Normalization, and Star Schema ACID transactions Select, insert, update & delete (DML and DQL) Join operations, Window functions (rank, dense rank, row number etc) Data Types, Variables and Constants Conditional Structures (IF, CASE, GOTO and NULL), Integrating python with SQL

MODULE5: Data Visualisation in Python (Matplotlib, Seaborn), Read Complex JSON files, Styling Tabulation Distribution of Data – Histogram, Box Plot Data Visualization-Recap Pie Chart, Donut Chart,Stacked Bar Plot,Relative Stacked Bar,Plot Stacked Area Plot,Scatter Plots, Bar Plot,Continuous vs Continuous Plot Line Plot, Line Plot ANY Data, Assessment



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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Name of the Student : Joshua George. **Register Number :** —

Add On Course – Python for Data Science

Type: Multiple Choice questions	**Time:90minutes**
Course Name : Python for Data Science	**Marks:25**
Marks 24/25	**Examiner Name and Signature** Abhijith M.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

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QUESTIONS

Si.No	Question	Marks
1	Who developed the Python language? 1. Zim Den 2. Guido van Rossum 3. Niene Stom 4. Wick van Rossum	1
2	In which year was the Python language developed? 1. 1995 2. 1972 3. 1981 4. 1989	1
3	Which one of the following is the correct extension of the Python file? 1. .py 2. .python 3. .p 4. None of these	1
4	In which year was the Python 3.0 version developed? 1. 2008 2. 2000 3. 2010 4. 2005	1
5	What do we use to define a block of code in Python language? 1. Key 2. Brackets 3. Indentation 4. None of these	1
6	Which character is used in Python to make a single line comment? 1. / 2. // 3. # 4. !	1

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7	Which of the following statements is correct regarding the object-oriented programming concept in Python? 1. Classes are real-world entities while objects are not real 2. Objects are real-world entities while classes are not real 3. Both objects and classes are real-world entities 4. All of the above	1
8	Which of the following declarations is incorrect? 1. _x = 2 2. __x = 3 3. __xyz__ = 5 4. None of these	1
9	Which of the following is not a keyword in Python language? 1. val 2. raise 3. try 4. with	1
10	Which of the following declarations is incorrect in python language? 1. xyzp = 5,000,000 2. x y z p = 5000 6000 7000 8000 3. x,y,z,p = 5000, 6000, 7000, 8000 4. x_y_z_p = 5,000,000	1
11	Which of the following operators is the correct option for power(ab)? 1. a ^ b 2. a**b 3. a ^ ^ b 4. a ^ * b	1
12	Study the following program: 1. x = 1 2. while True: 3. if x % 5 = = 0: 4. break	1

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	5. print(x) 6. x + = 1 What will be the output of this code? 1. error 2. 2 1 3. 0 3 1 4. None of these	
13	Study the following code: x = ['XX', 'YY'] for i in a: i.lower() print(a) What will be the output of this program? 1. ['XX', 'YY'] 2. ['xx', 'yy'] 3. [XX, yy] 4. None of these	1
14	Study the following statements: str1 = "javat" str2 = ":" str3 = "point" str1[-1:] What will be the output of this statement? 1. t 2. j 3. point 4. java	1

15	Study the following program:
	class book:
	def __init__(a, b):
	a.o1 = b
	
	class child(book):
	def __init__(a, b):
	a.o2 = b
	obj = page(32)
	print "%d %d" % (obj.o1, obj.o2)
	Which of the following is the correct output of this program?
	1. 32
		1

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	2. 32 32 3. 32 None 4. Error is generated	
16	Study the following program: d = {0: 'a', 1: 'b', 2: 'c'} for i in d: print(i) What will be the output of this statement? 1. a b c 2. 0 1 2 3. 0 a 1 b 2 c 4. None of these above	1
	Study the following program: def example(a): aa = a + '1' aa = a*1 return a example("javatpoint") What will be the output of this statement? 1. hello2hello2 2. hello2 3. Cannot perform mathematical operation on strings 4. indentationError	
17	Which of the following data types is shown below? L = [2, 54, 'javatpoint', 5] What will be the output of this statement? 1. Dictionary 2. Tuple 3. List 4. Stack	1
18	Study the following program: 1. i=(12, 20, 1, 0, 25) 2. i.sort() 3. print(i) What will be the output of this program? 1. 0 1 12 20 25 2. 1 12 20 25	1

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	3. FunctionError 4. AttributeError	
19	During the execution of following code, what will be the response, we get - import pandas as pd s =pd.Series([1,2,3,4,5],index= ['a','b','c','d','e']) print(s['f']) A. KeyError B. IndexError C. ValueError D. None of the above mentioned	1
20	How can you read a CSV file into a Pandas DataFrame? 1.pd.load_csv() 2.pd.read_csv() 3.pd.import_csv() 4.pd.open_csv()	1
21	Amongst which of the following can be used to create various inputs using pandas DataFrame. A. Lists, dict B. Series C. Numpy ndarrays and Another DataFrame D. All of the above mentioned	1
22	Observe the following code and identify what will be the outcome? import numpy as np a=np.array([1,2,3,4,5,6]) print(a) A. [1 2 3 4 5] B. [1 2 3 4 5 6] C. [0 1 2 3 4 5 6] D. None of the mentioned above	1
23	What will be the output of the following Python code? from numpy import random	1

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Department of Artificial Intelligence & Machine Learning

AY : 2023-24(even)

PYTHON FOR DATA SCIENCE - MARK SHEET

Sl.No.	Name of Student	Marks Secured	Total marks	Percentage
1	Muhammed Sahal K J	18	25	72
2	Negha S Vinod	20	25	80
3	Ananthu H	22	25	88
4	Kenze Biju	22	25	88
5	Sreenath K S	21	25	84
6	Alan Binoy	19	25	76
7	Alex J Mathew	18	25	72
8	Sana Mathew	19	25	76
9	Yashvanth Rao N	20	25	80
10	Adersh P S	19	25	76
11	Athul Manoj	16	25	64
12	Jyothilekshmi	18	25	72
13	Karishma kunjumon	20	25	80
14	Joshua George	24	25	96
15	Yadhukrishna	23	25	92
16	M B Sidharth	20	25	80
17	Mehruban p.s	20	25	80
18	Noushad	18	25	72
19	Muhammed yaasir	19	25	76
20	Navin M Tharakan	21	25	84
21	Jeffin Sajan	24	25	96
22	Krishnapriya K R	22	25	88
23	Malavika Shibu	20	25	80
24	Malavika S Nair	18	25	72
25	Abdulla Hashim	17	25	68
26	Abhirami Biju	22	25	88
27	Adil Nihal	24	25	96
28	Gowrisankaran B	21	25	84
29	Denny P Shaji	20	25	80
30	Dhanasurya Bino	21	25	84

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7	Which of the following statements is correct regarding the object-oriented programming concept in Python? 1. Classes are real-world entities while objects are not real 2. Objects are real-world entities while classes are not real 3. Both objects and classes are real-world entities 4. All of the above	1
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	5. print(x) 6. x + = 1 What will be the output of this code? 1. error 2. 2 1 3. 0 3 1 4. None of these	
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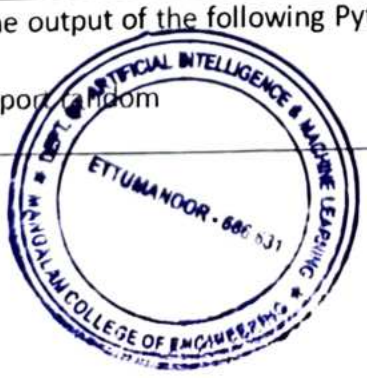
23	What will be the output of the following Python code? from numpy import random	1



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	x = random.randint(100) print(x) A. 56 B. 26 C. 40 D. All of the mentioned above	
24	Observe the code and identify the outcome: from numpy import random x = random.binomial(n=100, p=0.5, size=10) print(x) A. [41 53 50 52 60 47 50 50 50 46] B. [50 52 60 47 50 50 50 46] C. [41 53 50 52 60 47 50] D. None of the mentioned above	1
25	What will be the output of following Python code? import numpy as np a = np.array([(10,20,30)]) print(a.itemsize) A. 10 B. 9 C. 8 D. All of the mentioned above	1



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Class Time Table

ADPF06A

Department of Artificial Intelligence & Machine Learning
MANGALAM COLLEGE OF ENGINEERING

Course Name : Python for Data Science

Academic Year : 2023-2024(Even)

Semester : Even

Class Mode : Hybrid

Lesson Plan and Coverage

Sl. No	Date	Day	Time	Topics covered	Faculty Coordinator	Total No of hours
1	3/02/2024	Sat	9.30-12.30PM	Why Python, Python IDE, Hello World Program, Variables & Names String Basics	Mr. Abhijith M	3
2	04/02/2024	Sun	9.30-12.30PM	List, Tuple, Dictionaries, Conditional Statements, For and While Loop, Functions, Numbers and Math Functions, Common Errors in Python		3
3	11/02/2024	Sun	9.30-12.30PM	Functions as Arguments, List Comprehension, File Handling Debugging in Python		3
4	17/02/2024	Sat	9.30-12.30PM	Class and Objects Lambda, Filters and Map Regular		3

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				Expressions, Python PIP		
5	24/02/2024	Sat	9.30-12.30PM	Read Excel Data in Python, Iterators, Pickling, Python Json		3
6	02/03/2024	Sat	9.30-12.30PM	Introduction to Pandas Series Data Structure - Querying and Indexing Data Frame Data Structure		3
7	03/03/2024	Sun	9.30-12.30PM	Querying, Indexing and loading Merging data frames Group by operation Pivot table Date/Time functionality Example: Manipulating DataFrame.		3
8	10/03/2024	Sun	9.30-12.30PM	Data Modelling, Normalization, and Star Schema ACID transactions Select, Insert		3
9	16/03/2024	Sat	9.30-12.30PM	Update & Delete (DML and DDL) Join operations,		3
10	17/03/2024	Sun	9.30-12.30PM	Window functions (rank, dense_rank, row number etc) Data Types		3

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11	23/03/2024	Sat	9.30-12.30PM	Variables and Constants Conditional Structures (IF, CASE, GOTO and NULL)		3
12	24/03/2024	Sun	9.30-12.30PM	Integrating python with SQL		3
13	30/03/2024	Sat	9.30-12.30PM	Data Visualisation in Python (Matplotlib, Seaborn), Read Complex JSON files, Styling Tabulation Distribution of Data – Histogram		3
14	6/04/2024	Sat	9.30-12.30PM	Box Plot Data Visualization-Recap Pie Chart, Donut Chart,Stacked Bar Plot,Relative Stacked Bar,Plot Stacked Area Plot,Scatter Plots, Bar Plot		3
15	20/04/2024	Sat	9.30-12.30PM	Continuous vs Continuous Plot Line Plot, Line Plot ANY Data, Assessment		3
						45Hrs

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Coordinator

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AY : 2023-24(Even)

PYTHON FOR DATA SCIENCE - ATTENDANCE SHEET

Sl.No.	Name of Student	3/2	4/2	11/2	17/2	24/2	2/3	3/3	10/3	16/3	17/3	23/3	24/3	30/3	06/4	20/4
1	MUHAMMED SAHAL KJ	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2	Negha S Vinod	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3	Ananthu H	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4	Kenze Biju	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5	Sreenath K S	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P
6	Alan Binoy	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
7	Alex J Mathew	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
8	Sana Mathew	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P
9	Yashvanth Rao N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A
10	Adersh P S	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P
11	Athul Manoj	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
12	Jyothilekshmi	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
13	Karishma kunjumon	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
14	Joshua George	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
15	Yadhukrishna	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
16	M B Sidharth	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
17	Mehruban p.s	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
18	Muhammed Nadeem Noushad	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
19	Muhammed yaasir	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
20	Navin M Tharakan	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
21	Kavumkamattathil Jeffin Sajan	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
22	Krishnapriya K R	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
23	Malavika Shibu	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
24	Malavika S Nair	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
25	Abdulla Hashim	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
26	Abhirami Biju	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
27	Adil Nihal	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
28	Gowrisankaran B	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
29	Denny P Shaji	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
30	Dhanasurya Sunil	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

Coordinator

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CASH RECEIPT / VOUCHER

Date : 20/07/2024

Received with thanks, the below mentioned amount as a seed money for attending FDP/Conference/Workshop/etc...

Faculty Name with designation : Mr. Abhijith M., R&D officer, Cinema Clubby Business Solutions (P) Ltd.

Department:

Program Name: Add on Course on "Python for Data Science".

Amount (Rs.): 33,750/-

Amount in words: Thirty three thousand seven hundred and fifty only.

Received by

Approved by (HOD/Principal)

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Dept of Artificial Intelligence & Machine Learning
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Amount Issued By (Finance dept) AM

and neural network techniques like

Contact

abhijithm91@gmail.com

www.linkedin.com/in/abhijithwarrier (LinkedIn)

Top Skills

Deep Learning

Artificial Intelligence (AI)

Python (Programming Language)

Certifications

Data Analysis with Python

SQL Essential Training

Data Science Foundations: Fundamentals

Data Science & Analytics Career Paths & Certifications: First Steps

Bracketology Club: Using March Madness to Learn Data Science

Abhijith Muraleedhara Warrier

ADAS| e-mobility enthusiast|Data Science and AI

Experience

Mangalam college of Engineering
Assistant Professor
July 2024 - Present (5 months)

CinemaClubby Business Solutions Pvt Ltd.
Research And Development Officer
November 2018 - July 2024 (5 years 9 months)

Technocolabs Softwares
Machine Learning Engineer
August 2021 - August 2021 (1 month)

* Worked on Machine Learning project on various domains of tasks such as Data manipulation, classification models and neural network techniques like CNN layer, model training and deployment.

The Switch Company
Project Engineer
September 2017 - October 2018 (1 year 2 months)

chinmaya middle east LLC
Electrical Engineer
September 2015 - September 2017 (2 years 1 month)

ALIND - india
Electrical Engineer
June 2014 - July 2015 (1 year 2 months)

Education

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Visvesvaraya National Institute of Technology

Master of Technology - MTech, Electrical vehicle Technology · (August 2023 - August 2025)

Birla Institute of Technology and Science, Pilani

Master of Technology - MTech, Data Science and Engineering · (2021 - 2023)

The University of Texas at Austin - Red McCombs School of Business

Post Graduate Program in Artificial Intelligence and Machine Learning, Artificial Intelligence · (July 2021 - August 2023)

College Of Engineering, Chengannur

Bachelor of Technology (B.Tech.), Electrical and Electronics Engineering · (2009 - 2013)

Amritha Vidyalayam, Thiruvalla

12th · (1996 - 2009)

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MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Name of the Course: PYTHON FOR DATA SCIENCE

Duration:45 HRS

Venue:N 309

Name and class of Students: Jyothylakshmi

Sl.no	Overall are you satisfied with	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting	✓	✓			
2	The lecture sequence was well planned	✓				
3	The duration of the course was sufficient for the material covered.		✓			
4	The course exposed you to new knowledge and experience.	✓				
5	Course Content meet your expectations.		✓			
6	Overall rating of the session.	✓				

Fill your feedback by answering the following questions

Suggestions if any: Nil.



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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

CONSOLIDATED COURSE FEEDBACK

PYTHON FOR DATA SCIENCE

Academic Year:2023-2024

Sl No.	Questionaire	Total Response	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting	30	20	10	-	-	-
2	The lecture sequence was well planned.	30	23	07	-	-	-
3	The duration of the course was sufficient for the material covered	30	10	12	8	-	-
4	The course exposed you to new knowledge and practices.	30	22	8	-	-	-
5	course content meet with your expectations	30	15	12	3	-	-
6	Overall rating of the session	30	18	12	-	-	-

Course CoordinPator

HOD

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CERTIFICATE

Of Achievement

This Certificate is Proudly Presented To

KENZE BIJU

for the sucessfull completion of ***PYTHON FOR DATA SCIENCE*** *course offered by Department of Artificial Intelligence & Machine Learning of Mangalam College of Engineering*

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AISWARYA MOHAN K
Course Coordinator

AIMERS

Ms Nimmymol Manuel
HOD

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CERTIFICATE

Of Achievement

This Certificate is Proudly Presented To

JEFFIN · K · SAJAN

for the sucessfull completion of ***PYTHON FOR DATA SCIENCE*** *course offered by Department of Artificial Intelligence & Machine Learning of Mangalam College of Engineering*

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AISWARYA MOHAN K
Course Coordinator

Ms Nimmymol Manuel
HOD

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CERTIFICATE

Of Achievement

This Certificate is Proudly Presented To

ATHUL MANOJ

for the sucessfull completion of ***PYTHON FOR DATA SCIENCE*** *course offered by Department of Artificial Intelligence & Machine Learning of Mangalam College of Engineering*

AISWARYA MOHAN K
Course Coordinator

Ms Nimmymol Manuel
HOD

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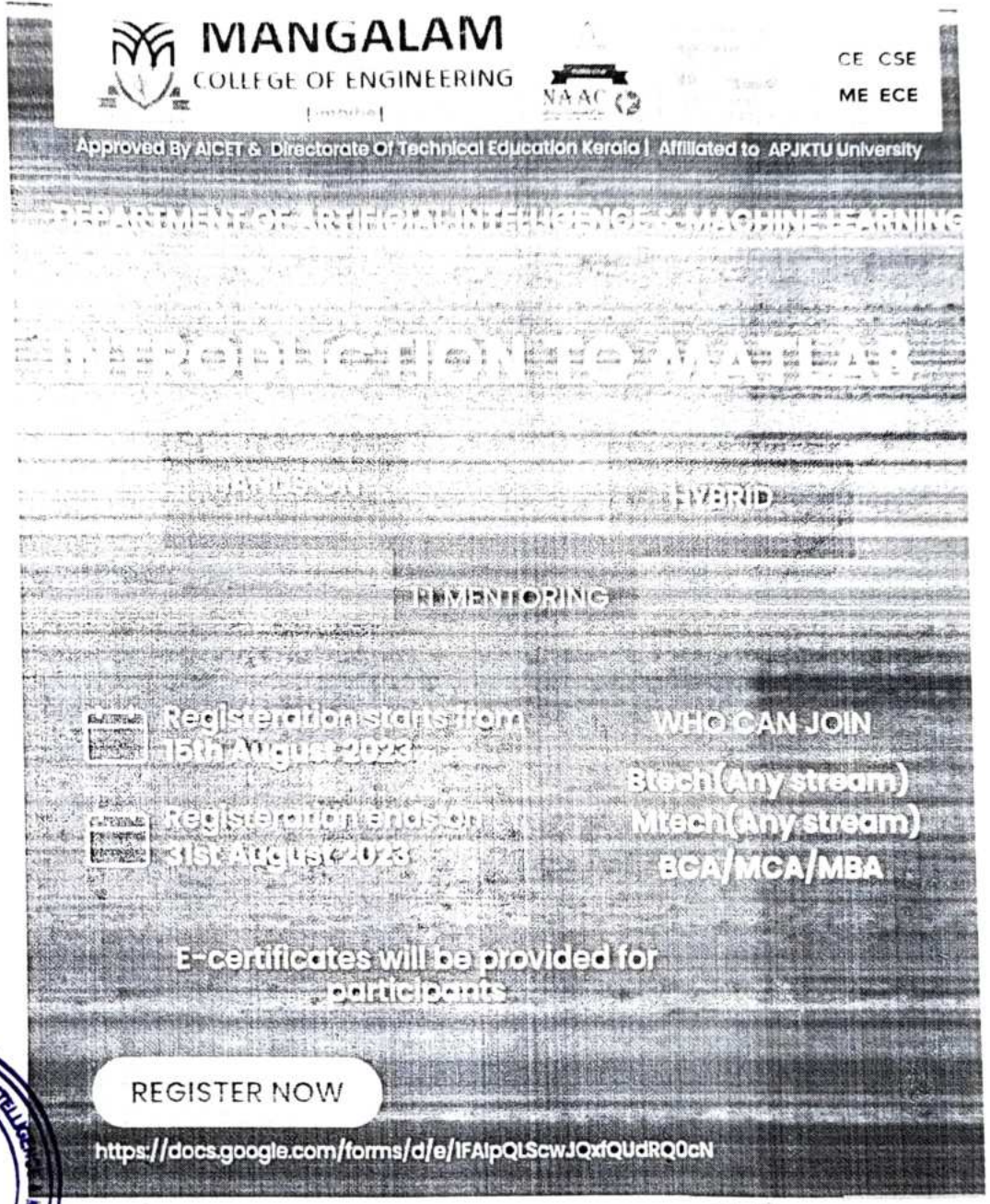

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PPDC

MEME

MANGALAM COLLEGE OF ENGINEERING
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Ref: MLM AIML/2023-2024/10

Date: 01/08/2023

Submitted to the Principal approval

We have proposed during this to conduct the certificate course on "**INTRODUCTION TO MATLAB**" for our U G students semester(2023-2024 ODD). Tentative timings and course fees details are mentioned below. Hence, we kindly request you to give approval for the same.

Course Explanation:

Introduction to MATLAB Course provides beginners with essential skills in MATLAB, a powerful tool for engineering, data analysis, and scientific computing. The course typically starts with an overview of the MATLAB interface and basic commands, allowing students to understand the workspace and use essential features. It then covers variable creation, data types (such as arrays and matrices), and basic operations. Students learn matrix manipulations, indexing, and applying built-in functions to handle data effectively. Key programming concepts, including loops, conditional statements, and custom functions, are introduced to enable logical flow in code. Finally, the course explores MATLAB's plotting capabilities, teaching students how to create and customize 2D and 3D plots for data visualization, which is crucial for analyzing and presenting results..

S.No	Name of Course	Course Instructors	Course Duration	Approx. course fee	Taget students (Year/Branch)
1	Introduction to matlab	Mr Benjamin A Jacob	30 hrs	750/-	Btech Students

Thanking you.

Course I/C

HOD/AIML

Principal

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING (AM)

Date: 12/07/2023 **Notice: AM/2023-24/ODD/Notices**

NOTICE

The Department of Artificial Intelligence and Machine Learning is planning to offer an add-on course in Introduction to MATLAB for the academic year 2023-2024 (odd semester). The course will last for 3 months, and interested students can register on or before August 31, 2023.

Eligibility

Students pursuing any bachelor's degree can join the add-on course in Introduction to MATLAB. Candidates must complete 30 hours (20 hours of practical and 10 hours of theory) and score more than 40% in both the written and practical examinations. Successful candidates will be issued a course certificate.

HoD

Copy to:

1. The Department Notice Board.
2. All staffs

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Registration Form_Introduction to MATLAB

(Fill this form if you are really interested , Prerequisite-No)

* Indicates required question

1. Email *

2. Name of the student *

3. Mail ID *

4. Course of Study *

   Mark only one oval.

   - ( ) B.Tech
   - ( ) M.Tech
   - ( ) Other

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5. Branch of Study *

Mark only one oval.

- CSE
- EEE
- ME
- AM
- CIVIL
- ECE
- CHEMICAL
- OTHER

6. Contact Number *

7. Present Address *

8. Do you want to register this course? *

Mark only one oval.

- YES
- NO

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INTRODUCTION TO MATLAB

Learning Objectives:

1. To learn features of MATLAB as a programming tool.
2. To promote new teaching model that will help to develop programming skills and technique to solve mathematical problems.
3. To understand MATLAB graphic feature and its applications.
4. To use MATLAB as a simulation tool.

Unit 1

Introduction to MATLAB 09 Hrs.
The MATLAB Environment
MATLAB Basics – Variables, Numbers, Operators, Expressions, Input and output.
Vectors, Arrays – Matrices

Unit 2

MATLAB Functions 05 Hrs.
Built-in Functions
User defined Functions

Unit 3

Graphics with MATLAB 05 Hrs.
Files and File Management – Import/Export
Basic 2D, 3D plots
Graphic handling

Unit 4

Programming with MATLAB 09 Hrs.
Conditional Statements, Loops
MATLAB Programs – Programming and Debugging.
Applications of MATLAB Programming.

Unit 5

Mathematical Computing with MATLAB 07 Hrs.
Algebraic equations
Basic Symbolic Calculus and Differential equations
Numerical Techniques and Transforms

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References:



1. "A Guide to MATLAB - for Beginners and Experienced Users", 2nd Ed., Brian R. Hunt, Ronald L.
Lipsman, Jonathan M. Rosenberg, Cambridge University Press, (2006).
2. "Essentials of MATLAB Programming", 2nd Ed., Stephen J. Chapman, Cengage Learning, (2009).
3. "MATLAB Demystified", David McMahon, The McGraw-Hill Companies, (2007).
4. "MATLAB® for Engineers", 3rd Ed., Holly Moore, Pearson Education, Inc., (2012).
5. "Engineering computation with MATLAB", 2nd Ed., David M. Smith, Pearson Education, Inc., (2010).



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AY : 2023-24(Odd)

INTRODUCTION TO MATLAB - ATTENDANCE SHEET

Sl.No.	Name of Student	3/9/23	17/9/23	24/9	8/10	22/10	12/11	26/11	3/12	10/12	17/12
1	Harijith M M	P	P	P	P	P	P	P	P	P	P
2	Jagannath S	P	P	P	P	P	P	P	P	P	P
3	Nandana suresh	P	P	P	P	P	P	P	P	P	P
4	Nirupama R Pillai	P	P	P	P	P	P	P	P	P	P
5	Niveditha Manoj	P	P	P	P	P	P	P	P	P	P
6	R Anand	P	P	P	P	A	P	P	P	P	P
7	Sona Mariyam John	P	P	P	P	P	P	P	P	P	P
8	Sree Lakshmi N P	P	P	P	P	P	P	P	P	P	P
9	Surya K Ratheesh	P	P	P	P	P	P	P	P	P	P
10	Swajna Mary Nelson	P	P	P	P	P	P	P	P	P	P
11	Anjith T Biju	P	P	P	P	P	P	P	P	P	P
12	Ansarudeen H A	P	P	P	P	P	P	P	P	P	P
13	Anstin jose	P	P	P	P	P	P	P	A	P	P
14	Arjun Krishna A B	P	P	P	P	P	P	P	P	P	P
15	Abhijith T Biju	P	P	P	P	P	P	P	P	P	P
16	Adithyan Unni	P	A	P	P	P	P	P	P	P	P
17	Aswin Reji	P	P	P	P	A	P	P	P	P	P
18	ATHIF SAMEER	P	P	P	P	P	P	P	P	A	P
19	Sooraj santhosh	P	P	P	P	P	P	P	P	P	P
20	Sureshkumar B	P	P	P	P	P	P	P	P	P	P
21	T Allwin Kingstan	P	P	P	P	P	P	P	P	P	P
22	Vinaya Prasad P	P	P	P	P	P	P	P	P	P	P
23	Alex J Mathew	P	P	P	P	P	P	P	P	P	P
24	Alfy Mathew Philip	P	P	P	P	P	P	P	P	P	A
25	Alfymol T A	P	P	P	P	P	P	P	P	P	P
26	Sooraj B Nair	P	P	P	P	P	P	P	P	P	P
27	Sreyas NS	P	P	P	P	P	P	P	P	P	P
28	Tom Binu	P	P	P	A	P	P	P	P	P	P
29	Tomin baby	P	P	P	P	P	P	P	P	P	P
30	Yadhukrishna	P	P	P	P	P	P	P	P	P	P

Coordinator

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CASH RECEIPT / VOUCHER

Date : 23/02/2024

Received with thanks, the below mentioned amount as a seed money for attending FDP/Conference/Workshop/etc...

Faculty Name with designation : Mr. Benjamin A. Jacob

Department: Full stack Developer, Zentience

Program Name: Add on Course on "Introduction to Matlab"

Amount (Rs.): 22500/-

Amount in words: Twenty two thousand five hundred only

Received by

Approved by
(HOD / Principal)

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Amount Issued By
(Finance dept) (AM)

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Contact

www.linkedin.com/in/benjamin-a-jacob-ind (LinkedIn)

Top Skills

Assistant Teaching
Computer Networs
Web Technologies

Languages

English (Professional Working)
Malayalam (Native or Bilingual)

Certifications

AWS Training and Certification - Demystifying AI/ML/DL
Certification in Data Science and Analytics
Managing Machine Learning Projects with Google Cloud
Microsoft Advertising Search Certification

Honors-Awards

Certificate of Achievement
Dr. Pradeep P. Thevanoor Innovation Award
PG Student's representative in the Board of Studies (BOS 2024)

Publications

Decoding consumer voice: Sentiment analysis of web-scraped product reviews
Disaster Management Using IoT and Machine Learning using K- Means
Automated Verification of Open/ Closed Principle: A Code Analysis Approach
Drought Prediction - A Comparative Analysis of Supervised Machine Learning Techniques
Implementation of Neural Network in Assembler

BENJAMIN A JACOB

Experienced IT Professional | Doctoral Candidate | Cognizant & Zane Systems

[illegible] Auckland, New Zealand

Summary

Results-oriented Computer Science Postgraduate with a strong foundation in data integration and full-stack development. Proven experience as a Programmer Analyst, specializing in data integration solutions for the IDC RnR Live Marketplace team. Skilled in ML and AI with a passion for research, as evidenced by publications and conference presentations. Demonstrated leadership responsibilities as a Board of Studies member for MTech (2024-2025) and international exchange program participant at Toyo University, Japan.

Experience

Mangalam college of Engineering
Teaching Assistant
November 2023 - May 2024 (7 months)
[illegible]

As a Teaching Assistant, I was privileged to support faculty members in a range of courses, including Natural Language Processing, Computer Networks, Logical System Design, and the Natural Language Processing Lab. I also contributed to the Mini Project in Artificial Intelligence and Machine Learning department.

During my time as a TA, I was passionate about sharing my knowledge and mentoring students. I'm proud of the positive impact I was able to make on their academic journeys. My dedication to teaching and my experiences in these roles have further strengthened my skills and prepared me for future opportunities.

Zentience
Full-stack Developer
July 2023 - November 2023 (5 months)
[illegible]

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Investigated methods for measuring developer productivity specifically within the context of full-stack engineering. This focus on efficiency is crucial for optimizing development workflows and team performance.

Delved into understanding the interconnectedness between different layers of a software architecture (e.g., presentation layer, business logic layer, data access layer). This knowledge is fundamental for full-stack developers who need to work seamlessly across these layers to deliver a cohesive application.

Explored ways to identify and capture recurring development patterns and defect patterns. By turning these patterns into reusable assets, you aimed to enhance overall engineering quality and productivity. Additionally, capturing defect patterns can help prevent similar issues from arising in the future, leading to a reduction in engineering defects.

Zane Systems
Junior Consultant
February 2022 - August 2022 (7 months)

As a Junior Consultant at Zane Systems, I gained valuable experience in various marketing and digital communication roles. I actively contributed to lead generation efforts, designing and managing the company's website using WordPress, and maintaining a strong online presence through social media platforms like LinkedIn.

My responsibilities included researching and identifying potential leads, creating engaging content for the company's website and social media channels, and analyzing website and social media metrics to measure campaign effectiveness. These experiences allowed me to develop a solid foundation in digital marketing and build essential skills in content creation, website management, and social media engagement.

Cognizant
1 year 2 months

Programmer Analyst
November 2021 - January 2022 (3 months)

As a Programmer Analyst, I played a pivotal role in ensuring the smooth operation of Microsoft's Bing advertising platform across international markets and the US. Within the IDC RnR Live Marketplace team (Search Ad domain),

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I provided essential technical expertise and data integration solutions to guarantee seamless advertising delivery.

My responsibilities included troubleshooting complex technical issues, collaborating with cross-functional teams to develop innovative solutions, and supporting the development of new projects within the Bing Advertising ecosystem. I leveraged my deep understanding of various technologies to optimize advertising performance and deliver exceptional user experiences.

Through my contributions, I helped to strengthen Microsoft's Bing advertising platform and drive business growth. I am proud to have been part of a team that played such a vital role in the digital advertising landscape.

Program Analyst Trainee
December 2020 - October 2021 (11 months)

Education

The University of Auckland
Doctor of Philosophy - PhD, Engineering Science · (October 2024 - November 2028)

Christ University, Bangalore
Master of Technology - MTech, Computer Science · (August 2022 - August 2024)

APJ Abdul Kalam Technological University
Bachelor of Technology - BTech, Computer Engineering · (August 2016 - September 2020)

Don Bosco High School - India
School of Higher secondary Education, Computer Science · (2014 - 2016)



Class Time Table

ADPF06A

Department of Artificial Intelligence & Machine Learning
MANGALAM COLLEGE OF ENGINEERING

Course Name : INTRODUCTION TO MATLAB

Semester : ODD

Academic Year : 2023-2024

Class Mode : Hybrid

Lesson Plan and Coverage

Si. No	Date	Day	Time	Topic covered	Faculty Coordinator	Total No of hours
1	3/09/2023	Sat	9.30-12.30PM	Introduction to MATLAB The MATLAB Environment	Mr. Benjamin A Jacob	3
2	17/09/2023	Sat	9.30-12.30PM	MATLAB Basics – Variables, Numbers, Operators, Expressions		3
3	24/09/2023	Sat	9.30-12.30PM	Input and output. Vectors, Arrays – Matrices		3
4	8/10/2023	Sat	9.30-12.30PM	MATLAB Functions Built-in Functions		3
5	22/10/2023	Sat	9.30-12.30PM	User defined Functions		3
6	12/11/2023	Sat	9.30-12.30PM	Graphics with MATLAB. Files and File Management		3
7	26/11/2023	Sat	9.30-12.30PM	Import/Export Basic 2D, 3D plots Graphic handling		3
8	3/12/2023	Sat	9.30-12.30PM	Programming with MATLAB , Conditional Statements, Loops		3
9	10/12/2023	Sat	9.30-12.30PM	MATLAB Programs – Programming and Debugging. Applications of MATLAB Programming.		3
10	17/12/2023	Sat	9.30-12.30PM	Mathematical Computing with MATLAB ,Algebraic equations Basic Symbolic Calculus and Differential equations		3

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				Numerical Techniques and Transforms		
						30 Hrs

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Introduction to MATLAB

QUESTION PAPER

1. Which of the following is NOT a data type in MATLAB?

A) Double

B) Symbolic

C) Integer

D) SQL

2. What command is used to clear all variables from the MATLAB workspace?

A) 'clearvars'

B) 'clc'

C) 'reset'

D) 'delete'

3. Which of the following creates a 3x3 identity matrix in MATLAB?

A) 'eye(3)'

B) 'id(3)'

C) 'identity(3)'

D) 'ones(3)'

4. In MATLAB, the '%' symbol is used for:

A) Defining variables

B) Commenting code

C) Calling functions

D) Running scripts

5. What is the command to display text or variables in MATLAB?

A) 'show'

B) 'disp'

C) 'text'

D) 'view'

6. Which keyword is used to define a function in MATLAB?

A) 'define'

B) 'function'

C) 'script'

D) 'input'

7. How would you call a user-defined function named 'calculateArea' with one argument 5?

A) 'calculateArea'

B) 'calculateArea[5]'

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C) `calculateArea(5)`

D) `function calculateArea(5)`

8. Which of the following is a builtin function in MATLAB?

A) `integrate`

B) `mean`

C) `sumArray`

D) `multiply`

9. What command is used to get help for a MATLAB function, like `plot`?

A) `info plot`

B) `help plot`

C) `show plot`

D) `guide plot`

10. How would you create an anonymous function `f(x) = x^2 + 2*x + 1` in MATLAB?

A) `f = @(x) x^2 + 2*x + 1`

B) `f(x) = x^2 + 2*x + 1`

C) `function f(x) = x^2 + 2*x + 1`

D) `function f(x) = x^2 + 2*x + 1`

11. What command is used to create a 2D plot in MATLAB?

A) `plot`

B) `scatter`

C) `surf`

D) `contour`

12. Which function is used to label the xaxis of a plot?

A) `ylabel`

B) `xaxis`

C) `xlabel`

D) `labelx`

13. What command is used to save a figure as a `.png` file in MATLAB?

A) `export`

B) `savefig`

C) `saveas`

D) `saveto`

14. Which command can be used to display multiple plots in the same figure window?

A) `plot2d`

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B) 'multiplot'

C) 'subplot'

D) 'addplot'

15. What is the command to close all figure windows in MATLAB?

A) 'close all'

B) 'clear windows'

C) 'terminate figures'

D) 'end plot'

16. Which of the following is NOT a conditional statement in MATLAB?

A) 'if'

B) 'switch'

C) 'select'

D) 'else'

17. What does the command 'for i = 1:5' do?

A) Loops 6 times

B) Loops 5 times

C) Infinite loop

D) No loop; error

18. Which function in MATLAB is used to pause program execution?

A) 'wait'

B) 'pause'

C) 'hold'

D) 'delay'

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19. Which MATLAB command would display error information for debugging?

A) 'geterror'

B) 'errorinfo'

C) 'lasterror'

D) 'debug'



20. How would you end a 'while' loop in MATLAB if a condition is met?

A) 'stop'

B) 'break'

C) 'endloop'

D) 'exit'

21. Which function solves a system of linear equations $(Ax = B)$?

A) 'linsolve'

B) 'solve'

C) 'matrixsolve'

D) 'findx'

22. What function is used for symbolic differentiation in MATLAB?

A) 'diff'

B) 'deriv'

C) 'symdiff'

D) 'calculus'

23. How do you represent an imaginary number in MATLAB?

A) 'i'

B) 'j'

C) Both A and B

D) Only A

24. Which function would be used to compute the numerical integration of a function?

A) 'integrate'

B) 'int'

C) 'quad'

D) 'sum'

25. What command is used to compute the Fourier transform in MATLAB?

A) 'ft'

B) 'fourier'

C) 'fft'

D) 'transform'



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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Name of the Student : Sooraj Santhosh Register Number : MLM21AI1022

Add On Course – Introduction to MATLAB

Type: Multiple Choice Questions Time:90 minutes

Course Name :Introduction to MATLAB Marks:25

Marks 23/25 Examiner Name and Signature Benjamin A. Jacob.

1 D	2 A	3 A	4 B	5 B	6 B	7 A	8 B	9 B	10 A
11 A	12 B	13 C	14 C	15 A	16 C	17 B	18 B	19 C	20 B
21 A	22 A	23 C	24 C	25 B	26	27	28	29	30

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B) `f(x) = x^2 + 2*x + 1`

C) `@f(x) = x^2 + 2*x + 1`

D) `function f(x) = x^2 + 2*x + 1`

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B) 'multiplot'

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A) 'wait'

B) 'pause'

C) 'hold'

D) 'delay'

19. Which MATLAB command would display error information for debugging?

A) 'geterror'

B) 'errorinfo'

C) 'lasterror'

D) 'd[illegible]'

20. H[illegible] would you end a 'while' loop in MATLAB if a condition is met?

A) '[illegible]'

B) 'br[illegible]'

C) 'endloop'

D) 'exit'

21. Which function solves a system of linear equations (Ax = B)?

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A) 'linsolve'

B) 'solve'

C) 'matrixsolve'

D) 'findx'

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D) Only A

24. Which function would be used to compute the numerical integration of a function?

A) 'integrate'

B) 'int'

C) 'quad'

D) 'sum'

25. What command is used to compute the Fourier transform in MATLAB?

A) 'ft'

B) 'fourier'

C) 'fft'

D) 'transform'



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Department of Artificial Intelligence & Machine Learning

AY : 2023-24(Odd)

INTRODUCTION TO MATLAB - MARK SHEET

Sl.No.	Name of Student	Marks Secured	Total marks	Percentage
1	Harijith M M	20	25	80
2	Jagannath S	21	25	84
3	Nandana suresh	19	25	76
4	Nirupama R Pillai	22	25	88
5	Niveditha Manoj	21	25	84
6	R.Anand	20	25	80
7	Sona Mariyam John	18	25	72
8	Sree Lakshmi N P	25	25	100
9	Surya K Ratheesh	24	25	96
10	Swajna Mary Nelson	19	25	76
11	Anjith T Biju	16	25	64
12	Ansarudeen H A	18	25	72
13	Anstin jose	17	25	68
14	Arjun Krishna A B	24	25	96
15	Abhijith T Biju	23	25	92
16	Adithyan Unni	20	25	80
17	Aswin Keji	19	25	76
18	Athif Sameer	18	25	72
19	Sooraj santhosh	23	25	92
20	Sureshkumar B	18	25	72
21	T Allwin Kingstan	25	25	100
22	Vinaya Prasad P	22	25	88
23	Alex J Mathew	20	25	80
24	Ally Mathew Philip	16	25	64
25	Aliyniol T A	18	25	72
26	Sooraj B Nair	20	25	80
27	Sreyas NS	21	25	84
28	Tom Binu	22	25	88
29	Tomin baby	21	25	84
30	Yadhukrishna	20	25	80

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MANGALAM COLLEGE OF ENGINEERING

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Name of the Course: INTRODUCTION TO MATLAB

Duration: 30 HRS

Venue:N 309

Name and class of Students: Alfy Mathew Philip

Sl.no	Overall are you satisfied with	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting	✓				
2	The lecture sequence was well planned		✓			
3	The duration of the course was sufficient for the material covered.		✓			
4	The course exposed you to new knowledge and experience.	✓				
5	Course Content meet your expectations.	✓				
6	Overall rating of the session.	✓				

Fill your feedback by answering the following questions

Suggestions if any: Nil

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CONSOLIDATED COURSE FEEDBACK

INTRODUCTION TO MATLAB

Academic Year:2023-2024

Sl No.	Questionaire	Total Response	Excellent(5)	Very Good(4)	Good(3)	Average(2)	Poor(1)
1	The content of the course was useful and interesting	30	21	9	-	-	-
2	The lecture sequence was well planned.	30	20	10	-	-	-
3	The duration of the course was sufficient for the material covered	30	12	12	6	-	-
4	The course exposed you to new knowledge and practices.	30	25	5	-	-	-
5	course content meet with your expectations	30	16	10	4	-	-
6	Overall rating of the session	30	27	3	-	-	-

Course Coordintator

HOD

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Of Achievement

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T. ALLWIN KINGSTAN

for the sucessfull completion of ***INTRODUCTION TO MATLAB*** *course offered by Department of Artificial Intelligence & Machine Learning of Mangalam College of Engineering*

AISWARYA MOHAN K
Course Coordinator

Ms Nimmymol Manuel
HOD

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ANJITH T BIJU

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AISWARYA MOHANK
Course Coordinator

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Ms Nimmymol Manuel
HOD

CODE	Mathematics for Machine Learning	CATEGORY	L	T	P	CREDIT
CST 284		MINOR	3	1	0	4

Preamble: This is the foundational course for awarding B. Tech. Honours in Computer Science and Engineering with specialization in ***Machine Learning***. The purpose of this course istointroducemathematicalfoundationsofbasicMachineLearningconceptsamonglearners, on which Machine Learning systems are built. This course covers Linear Algebra, Vector Calculus, Probability and Distributions, Optimization and Machine Learning problems. Concepts in this course help the learners to understand the mathematical principles in Machine Learning and aid in the creation of new Machine Learning solutions, understand & debug existing ones, and learn about the inherent assumptions & limitations of the current methodologies.

Prerequisite: A sound background in higher secondary school Mathematics.

Course Outcomes: After the completion of the course the student will be able to

CO 1	Make use of the concepts, rules and results about linear equations, matrix algebra, vector spaces, eigenvalues & eigenvectors and orthogonality & diagonalization to solve computational problems (Cognitive Knowledge Level: **Apply**)
CO 2	Perform calculus operations on functions of several variables and matrices, including partial derivatives and gradients (Cognitive Knowledge Level: **Apply**)
CO 3	Utilize the concepts, rules and results about probability, random variables, additive & multiplicative rules, conditional probability, probability distributions and Bayes' theorem to find solutions of computational problems (Cognitive Knowledge Level: **Apply**)
CO 4	Train Machine Learning Models using unconstrained and constrained optimization methods (Cognitive Knowledge Level: **Apply**)

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	√	√	√	√								√
CO 2	√	√	√									√
CO 3	√	√	√	√								√
CO 4	√	√	√	√		√						√

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Abstract POs defined by National Board of Accreditation			
PO#	**Broad PO**	**PO#**	**Broad PO**
PO1	Engineering Knowledge	PO7	Environment and Sustainability
PO2	Problem Analysis	PO8	Ethics
PO3	Design/Development of solutions	PO9	Individual and team work
PO4	Conduct investigations of complex problems	PO10	Communication
PO5	Modern tool usage	PO11	Project Management and Finance
PO6	The Engineer and Society	PO12	Life long learning

Assessment Pattern

Bloom's Category	Continuous Assessment Tests		End Semester Examination
	1	2	
Remember	20%	20%	20%
Understand	40%	40%	40%
Apply	40%	40%	40%
Analyse			
Evaluate			
Create			

Mark Distribution

Total Marks	CIE Marks	ESE Marks	ESE Duration
150	**50**	**100**	**3 hours**

Continuous Internal Evaluation Pattern:

Attendance : 10 marks

Continuous Assessment Tests : 25 marks

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Continuous Assessment Assignment : 15 marks

Internal Examination Pattern:

Each of the two internal examinations has to be conducted out of 50 marks

First Internal Examination shall be preferably conducted after completing the first half of the syllabus and the Second Internal Examination shall be preferably conducted after completing remaining part of the syllabus.

There will be two parts: Part A and Part B. Part A contains 5 questions (preferably, 2 questions each from the completed modules and 1 question from the partly covered module), having 3 marks for each question adding up to 15 marks for part A. Students should answer all questions from Part A. Part B contains 7 questions (preferably, 3 questions each from the completed modules and 1 question from the partly covered module), each with 7 marks. Out of the 7 questions in Part B, a student should answer any 5.

End Semester Examination Pattern: There will be two parts; Part A and Part B. Part A contains 10 questions with 2 questions from each module, having 3 marks for each question. Students should answer all questions. Part B contains 2 questions from each module of which student should answer anyone. Each question can have maximum 2 sub-divisions and carries 14 marks.



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Syllabus

Module 1

LINEAR ALGEBRA. Systems of Linear Equations – Matrices, Solving Systems of Linear Equations. Vector Spaces –Vector Spaces, Linear Independence, Basis and Rank. Linear Mappings – Matrix Representation of Linear Mappings, Basis Change, Image and Kernel.

Module 2

ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS: Norms, Inner Products, Lengths and Distances. Angles and Orthogonality, Orthonormal Basis, Orthogonal Complement, Orthogonal Projections – Projection into One Dimensional Subspaces, Projection onto General Subspaces, Gram-Schmidt Orthogonalization.

Determinant and Trace, Eigenvalues and Eigenvectors, Cholesky Decomposition, Eigen decomposition and Diagonalization, Singular Value Decomposition, Matrix Approximation.

Module 3

VECTOR CALCULUS : Differentiation of Univariate Functions - Partial Differentiation and Gradients. Gradients of Vector Valued Functions, Gradients of Matrices, Useful Identities for Computing Gradients. Back propagation and Automatic Differentiation – Gradients in Deep Network, Automatic Differentiation.Higher Order Derivatives-Linearization and Multivariate TaylorSeries.

Module 4

Probability and Distributions : Construction of a Probability Space - Discrete and Continuous Probabilities. Sum Rule, Product Rule, and Bayes' Theorem. Summary Statistics and Independence – Gaussian Distribution - Conjugacy and the Exponential Family - Change of Variables/Inverse Transform.

Module 5

Optimization : Optimization Using Gradient Descent - Gradient Descent With Momentum, Stochastic Gradient Descent. Constrained Optimization and Lagrange Multipliers - Convex Optimization - Linear Programming - Quadratic Programming.

Text book:

1.Mathematics for Machine Learning by Marc Peter Deisenroth, A. Aldo Faisal, and Cheng Soon Ong published by Cambridge University Press (freely available at https://mml - book.github.io)

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Reference books:

1. Linear Algebra and Its Applications, 4th Edition by Gilbert Strang
2. Linear Algebra Done Right by Axler, Sheldon, 2015 published bySpringer
3. Introduction to Applied Linear Algebra by Stephen Boyd and Lieven Vandenberghe, 2018 published by Cambridge UniversityPress
4. Convex Optimization by Stephen Boyd and Lieven Vandenberghe, 2004 published by Cambridge UniversityPress
5. Pattern Recognition and Machine Learning by Christopher M Bishop, 2006, published bySpringer
6. Learning with Kernels – Support Vector Machines, Regularization, Optimization, and Beyond by Bernhard Scholkopf and Smola, Alexander J Smola, 2002, published by MIT Press
7. Information Theory, Inference, and Learning Algorithms by David J. C MacKay, 2003 published by Cambridge UniversityPress
8. Machine Learning: A Probabilistic Perspective by Kevin P Murphy, 2012 published by MITPress.
9. The Nature of Statistical Learning Theory by Vladimir N Vapnik, 2000, published by Springer



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Sample Course Level Assessment Questions.

Course Outcome 1 (CO1):

1. Find the set S of all solutions in x of the following inhomogeneous linear systems $Ax = b$, where A and b are defined as follows:

$$A = \begin{bmatrix} 1 & -1 & 0 & 0 & 1 \\ 1 & 1 & 0 & -3 & 0 \\ 2 & -1 & 0 & 1 & -1 \\ -1 & 2 & 0 & -2 & -1 \end{bmatrix}, \quad b = \begin{bmatrix} 3 \\ 6 \\ 5 \\ -1 \end{bmatrix}$$

2. Determine the inverses of the following matrix if possible

$$A = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 \\ 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 \end{bmatrix}$$

3. Find the characteristic equation, eigenvalues, and eigenspaces corresponding to each eigenvalue of the following matrix

$$\begin{bmatrix} 2 & 0 & 4 \\ 0 & 3 & 0 \\ 0 & 1 & 2 \end{bmatrix}$$

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4. Diagonalize the following matrix, if possible

$$\begin{bmatrix} 3 & 0 & 0 & 0 \\ 0 & 2 & 0 & 0 \\ 0 & 0 & 2 & 0 \\ 1 & 0 & 0 & 3 \end{bmatrix}$$

5. Find the singular value decomposition (SVD) of the following matrix

$$\begin{bmatrix} 0 & 1 & 1 \\ \sqrt{2} & 2 & 0 \\ 0 & 1 & 1 \end{bmatrix}$$

Course Outcome 2 (CO2):

1. For a scalar function $f(x, y, z) = x^2 + 3y^2 + 2z^2$, find the gradient and its magnitude at the point **(1, 2, -1)**.
2. Find the maximum and minimum values of the function $f(x,y)=4x+4y-x^2-y^2$ subject to the condition $x^2 + y^2 <= 2$.
3. Suppose you were trying to minimize $f(x, y) = x^2 + 2y + 2y^2$. Along what vector should you travel from (5,12)?
4. Find the second order Taylor series expansion for $f(x, y) = (x + y)^2$about **(0 ,0)**.
5. Find the critical points of $f(x, y) = x^2 - 3xy + 5x - 2y + 6y^2 + 8$.
6. Compute the gradient of the Rectified Linear Unit (ReLU) function $ReLU(z) = max(0 , z)$.
7. Let $L = \|Ax - b\|^2_2$, where A is a matrix and x and b are vectors. Derive dL in terms of dx.



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Course Outcome 3 (CO3):

1. Let J and T be independent events, where $P(J)=0.4$ and $P(T)=0.7$.
   i. Find $P(J \cap T)$
   ii. Find $P(J \quad T)$
   iii. Find $P(J \cap T')$
2. Let A and B be events such that $P(A)=0.45$, $P(B)=0.35$ and $P(A \cup B)=0.5$. Find $P(A|B)$.
3. A random variable R has the probability distribution as shown in the followingtable:

r	1	2	3	4	5
P(R=r)	0.2	a	b	0.25	0.15

   i. Given that $E(R)=2.85$, find a and b.
   ii. Find $P(R>2)$.
4. A biased coin (with probability of obtaining a head equal to $p> 0$) is tossed repeatedly and independently until the first head is observed. Compute the probability that the first head appears at an even numbered toss.
5. Two players A and B are competing at a trivia quiz game involving a series of questions. On any individual question, the probabilities that A and B give the correct answer are p and q respectively, for all questions, with outcomes for different questions being independent. The game finishes when a player wins by answering a question correctly. Compute the probability that A winsif
   i. A answers the firstquestion,
   ii. B answers the first question.
6. A coin for which $P(heads) = p$ is tossed until two successive tails are obtained. Find the probability that the experiment is completed on the nth toss.

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Course Outcome 4(CO4):

1. Find the extrema of $f(x, y) = x$ subject to $g(x, y) = x^2 + 2y^2 = 3$.
2. Maximize the function $f(x, y, z) = xy + yz + xz$ on the unit sphere $g(x, y, z) = x^2 + y^2 + z^2 = 1$.
3. Provide necessary and sufficient conditions under which a quadratic optimization problem be written as a linear least squaresproblem.
4. Consider the univariate function $f(x) = x^3 + 6x^2 - 3x - 5$. Find its stationary points and indicate whether they are maximum, minimum, or saddlepoints.
5. Consider the update equation for stochastic gradient descent. Write down the update when we use a mini-batch size ofone.
6. Consider the function

$$f(x) = (x_1 - x_2)^2 + \frac{1}{1 + x_1^2 + x_2^2}.$$

   i. Is $f(x)$ a convex function? Justify youranswer.

   ii. Is (1 , -1) a local/global minimum? Justify youranswer.

7. Is the function $f(x, y) = 2x^2 + y^2 + 6xy - x + 3y - 7$ convex, concave, or neither? Justify youranswer.
8. Consider the following convex optimization problem

$$\text{minimize } \frac{x^2}{2} + x + 4y^2 - 2y$$

   Subject to the constraint $x + y >= 4, x, y >= 1$.

   Derive an explicit form of the Lagrangian dual problem.

9. Solve the following LP problem with the simplexmethod.

$$max\ 5x_1 + 6x_2 + 9x_3 + 8x_4$$

   subject to the constraints

$$\begin{aligned} x_1 - 2x_2 + 3x_3 + x_4 &\leq 5 \\ x_1 - x_2 + 2x_3 + 3x_4 &\leq 3 \\ x_1, x_2, x_3, x_4 &\geq 0 \end{aligned}$$

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Model Question paper

QP Code		Total Pages : 5
Reg No.:_____		Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

IV SEMESTER B.TECH (HONOURS) DEGREE EXAMINATION, MONTH and YEAR

Course Code: CST 294

Course Name: MATHEMATICS FOR FOR MACHINE LEARNING

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries3 marks.

			Marks
1		Show that with the usual operation of scalar multiplication but with addition on reals given by $x \# y = 2(x + y)$ is not a vector space.	
2		Are the following sets of vectors linearly independent? Explain your answer. $x_1 = \begin{bmatrix} 2 \\ -1 \\ 3 \end{bmatrix}$, $x_2 = \begin{bmatrix} 1 \\ 1 \\ -2 \end{bmatrix}$, $x_3 = \begin{bmatrix} 3 \\ -3 \\ 8 \end{bmatrix}$	
3		Find the angle between the vectors $x = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$ and $y = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$.	
4		Find the eigen values of the following matrix in terms of k. Can you find an eigen vector corresponding to each of the eigen values? $\begin{bmatrix} 1 & k \\ 2 & 1 \end{bmatrix}$	
5		Let $f(x, y, z) = xye^r$, where $r = x^2+z^2-5$. Calculate the gradient of f at the point $(1, 3, -2)$.	
6		Compute the Taylor polynomials $Tn, n = 0, \ldots, 5$ of $f(x) = sin(x) + cos(x)$ at $x_0 = 0$.	
7		Let X be a continuous random variable with probability density function on $0 <= x <= 1$ defined by $f(x) = 3x^2$. Find the pdf of $Y = X^2$.	
8		Show that if two events A and B are independent, then A and B' are independent.	
9		Explain the principle of the gradient descent algorithm.	
10		Briefly explain the difference between (batch) gradient descent and stochastic gradient descent. Give an example of when you might prefer one over the other.	

PART B

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		Answer any one Question from each module. Each question carries 14 Marks	
11	a)	i.Find all solutions to the system of linearequations $-1x + 5z = -2$ $-3x - 3y + 5z = 3$ $-x + 2y + 2z = -1$	(4)
		ii. Prove that all vectors orthogonal to $[2,-3,1]^T$ forms a subspace **W** of R^3. What is *dim (W)* and why?	(4)
	b)	A set of n linearly independent vectors in R^n forms a basis. Does the set of vectors (2, 4,–3),(0, 1, 1),(0, 1,–1) form a basis for R^3? Explain yourreasons.	(6)
		OR	
12	a)	Find all solutions in $x = \begin{bmatrix} x1 \\ x2 \\ x3 \end{bmatrix} \in R^3$ of the equation system $Ax = 12x$, where $A = \begin{bmatrix} 6 & 4 & 3 \\ 6 & 0 & 9 \\ 0 & 8 & 0 \end{bmatrix}$ and $\sum_{i=1}^{3} x_i = 1$.	(7)
	b)	Consider the transformation $T(x, y) = (x + y, x + 2y, 2x + 3y)$. Obtain *ker T* and use this to calculate the nullity. Also find the transformation matrix for*T*.	(7)
13	a)	Use the Gramm-Schmidt process to find an orthogonal basis for the column space of the following matrix. $\begin{bmatrix} 2 & 1 & 0 \\ 1 & -1 & 1 \\ 0 & 3 & 1 \\ 1 & 1 & 1 \end{bmatrix}$	(7)
	b)	Find the SVD of the matrix. $\begin{bmatrix} 2 & 2 \\ -1 & -1 \end{bmatrix}$	(7)
		OR	
14	a)	Let L be the line through the origin in R^2 that is parallel to the vector $[3, 4]^T$. Find the standard matrix of the orthogonal projection onto L. Also find the point on L which is closest to the point (7, 1) and find the point on L which is closest to the point $(-3, 5)$.	(6)
		ii. Find the rank-1 approximation of	

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		$\begin{bmatrix} 3 & 2 & 2 \\ 2 & 3 & -2 \end{bmatrix}$	
	b)	i. Find an orthonormal basis of R^3 consisting of eigenvectors for the following matrix. $\begin{bmatrix} 1 & 0 & -2 \\ 0 & 5 & 0 \\ -2 & 0 & 4 \end{bmatrix}$	(8)
		ii. Find a 3×3 orthogonal matrix S and a 3×3 diagonal matrix D such that $A = SDS^T$	
15	a)	A skier is on a mountain with equation $z=100-0.4x^2-0.3y^2$, where z denotes height. i. The skier is located at the point with xy-coordinates **(1, 1)**, and wants to ski downhill along the steepest possible path. In which direction (indicated by a vector **(a, b)** in the xy-plane) should the skier begin skiing. **ii.** The skier begins skiing in the direction given by the xy-vector **(a, b)** you found in part (i), so the skier heads in a direction in space given by the vector **(a, b, c)**. Find the value of **c**.	(8)
	b)	Find the linear approximation to the function $f(x,y) = 2 - \sin(-x - 3y)$ at the point $(0, \pi)$, and then use your answer to estimate $f(0.001, \pi)$.	(6)
		OR	
16	a)	Let g be the function given by $$g(x,y) = \begin{cases} \dfrac{x^2 y}{x^2+y^2} & \text{if } (x,y) \neq (0,0); \\ 0 & \text{if } (x,y) = (0,0). \end{cases}$$ i. Calculate the partial derivatives of g at **(0,0)**. ii. Show that g is not differentiable at **(0,0)**.	(8)
	b)	Find the second order Taylor series expansion for $f(x,y) = e^{-(x2+y2)}\cos(xy)$ about $(0, 0)$.	(6)
17	a)	There are two bags. The first bag contains four mangos and two apples; the second bag contains four mangos and four apples. We also have a biased coin, which shows "heads" with probability 0.6 and "tails" with probability 0.4. If the coin shows "heads", we pick a fruit at random from bag 1;	(6)

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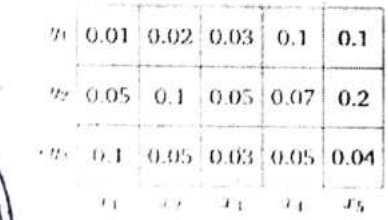
		otherwise we pick a fruit at random from bag 2. Your friend flips the coin (you cannot see the result), picks a fruit at random from the corresponding bag, and presents you a mango. What is the probability that the mango was picked from bag 2?	
	b)	Suppose that one has written a computer program that sometimes compiles and sometimes not (code does not change). You decide to model the apparent stochasticity (success vs. no success) x of the compiler using a Bernoulli distribution with parameter μ: $p(x \mid \mu) = \mu^x (1-\mu)^{1-x}, \quad x \in \{0,1\}$ Choose a conjugate prior for the Bernoulli likelihood and compute the posterior distribution $p(\mu \mid x_1, \ldots, x_N)$.	(8)
		OR	
18	a)	Two dice are rolled. A = 'sum of two dice equals 3' B = 'sum of two dice equals 7' C = 'at least one of the dice shows a 1' i. What is P(A|C)? ii. What is P(B|C)? iii. Are A and C independent? What about B and C?	(6)
	b)	Consider the following bivariate distribution p(x,y) of two discrete random variables X and Y .  Compute: i. The marginal distributions p(x) and p(y). ii. The conditional distributions p(x|Y = y_1) and p(y|X = x_3).	(8)
19	a)	Find the extrema of $f(x,y,z) = x - y + z$ subject to $g(x,y,z) = x^2 + y^2 + z^2$	(8)

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		=2.	
	b)	Let $P = \begin{bmatrix} 13 & 12 & -2 \\ 12 & 17 & 6 \\ -2 & 6 & 12 \end{bmatrix}$, $q = \begin{bmatrix} -22.0 \\ -14.5 \\ 13.0 \end{bmatrix}$, and $r = 1$. Show that $x^* = (1, 1/2, -1)$ is optimal for the optimization problem $\min \quad \frac{1}{2}x^T Px + q^T x + r$ s.t. $-1 \le x_i \le 1,\ i = 1, 2, 3.$	(6)
		OR	
20	a)	Derive the gradient descent training rule assuming that the target function is represented as $o_d = w_0 + w_1x_1 + \ldots + w_nx_n$. Define explicitly the cost/ error function E, assuming that a set of training examples D is provided, where each training example d D is associated with the target output t_d.	(8)
	b)	Find the maximum value of $f(x,y,z) = xyz$ given that $g(x,y,z) = x + y + z = 3$ and $x,y,z>=0$.	(6)
		***	



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Teaching Plan		
No	**Topic**	**No. of Lectures (49)**
	Module-I (LINEAR ALGEBRA)	**8**
1.1	Matrices, Solving Systems of Linear Equations	1
1.2	Vector Spaces	1
1.3	Linear Independence	1
1.4	Basis and Rank (Lecture – 1)	1
1.5	Basis and Rank (Lecture – 2)	1
1.6	Linear Mappings	1
1.7	Matrix Representation of Linear Mappings	1
1.8	Images and Kernel	1
	Module-II (ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS)	**11**
2.1	Norms, Inner Products	1
2.2	Lengths and Distances, Angles and Orthogonality	1
2.3	Orthonormal Basis, Orthogonal Complement	1
2.4	Orthogonal Projections – Projection into One Dimensional Subspaces	1
2.5	Projection onto General Subspaces.	1
2.6	Gram-Schmidt Orthogonalization	1
2.7	Determinant and Trace, Eigen values and Eigenvectors.	1

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2.8	Cholesky Decomposition	1
2.9	Eigen decomposition and Diagonalization	1
2.10	Singular Value Decomposition	1
2.11	Matrix Approximation	1
	Module-III (VECTOR CALCULUS)	**9**
3.1	Differentiation of Univariate Functions, Partial Differentiation and Gradients	1
3.2	Gradients of Vector Valued Functions (Lecture 1)	1
3.3	Gradients of Vector Valued Functions (Lecture 2)	1
3.4	Gradients of Matrices	1
3.5	Useful Identities for Computing Gradients	1
3.6	Backpropagation and Automatic Differentiation – Gradients in deep Netwok	1
3.7	Automatic Differentiation	1
3.8	Higher Order Derivatives	1
3.9	Linearization and Multivariate Taylor Series	1
	Module-IV (Probability and Distributions)	**10**
4.1	Construction of a Probability Space	1
4.2	Discrete and Continuous Probabilities (Probability Density Function, Cumulative Distribution Function)	1
4.3	Sum Rule, Product Rule	1
4.4	Bayes' Theorem	1
4.5	Summary Statistics and Independence (Lecture 1)	1
4.6	Summary Statistics and Independence (Lecture 2)	1
4.7	Bernoulli, Binomial, Uniform (Discrete) Distributions	1
4.8	Uniform (Continuous), Poisson Distributions	1
4.9	Gaussian Distribution	1

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4.10	Conjugacy and the Exponential Family (Beta – Bernoulli, Beta – Binomial Conjugacies)	1
	Module-V (Optimization)	7
5.1	Optimization Using Gradient Descent.	1
5.2	Gradient Descent With Momentum, Stochastic Gradient Descent	1
5.3	Constrained Optimization and Lagrange Multipliers (Lecture 1)	1
5.4	Constrained Optimization and Lagrange Multipliers (Lecture 2)	1
5.5	Convex Optimization	1
5.6	Linear Programming	1
5.7	Quadratic Programming	1



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Program : B.Tech
Branch/Stream : Artificial Intelligence and Machine learning
Course name/code : UST 281 Mathematical for Machine Learning

Academic year : 2023-2024
Semester/Div : S4 MINOR

Sl No.	Reg. No.	Name of Student
1	LMLM22ME084	ALFOUZAN B
2	LMLM22ME087	ASWIN KRISHNA U
3	MLM22EC002	ABHIJITH P L
4	MLM22EC005	ADARSH P BABU
5	MLM22EC008	ADITHYAN M M
6	MLM22EC011	AKHILA K S
7	MLM22EC012	AKSHAY SURESH
8	MLM22EC022	ARJUN K SAJITH
9	MLM22EC027	ATHUL SANTHOSH
10	MLM22EC059	SREYA PRASAD
11	MLM22ME039	ASLAM B KABEER
12	MLM22ME044	C M ANANTHA KRISHNA
13	MLM22ME059	JISS JOHN JOSEPH
14	MLM22ME063	MEBIN EMMANUEL
15	MLM22ME078	VISHAL K S

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Class-in-charge

Course –In-charge

HOD

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Dept of Artificial Intelligence & Machine Learning
Mangalam College of Engineering
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	Lesson Plan	AI &ML
B.Tech in Artificial Intelligence and Machine Learning		Branch: B.Tech in Artificial Intelligence and Machine Learning
Semester: S3/S7		Academic Year: 2023-24
Course Code: CST284	L-T-P Credits: 3-1-0-4	Course Name: MATHEMATICS FOR MACHINE LEARNING .

H.R: Hours required

Sl. NO	Lesson/Topic	H.R	Planned date	Module	CO
1	Introduction of Matrices	1	01/02/2024	Module 1 : LINEAR ALGEBRA	CO1
2	Solving Systems of Linear Equations	1	01/02/2024	Module 1 : LINEAR ALGEBRA	CO1
3	Solving Systems of Linear Equations	1	02/02/2024		CO1
4	Vector Spaces	1	02/02/2024	Module 1 : LINEAR ALGEBRA	CO1
5	Vector Spaces	1	08/02/2024	Module 1 : LINEAR ALGEBRA	CO1
6	Subspace	1	08/02/2024	Module 1 : LINEAR ALGEBRA	CO1
7	Linear Independence	1	09/02/2024	Module 1 : LINEAR ALGEBRA	CO1
8	Basis and Rank (Lecture – 1)	1	09/02/2024	Module 1 : LINEAR ALGEBRA	CO1
9	Basis and Rank (Lecture – 1)	1	15/02/2024	Module 1 : LINEAR ALGEBRA	CO1
10	Linear Mappings	1	15/02/2024	Module 1 : LINEAR ALGEBRA	CO1
11	Matrix Representation of Linear Mappings	1	16/02/2024	Module 1 : LINEAR ALGEBRA	CO1
12	Image space, null space	1	16/02/2024	Module 1 : LINEAR ALGEBRA	CO1
13	Norms, Inner Products	1	22/02/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
14	Lengths and Distances, Angles and Orthogonality	1	22/02/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
15	Lengths and Distances, Angles and Orthogonality	1	23/02/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
16	Orthonormal Basis, Orthogonal Complement	1	23/02/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
17	Orthogonal Projections – Projection into One Dimensional Subspaces	1	29/02/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
18	Projections onto General Subspaces	1	29/02/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
19	Determinant and Trace, Eigen values and Eigenvectors	1	01/03/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
20	Cholesky Decomposition	1	01/03/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
21	Eigen decomposition and Diagonalization	1	07/0/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
22	Eigen decomposition and Diagonalization	1	07/0/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
23	Singular Value Decomposition	1	14/03/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
24	Matrix Approximation	1	14/03/2024	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	CO2
25	Differentiation of Univariate Functions,	1	15/03/2024	Module 3 : VECTOR CALCULUS	CO3
26	Partial Differentiation and Gradients	1	15/03/2024	Module 3 : VECTOR CALCULUS	CO3
27	Gradients of Vector Valued Functions (Lecture 1)	1	04/04/2024	Module 3 : VECTOR CALCULUS	CO3
28	Gradients of Vector Valued Functions (Lecture 2)	1	04/04/2024	Module 3 : VECTOR CALCULUS	CO3
29	Gradients of Matrices	1	05/04/2024	Module 3 : VECTOR CALCULUS	CO3
30	Useful Identities for Computing Gradients	1	05/04/2024	Module 3 : VECTOR CALCULUS	CO3

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31	Backpropagation and Automatic Differentiation – Gradients in deep Netwok	1	11/04/2024	Module 3 : VECTOR CALCULUS	CO3
32	Automatic Differentiation	1	11/04/2024	Module 3 : VECTOR CALCULUS	CO3
33	Higher Order Derivatives	1	12/04/2024	Module 3 : VECTOR CALCULUS	CO3
34	Linearization and Multivariate Taylor Series	1	12/04/2024	Module 3 : VECTOR CALCULUS	CO3
35	Linearization and Multivariate Taylor Series	1	17/04/2024	Module 3 : VECTOR CALCULUS	CO3
36	Axiomatic definition of Probability, Probability Space, Random variables	1	17/04/2024	Module 4 : PROBABILITY AND DISTRIBUTIONS	CO4
37	Discrete random variables (Probability Mass Function,	1	18/04/2024	Module 4 : PROBABILITY AND DISTRIBUTIONS	CO4
38	Cumulative Distribution Function, Marginal distribution)	1	18/04/2024	Module 4 : PROBABILITY AND DISTRIBUTIONS	CO4
39	Continuous random variables (Probability Density Function,	1	25/04/2024	Module 4 : PROBABILITY AND DISTRIBUTIONS	CO4
40	Gradient Descent With Momentum, Stochastic Gradient Descent	1	25/04/2024	Module 5 : Optimization	CO5
41	Constrained Optimization and Lagrange Multipliers (Lecture 1)	1	26/04/2024	Module 5 : Optimization	CO5
Name And Signature of Advisor:					
Name And Signature of HOD:					

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Course Plan, Syllabus Coverage and Mode of Instruction	AI &ML
B Tech in Artificial Intelligence and Machine Learning	Branch: B Tech in Artificial Intelligence and Machine Learning
Semester: MINOR	Academic Year: 2023-24
Course Code: CST284 / L-T-P Credits: 3-1-0-4	Course Name: MATHEMATICS FOR MACHINE LEARNING

H.P : Hours planned, H.T : Hours taken

Sl. NO	Lesson	Planned on	CO	Module	H.P	H.T	Mode	Taken on	Att. count
1	Introduction ofMatrices	01/02/2024	CO1	Module 1 : LINEAR ALGEBRA	1	1	Lecture	29/02/2024-VI	5/15
2	Solving Systems of Linear Equations	01/02/2024	CO1	Module 1 : LINEAR ALGEBRA	1	1	Lecture	29/02/2024-VI	5/15
3	Solving Systems of Linear Equations	02/02/2024	CO1		1	1	Lecture	29/02/2024-VII	5/15
4	Vector Spaces	02/02/2024	CO1	Module 1 : LINEAR ALGEBRA	1	1	Lecture	29/02/2024-VII	5/15
5	Vector Spaces	08/02/2024	CO1	Module 1 : LINEAR ALGEBRA	1	1	Lecture	29/02/2024-VI	5/15
6	Subspace	08/02/2024	CO1	Module 1 : LINEAR ALGEBRA	1	1	Lecture	29/02/2024-VII	5/15
7	Linear Independence	09/02/2024	CO1	Module 1 : LINEAR ALGEBRA	1	1	Lecture	09/02/2024-VI	2/2
8	Basis and Rank (Lecture – 1)	09/02/2024	CO1	Module 1 : LINEAR ALGEBRA	1	1	Lecture	09/02/2024-VI	2/2
9	Basis and Rank (Lecture – 1)	15/02/2024	CO1	Module 1 : LINEAR ALGEBRA	1	1	Lecture	09/02/2024-VI	2/2
10	Linear Mappings	15/02/2024	CO1	Module 1 : LINEAR ALGEBRA	1	2	Lecture Tutorial	09/02/2024-VII 15/02/2024-VI	2/2 2/2
11	Matrix Representation of Linear Mappings	16/02/2024	CO1	Module 1 : LINEAR ALGEBRA	1	2	Lecture Tutorial	09/02/2024-VII 15/02/2024-VI	2/2 2/2

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12	Image space, null space	16/02/2024	CO1	Module 1 : LINEAR ALGEBRA	1	2	Lecture Tutorial	09/02/2024-VII 15/02/2024-VII	2/2 2/2
13	Norms, Inner Products	22/02/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	2	Lecture	15/02/2024-VI 15/02/2024-VII	2/2 2/2
14	Lengths and Distances, Angles and Orthogonality	22/02/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	2	Lecture	15/02/2024-VI 15/02/2024-VII	2/2 2/2
15	Lengths and Distances, Angles and Orthogonality	23/02/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	1	Lecture	15/02/2024-VII	2/2
16	Orthonormal Basis, Orthogonal Complement	23/02/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	2	Lecture Tutorial	16/02/2024-VI 16/02/2024-VII	5/5 5/5
17	Orthogonal Projections – Projection into One Dimensional Subspaces	29/02/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	3	Lecture Tutorial	01/03/2024-VI 16/02/2024-VI 16/02/2024-VII	4/4 5/5 5/5
18	Projection onto General Subspaces.	29/02/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	2	Lecture Tutorial	01/03/2024-VI 16/02/2024-VII	4/4 5/5
19	Determinant and Trace, Eigen values and Eigenvectors.	01/03/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	1	Lecture	01/03/2024-VII	4/4
20	Cholesky Decomposition	01/03/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	1	Lecture	08/03/2024-VI	5/5
21	Eigen decomposition and Diagonalization	07/0/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	1	Lecture	08/03/2024-VI	5/5
22	Eigen decomposition and Diagonalization	07/0/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	2	Lecture	08/03/2024-VII 22/03/2024-VI	5/5 5/5
23	Singular Value Decomposition	14/03/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	3	Lecture Tutorial	08/03/2024-VII 22/03/2024-VI 22/03/2024-VII	5/5 5/5 5/5

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24	Matrix Approximation	14/03/2024	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	1	2	Lecture Tutorial	22/03/2024- VI 22/03/2024- VII	5/5 5/5
25	Differentiation of Univariate Functions,	15/03/2024	CO3	Module 3 : VECTOR CALCULUS	1	1	Lecture	04/04/2024- VI	3/3
26	Partial Differentiation and Gradients	15/03/2024	CO3	Module 3 : VECTOR CALCULUS	1	1	Lecture	04/04/2024- VI	3/3
27	Gradients of Vector Valued Functions (Lecture 1)	04/04/2024	CO3	Module 3 : VECTOR CALCULUS	1	1	Lecture Tutorial	04/04/2024- VII	3/3
28	Gradients of Vector Valued Functions (Lecture 2)	04/04/2024	CO3	Module 3 : VECTOR CALCULUS	1	1	Lecture Tutorial	11/04/2024- VI	2/2
29	Gradients of Matrices	05/04/2024	CO3	Module 3 : VECTOR CALCULUS	1	1	Lecture Tutorial	11/04/2024- VI	2/2
30	Useful Identities for Computing Gradients	05/04/2024	CO3	Module 3 : VECTOR CALCULUS	1	1	Lecture Tutorial	11/04/2024- VI	2/2
31	Backpropagation and Automatic Differentiation – Gradients in deep Netwok	11/04/2024	CO3	Module 3 : VECTOR CALCULUS	1	1	Lecture Tutorial	11/04/2024- VI	2/2
32	Automatic Differentiation	11/04/2024	CO3	Module 3 : VECTOR CALCULUS	1	1	Lecture Tutorial	11/04/2024- VI	2/2
33	Higher Order Derivatives	12/04/2024	CO3	Module 3 : VECTOR CALCULUS	1	1	Lecture Tutorial	11/04/2024- VI	2/2
34	Linearization and Multivariate Taylor Series	12/04/2024	CO3	Module 3 : VECTOR CALCULUS	1	1	Lecture Tutorial	11/04/2024- VII	2/2
35	Linearization and Multivariate Taylor Series	17/04/2024	CO3	Module 3 : VECTOR CALCULUS	1	1	Lecture Tutorial	18/04/2024- VI	5/5
36	Axiomatic definition of Probability, Probability Space, Random variables	17/04/2024	CO4	Module 4 : PROBABILITY AND DISTRIBUTIONS	1	1	Lecture Tutorial	18/04/2024- VI	5/5
37	Discrete random variables (Probability Mass Function,	18/04/2024	CO4	Module 4 : PROBABILITY AND DISTRIBUTIONS	1	1	Lecture Tutorial	18/04/2024- VII	5/5
38	Cumulative Distribution Function, Marginal distribution)	18/04/2024	CO4	Module 4 : PROBABILITY AND DISTRIBUTIONS	1	2	Lecture Tutorial	19/04/2024- VI 19/04/2024- VII	5/5 5/5
39	Continuous random variables (Probability Density Function,	25/04/2024	CO4	Module 4 : PROBABILITY AND DISTRIBUTIONS	1	2	Lecture Tutorial	19/04/2024- VI 19/04/2024- VII	5/5 5/5
40	Gradient Descent With Momentum, Stochastic Gradient Descent	25/04/2024	CO5	Module 5 : Optimization	1	1	Lecture Tutorial	19/04/2024- VII	5/5

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...ter No. ...

Name:.....

	Mangalam College of Engineering	
	Series Exam	AI &ML
B.Tech in Artificial Intelligence and Machine Learning		Branch: Artificial Intelligence and Machine Learning
Semester: MINOR		Academic Year: 2023-24
Course Code: CST284	L-T-P Credits: 3-1-0-4	Course Name: MATHEMATICS FOR MACHINE LEARNING
Time: 1.30 Hrs.	First internal Examination March 2024	Maximum Mark: 40

No.	Question	Mark	CO	ML	BL
	PART A				
	Answer 2 out of 3 questions				
1					
(a)	Show that the vectors $(1\ 1\ 1\ 1)^T$, $(1\ 2\ 3\ 2)^T$, $(2\ 6\ 8\ 5)^T$ do not form a basis for R^4.	3.0	CO1	Module 1 : LINEAR ALGEBRA	3
(b)	Find the inverse of the following matrix $\begin{bmatrix} 1 & 0 & 2 & 0 \\ 1 & 1 & 0 & 0 \\ 1 & 2 & 0 & 1 \\ 1 & 1 & 1 & 1 \end{bmatrix}$ using Gaussian method.	7.0	CO1	Module 1 : LINEAR ALGEBRA	3
2					
(a)	Let $T: R^2 \to R^2$, be defined by $T\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} y \\ x \end{bmatrix}$. Is T a linear transformation?	3.0	CO1	Module 1 : LINEAR ALGEBRA	3
(b)	Define basis for a vector space V. Also determine the basis for a vector space $U \subseteq R^3$ spanned by the vectors $X_1 = \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}, X_2 = \begin{bmatrix} -1 \\ 2 \\ 1 \end{bmatrix}, X_3 = \begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}$	7.0	CO1	Module 1 : LINEAR ALGEBRA	3
3					
(a)	Consider the linear transformation $T: R^3 \to R^2$, defined by $T(x, y, z) = (x - y, 2z - x)$. Find Kernel and range of T.	3.0	CO1	Module 1 : LINEAR ALGEBRA	
(b)	Define vector space. Is R^2 a vector space under the operations $a + b = (x_1 x_2, y_1 y_2)$ and $c = (a, x_1, a, y_1)$ where $a = (x_1, y_1)$, $b = (x_2, y_2)$ belongs to R^2.	7.0	CO1	Module 1 : LINEAR ALGEBRA	3
	PART B				
	Answer 2 out of 3 questions				
4					

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	d the eigen value of A^{-1} and A^4, with out using the characteristic equation if one of the eigen value of $A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$ is '3'.	3.0	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	3
(b)	Find SVD of $\begin{bmatrix} 1 & -1 \\ 0 & 1 \\ 1 & 0 \end{bmatrix}$.	7.0	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	3
5					
(a)	Find the distance between $x = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}, y = \begin{bmatrix} -1 \\ -1 \\ 30 \end{bmatrix}$ using $\langle x, y \rangle = x^T y$.	3.0	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	3
(b)	Find the projection matrix of $u = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$ and hence find the projection of $v = (1, -1, 1)$ on u.	7.0	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	3
6					
(a)	Find the spectrum of the matrix $\begin{bmatrix} 8 & 4 \\ 2 & 6 \end{bmatrix}$.	3.0	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	3
(b)	Define orthonormality. Find the orthonormal basis for R^3 from the basis vectors $(1, 0, 1), (1, 0, 0), (2, 0, 1)$.	7.0	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	3

CO: Course Outcomes

- CO1: Make use of the concepts, rules and results about linear equations, matrix algebra, vector spaces, eigenvalues & eigenvectors and orthogonality & diagonalization to solve computational problems (Cognitive Knowledge Level: Apply)
- CO2: Perform calculus operations on functions of several variables and matrices, including partial derivatives and gradients (Cognitive Knowledge Level: Apply)

BL: Blooms Taxonomy Level

6-Creating, 5-Evaluating, 4-Analyzing, 3-Applying, 2-Understanding, 1-Remembering,

ML: Module

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• Affiliated to KTU
• Approved by AICTE
• Accredited by NAAC

Ettumanoor, Kottayam, 0481-2710120, mangalam.ac.in

INTERNAL TEST I

Name of the student	Abhya MN				
Roll No		Date		Session	FN/AN
Programme Branch		Semester	IV	Batch	
Course code & Name	CST 284 Mathematics for Machine Learning				

(All Particulars given are correct)

Name and signature of the invigilator with date

Write down the course outcomes (COs)

CO's	Course Outcomes

	PART A (20)			PART B (20)			Grand Total Max. (Marks:40)
Qn.	1	2	3	4	5	6	
a)				2	4		20
b)			7	6			
c)							
Total							

Signature of Examiner with date

All the marks are verified(Student signature with date)

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Mangalam College of Engineering

	Result Analysis	AI &ML
B.Tech in Artificial Intelligence and Machine Learning		Branch: B.Tech in Artificial Intelligence and Machine Learning
Semester: MINOR		Academic Year: 2023-24
Course Code: CS1284	L-T-P Credits: 3-1-0-4	Course Name: MATHEMATICS FOR MACHINE LEARNING

Roll. No.	Reg. No.	Name	Total Score (40)	%	Status
01	MLM22ME039	ASLAM B KABEER			
2	MLM22EC002	ABHIJITH P L			
04	MLM22ME044	C M ANANTH KRISHNA	20	50	PASSED
5	MLM22EC005	ADARSH P BABU	20	50	PASSED
8	MLM22EC008	ADITHYAN M M	20	50	PASSED
11	MLM22EC011	AKHILA KS			
12	MLM22EC012	AKSHAY SURESH			
18	MLM22ME059	JISS JOHN JOSEPH			
21	MLM22EC022	ARJUN K SAJITH			
22	MLM22ME063	MEBIN EMMANUEL			
26	MLM22EC027	ATHUL SANTHOSH			
34	MLM22ME078	VISAL K S	20	50	PASSED
39	LMLM22ME084	ALFOUZAN B	20	50	PASSED
42	LMLM22ME087	ASWIN KRISHNAN U			
56	MLM22EC059	SREYA PRASAD			

No. of Students Registered	15
No. of Students Attended	5
No. of Students Passed	5

List of Students Below 50% Marks

Roll. No.	Reg. No.	Name	Total Score (40)	%	Status

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Register No.: Name:

Mangalam College of Engineering

Question Paper	AI &ML
B.Tech in Artificial Intelligence and Machine Learning	Branch: Artificial Intelligence and Machine Learning
Semester: MINOR	Academic Year: 2023-24
Course Code: CST284 L-T-P Credits: 3-1-0-4	Course Name: MATHEMATICS FOR MACHINE LEARNING
Time: 1.30 Hr	Second Internal Examination April2024 — Maximum Mark: 40

No.	Question	Mark	CO	ML	BL
	PART A				
	Answer 2 out of 3 questions				
1					
(a)	Find the partial derivative and gradient at the point (1, 2, 0) for the scalar function $f(x, y, z) = x^3 + 5y^2 - z^3$.	3.0	CO3	Module 3 : VECTOR CALCULUS	3
(b)	Write down the Logistic Sigmoid function. Find its derivative using chain rule. Give one application of the function in machine learning.	7.0	CO3	Module 3 : VECTOR CALCULUS	3
2					
(a)	If $z = \sqrt{xy + y}$, $x = \cos\theta$, $y = \sin\theta$. Find $dz/d\theta$ at $\theta = \pi/2$.	3.0	CO3	Module 3 : VECTOR CALCULUS	3
(b)	Compute the Taylor Series Expansion of the multivariate function $f(x) = x^2 + 2xy + y^3$ at (1,2).	7.0	CO3	Module 3 : VECTOR CALCULUS	3
3					
(a)	Find the maximum and minimum values of the function $f(x, y) = x^3 + y^3 - 3x - 12y + 20$.	3.0	CO3	Module 3 : VECTOR CALCULUS	3
(b)	Find the linear approximation to the function $f(x, y) = 2 - \sin(-x - 3y)$ at the point $(0, \pi)$ and then use your answer to estimate $f(0.001, \pi)$.	7.0	CO3	Module 3 : VECTOR CALCULUS	3
	PART B				
	Answer 2 out of 3 questions				
4					
(a)	There are two bags. The first bag contains four mangoes and two apples; the second bag contains four mangoes and four apples. We also have a biased coin, which shows "heads" with probability 0.6 and "tails" with probability 0.4.If the coin shows "heads", we pick a fruit at random from bag 1; otherwise we pick a fruit at random from bag 2. Your friend flips the coin (you cannot see the result), picks a fruit at random from the corresponding bag, and presents you a mango. What is the probability that the mango was picked from bag 2?	5.0	CO4	Module 4 : PROBABILITY AND DISTRIBUTIONS	3

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MANGALAM COLLEGE OF ENGINEERING

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• Approved by AICTE
• Accredited by NAAC

Ettumanoor, Kottayam, 0481-2710120, mangalam.ac.in

INTERNAL TEST II

Name of the student	C M Aravindhakrishna				
Roll No		Date		Session	FN/AN
Programme/ Branch		Semester		Batch	
Course code & Name	CST284, Mathematics for machine Learning				

(All Particulars given are correct)

Name and signature of the invigilator with date

Write down the course outcomes (COs)

CO's	Course Outcomes

	PART A (20)			PART B (20)			Grand Total Max. (Marks:40)
Qn.	1	2	3	4	5	6	
a)	3					3	
b)	7		7	0			20
c)							
Total							

Signature of Examiner with date

All the marks are verified(Student signature with date)

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	Result Analysis	AI &ML
B.Tech in Artificial Intelligence and Machine Learning		Branch: B.Tech in Artificial Intelligence and Machine Learning
Semester: MINOR		Academic Year: 2023-24
Course Code: CST284	L-T-P Credits: 3-1-0-4	Course Name: MATHEMATICS FOR MACHINE LEARNING

Roll. No.	Reg. No.	Name	Total Score (40)	%	Status
01	MLM22ME039	ASLAM B KABEER			
2	MLM22EC002	ABHIJITH P L			
04	MLM22ME044	C M ANANTH KRISHNA	20	50	PASSED
5	MLM22EC005	ADARSH P BABU	20	50	PASSED
8	MLM22EC008	ADITHYAN M M	20	50	PASSED
11	MLM22EC011	AKHILA KS			
12	MLM22EC012	AKSHAY SURESH			
18	MLM22ME059	JISS JOHN JOSEPH			
21	MLM22EC022	ARJUN K SAJITH			
22	MLM22ME063	MEBIN EMMANUEL			
26	MLM22EC027	ATHUL SANTHOSH			
34	MLM22ME078	VISAL K S	20	50	PASSED
39	LMLM22ME084	ALFOUZAN B	20	50	PASSED
40	LMLM22ME087	ASWIN KRISHNAN U			
56	MLM22EC059	SREYA PRASAD			

No. of Students Registered	15
No. of Students Attended	5
No. of Students Passed	5

List of Students Below 50% Marks

Roll. No.	Reg. No.	Name	Total Score (40)	%	Status

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Register No: ..... Name: .....

Mangalam College of Engineering		
Question Paper		AI &ML
B.Tech in Artificial Intelligence and Machine Learning		Branch: Artificial Intelligence and Machine Learning
Semester: MINOR		Academic Year: 2023-24
Course Code: CST284	L-T-P Credits: 3-1-0-4	Course Name: MATHEMATICS FOR MACHINE LEARNING
Time: 20 min Hrs.	Assignment 1	Maximum Mark: 15

No.	Question	Mark	CO	ML	BL
1					
1.1	Discuss the application of matrix decopositionand orthogonalprojections in artificial intelligence.	5.0	CO1, CO2	Module 1 : LINEAR ALGEBRA	3
1.2	Solve the system of equations using Gauss Elimination method $x + 2y + z = 3$ $2x + 3y + 2z = 5$ $3x - 5y + 5z = 2$ $3x + 9y - z = 4$	5.0	CO1	Module 1 : LINEAR ALGEBRA	3
1.3	Find the orthogonal projection of $y = (1, 2, 3)$ into the subspace spanned by $u_1 = (2, 5, -1)$ and $u_2 = (-2, 1, 1)$.	5.0	CO2	Module 2 : ANALYTIC GEOMETRY, MATRIX DECOMPOSITIONS	3

Question Paper Level: 45/15=3

CO: Course Outcomes

- CO1: Make use of the concepts, rules and results about linear equations, matrix algebra, vector spaces, eigenvalues & eigenvectors and orthogonality & diagonalization to solve computational problems (Cognitive Knowledge Level: Apply)
- CO2: Perform calculus operations on functions of several variables and matrices, including partial derivatives and gradients (Cognitive Knowledge Level: Apply)

BL: Bloom's Taxonomy Level

6-Creating, 5-Evaluating, 4-Analyzing, 3-Applying, 2-Understanding, 1-Remembering,

ML: Module

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ASSIGNMENT 1

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15/5/19 1:14

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Adarsh P Babu
AI Minor

$$A = \begin{bmatrix} 1 & 2 & 1 \\ 2 & 3 & 2 \\ 3 & -5 & 5 \\ 3 & 9 & -1 \end{bmatrix} \qquad B = \begin{bmatrix} 3 \\ 5 \\ 2 \\ 4 \end{bmatrix}$$

$$AB = \left[\begin{array}{ccc|c} 1 & 2 & 1 & 3 \\ 2 & 3 & 2 & 5 \\ 3 & -5 & 5 & 2 \\ 3 & 9 & -1 & 4 \end{array}\right] \quad \begin{array}{l} R_2 \to R_2 - 2R_1 \\ R_3 \to R_3 - 3R_1 \\ R_4 \to R_4 - R_1 \end{array}$$

$$\left[\begin{array}{ccc|c} 1 & 2 & 1 & 3 \\ 0 & -1 & 0 & -1 \\ 0 & -11 & 2 & -7 \\ & & & 3 \end{array}\right] \quad R_2 \to R_2 \div -1$$

$$R_3 \to R_3 + 11R_2$$

$$R_4 \to R_4 - 3R_2$$

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Find the orthogonal projection of $y = (1, 2, 7)$ onto the subspace spanned by $u = (2, 5, -1)$ & $v = (-2, 1, 1)$

→ Projection of y is Py

where $P = B(B^TB)^{-1}B^T$

Let $B = \begin{bmatrix} 2 & -2 \\ 5 & 1 \\ -1 & 1 \end{bmatrix} \sim \begin{bmatrix} 2 & -2 \\ 0 & 1/2 \\ 0 & 0 \end{bmatrix}$ $R_2 \to R_2 - R_1$

$B^TB = \begin{bmatrix} 2 & 5 & -1 \\ -2 & 1 & 1 \end{bmatrix} \begin{bmatrix} 2 & -2 \\ 5 & 1 \\ -1 & 1 \end{bmatrix} = \begin{bmatrix} 30 & 0 \\ 0 & 6 \end{bmatrix}$

$(B^TB)^{-1} = \begin{bmatrix} 1/30 & 0 \\ 0 & 1/6 \end{bmatrix}$

$P = \begin{bmatrix} 2 & -2 \\ 5 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 1/30 & 0 \\ 0 & 1/6 \end{bmatrix} \begin{bmatrix} 2 & 5 & -1 \\ -2 & 1 & 1 \end{bmatrix}$

$= \begin{bmatrix} 5 & 0 & -2/5 \\ 0 & 1 & 0 \\ -2/5 & 0 & 1/5 \end{bmatrix}$

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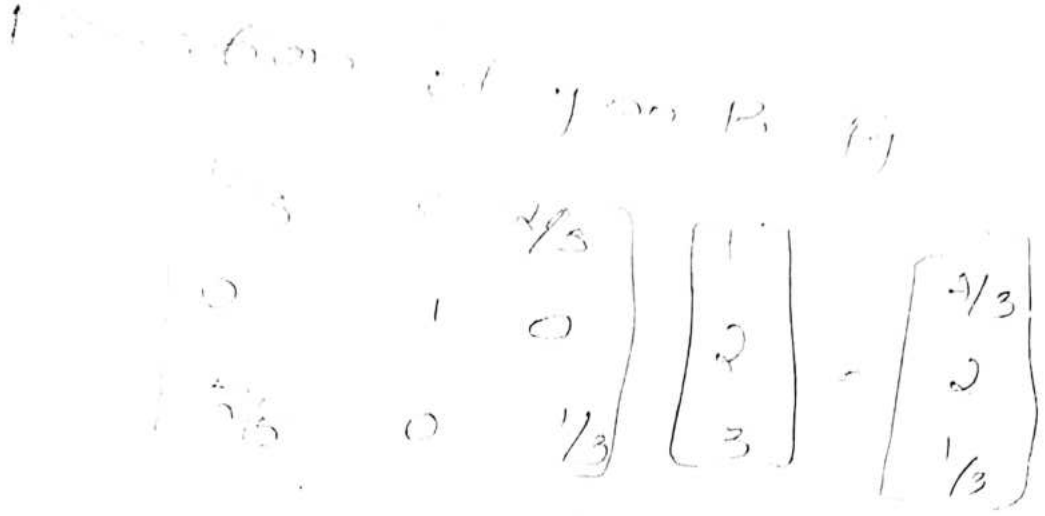

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Q Applications of matrix decomposition and orthogonal projection in Artificial intelligence

Matrix decomposition

→ This technique breakdown a complex matrix into smaller and more manageable components. Common decomposition techniques include singular value decomposition (SVD) and QR decomposition

Orthogonal Projection

→ This concept deals with projecting a vector onto a subspace. Its applied in machine learning algorithms like linear regression to find the best-fitting line through a set of data points. By minimizing the projection error, orthogonal projection helps determine the optimal linear relationship b/w the input variables and the target variable



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Name .....

Mangalam College of Engineering

Question Paper	AI &ML
B.Tech in Artificial Intelligence and Machine Learning	Branch: Artificial Intelligence and Machine Learning
Semester: MINOR	Academic Year: 2023-24
Course Code: CST284 L-T-P Credits: 3-1-0-4	Course Name: MATHEMATICS FOR MACHINE LEARNING
Time: 30 mi Hrs Assignment 2	Maximum Mark: 15

No	Question	Mark	CO	ML
1	Find the linear approximation to the function $f(x, y) = 2 - sin(-x - 3y)$ at the point $(0, \pi)$ and then use your answer to estimate $f(0.001, \pi)$.	7.5	CO3	Module 3 VECTOR CALCULUS
2	Between the hours of 2 pm and 4 pm the average number of phone calls per minute coming into the switch board of a company is 2.5. Find the probability that during one particular minute there will be i) no phone call ii) exactly 2 calls iii) at least 5 calls.	7.5	CO4	Module 4 PROBABILITY AND DISTRIBUTIONS

CO: Course Outcomes

- CO3: Perform calculus operations on functions of several variables and matrices, including partial derivatives and gradients (Cognitive Knowledge Level: Apply)
- CO4: Utilize the concepts, rules and results about probability, random variables, additive & multiplicative rules, conditional probability, probability distributions and Bayes' theorem to find solutions of computational problems (Cognitive Knowledge Level: Apply)

BL: Blooms Taxonomy Level

6-Creating, 5-Evaluating, 4-Analyzing, 3-Applying, 2-Understanding, 1-Remembering,

ML: Module

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Assignment - 2

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Adithyan M

the linear approximation of function $f(x,y) = 2 - \sin(-x-3y)$ at $pt(0,\pi)$ & then use your answer to estimate $(0.00, \pi)$

1) $L = f(x_0,y_0) + (x-x_0) f_x(x_0,y_0) + (y-y_0) f_y(x_0,y_0)$

$f(x,y) = 2 - \sin(-x-3y) \quad (x_0 y_0) = (0, \pi)$

$f(x_0,y_0) = 2 - \sin(-3\pi)$

$= 2$

$f_x = -\cos(-x-3y)(-1)$

$\cos(-x-3y)$

$f_x(x_0,y_0) = \cos(-3\pi)$

$= -1$

$f_y = -\cos(-x-3y)(-3)$

$= 3\cos(-3x-3y)$

$f_y(x_0,y_0) = 3$

$\therefore L = 2 - x - 3(y-\pi)$

error $= |L(x,y) - f(x,y)|$, here $(x,y) = (0.00, \pi)$

$L(x,y) = 1.999$

$f(x,y) = 1.999$

error $= 1.999 - 1.999 = 0$

) Between the hours of 2pm & 4pm, the average no of phone calls per min coming to the board of a company is 2.5. Find the probability that during one particular minute there will be

(i) No phone call

(ii) Exactly 2 calls

(iii) Atleast 5 calls

For no phone calls

$p(x=0) = e^{-\lambda} \lambda^x$

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for no phone calls

$$P(x=0) = \frac{e^{-\lambda}\lambda^x}{x!}$$

$\lambda = 2.5, \quad x = 0$

$$\Rightarrow \frac{e^{-2.5} \times 2.5^0}{1} = e^{-2.5} = 0.0821$$

(ii) for exactly 2 calls

$\lambda = 2.5, \quad x = 2$

$$P(x=2) = \frac{e^{-2.5} \times 2.5^2}{2!}$$

$$= \frac{e^{2.5} \times 6.25}{2} = 0.256$$

(iii) for atleast 5 calls

$$P(x \geq 5) = 1 - P(x < 5)$$

$$(x<5) = P(x=0) + P(x=1) + P(x=2) + P(x=3) + P(x=4)$$

$$\Rightarrow 0.821 + \frac{e^{-2.5} \times 2.5}{1!} + 0.256 + \frac{e^{-2.5} \times 2.5^3}{6} + \frac{e^{-2.5} \times 2.5^4}{24}$$

$$\Rightarrow 0.082 + 0.205 + 0.256 + 0.213 + 0.133$$

$$P(x \geq 5) = 1 - 0.889$$

$$= 0.111$$

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Register No.: Name:

Mangalam College of Engineering

Question Paper	AI &ML
B.Tech in Artificial Intelligence and Machine Learning	Branch: Artificial Intelligence and Machine Learning
Semester: MINOR	Academic Year: 2023-24
Course Code: CST284 / L-T-P Credits: 3-1-0-4	Course Name: MATHEMATICS FOR MACHINE LEARNING
Time: 90 min/ Hrs	Maximum Mark: 15

ASSIGNMENT3

No	Question	Mark	CO	M
1	Briefly explain the difference between gradient descent and stochastic gradient descent	3.0	COS	Modu OPTIMI
2	Explain Optimization Using Gradient Descent method.	3.0	COS	Modu OPTIMI
3	What do you mean by convex optimisation? Explain convexity of a differentiable function, $f : R^n \rightarrow R$ in terms of its gradient.	3.0	COS	
4	Check whether the function $f(x,y) = 2x_1^2 + x_2^2 + 6x_1x_2 - 5x_1 + 4x_2 + 5$ is convex or concave or neither?	3.0	COS	Modu OPTIMI
5	Minimize the function $f = 2x_1^2 - 24x_1 + 2x_2^2 - 8x_2 + 20$ subject to $x_1 + x_2 - 11 = 0$ using the method of Lagrange multipliers.	3.0	COS	Modu OPTIMI

CO: Course Outcomes

- COS: Train Machine Learning Models using unconstrained and constrained optimization methods (Cognitive Knowledge Level: Apply)

BL: Blooms Taxonomy Level

6-Creating, 5-Evaluating, 4-Analyzing, 3-Applying, 2-Understanding, 1-Remembering,

ML: Module

Prepared by (Faculty in charge)	Verified by (DQAC member)	Approved by (HOD)
Ashu Prakash		

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Assignment - 3

15/15

3/5

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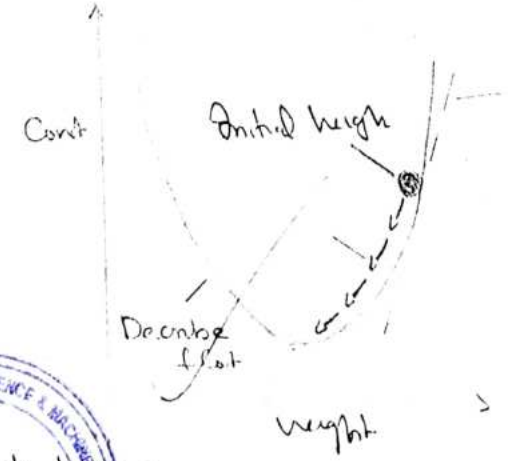
Explain the difference btw gradient descent & stochastic gradient descent

Batch Gradient Descent	Stochastic Gradient Descent
• Computes gradient using the training sample	• Computes gradient using a single training sample.
• Slow & computationally expensive algorithm	• Faster & less computationally expensive than Batch GD
• Not suggested for huge training sample.	• Can be used for large training sample

Explain optimization using gradient descent method

Gradient descent is a first order optimization algorithm to find min of a fn using a gradient descent, one takes steps proportional to the negative of the gradient of the fn at the current point. The gradient point is the direction of the steepest & Another method to consider the set of lines where the fn is at a certain value $f(x) = c$ for some value $c \in R$ which are known as the contour lines.



Repeat until it converges

Calculate the gradient & calculate the change in the parameter with the learning rate

Re calculate the gradient with the new value of parameter

$x_{i+1} - y_i ((\nabla f(x_i))^T$

Repeat steps until gradient = 0

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What do you mean by convex optimal? Explain convex B
if a differentiable fxn. $f: R^2 \to R$ is it its gradient.

Soln

When $f(\cdot)$ is a convex fxn & when the constraint inverse $g(\cdot)$ & $b(\cdot)$ are convex set, this is called a convex optimal problem.

If a fxn $f: R^2 \to R$ is differentiable, we can specify in terms of its gradient $\nabla_x f(x)$.

$f(x)$ is twice differentiable, that is (5.147) exists for a value in the domain x, then the $f(x)$ is convex only if $\nabla_x^2 f(x)$ is +ve.

4 Check whether the fxn $f(x,y) = 2x_1^2 + x_2^2 + 6x_1x_2 - 5x_1 + 4$ is convex or concave or neither?

Soln

$$f = 2x_1^2 + x_2^2 + 6x_1x_2 - 5x_1 + 4x_2 + 5$$

$$\frac{\partial f}{\partial x_1} = 4x - 6x_2 - 5$$

$$\frac{\partial f}{\partial x_2} = 2x_2 + 6x_1 + 4$$

$$H = \begin{bmatrix} \frac{\partial^2 f}{\partial x_1^2} & \frac{\partial^2 f}{\partial x_1 \partial x_2} \\ \frac{\partial^2 f}{\partial x \partial x_1} & \frac{\partial^2 f}{\partial x_2^2} \end{bmatrix} = \begin{bmatrix} 4 & 6 \\ 6 & 2 \end{bmatrix}$$

$$D_1 = |4| = 4 > 0$$

$$D_2 = \begin{vmatrix} 4 & 6 \\ 6 & 2 \end{vmatrix} = 8 - 36 = -28 < 0$$

Neither convex nor Concave

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5. Minimize the fxn $f = 2x_1^2 - 21x_1 + 2x_2^2 - 6x_2 + 20$ subject to $x_1 + x_2 - 1 = 0$ using the method of lagrage multiplier

Soln $L(x_1, x_2, \lambda) = 2x_1^2 - 24x_1 + 2x_2^2 - 8x_2 + 20 + \lambda(x_1 + x_2 - 1)$

$\frac{\partial L}{\partial x_1} = 0 \Rightarrow 4x_1 - 24 + \lambda = 0$

$\frac{\partial L}{\partial x_2} = 0 \Rightarrow 4x_2 - 8 + \lambda = 0$

$x_1 + x_2 - 11 = 0$

Hence $x_1 = 15/2$ & $x_2 = 7/2$

Minimum value

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Attendance | AI &ML

B.Tech in Artificial Intelligence and Machine Learning | Branch: B.Tech in Artificial Intelligence and Machine Learning

Semester: MINOR | Academic Year: 2023-24

Course Code: CST284 | L-T-P Credits: 3-1-0-4 | Course Name: MATHEMATICS FOR MACHINE LEARNING

Period: 29/01/2024-31/03/2024

Roll. No	Student	Attendance Types		Present	Absent	Total	%
		P	AB				
01	ASLAM B KABEER	0	2	0	2	2	0
2	ABHIJITH P L	0	2	0	2	2	0
04	C M ANANTH KRISHNA	8	0	8	0	8	100
5	ADARSH P BABU	8	2	8	2	10	80
8	ADITHYAN M M	8	2	8	2	10	80
11	AKHILA KS	0	2	0	2	2	0
12	AKSHAY SURESH	0	2	0	2	2	0
18	JISS JOHN JOSEPH	2	2	2	2	4	50
21	ARJUN K SAJITH	0	2	0	2	2	0
22	MEBIN EMMANUEL	2	0	2	0	2	100
26	ATHUL SANTHOSH	0	2	0	2	2	0
34	VISAL K S	12	0	12	0	12	100
39	ALFOUZAN B	12	0	12	0	12	100
40	ASWIN KRISHNAN U	4	0	4	0	4	100
56	SREYA PRASAD	0	2	0	2	2	0

Name And Signature of Advisor:

Name And Signature of HOD:

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Attendance

AI &ML

B Tech in Artificial Intelligence and Machine Learning

Branch: B.Tech in Artificial Intelligence and Machine Learning

Semester: MINOR

Academic Year: 2023-24

Course Code: CST284 | L-T-P Credits: 3-1-0-4

Course Name: MATHEMATICS FOR MACHINE LEARNING

Period: 29/01/2024-29/02/2024

Roll. No	Student	Attendance Types		Present	Absent	Total	%
		P	AB				
01	ASLAM B KABEER	0	2	0	2	2	0
2	ABHIJITH P L	0	2	0	2	2	0
04	C M ANANTH KRISHNA	4	0	4	0	4	100
5	ADARSH P BABU	4	2	4	2	6	66.7
8	ADITHYAN M M	4	2	4	2	6	66.7
11	AKHILA KS	0	2	0	2	2	0
12	AKSHAY SURESH	0	2	0	2	2	0
18	JISS JOHN JOSEPH	0	2	0	2	2	0
21	ARJUN K SAJITH	0	2	0	2	2	0
22	MEBIN EMMANUEL	2	0	2	0	2	100
26	ATHUL SANTHOSH	0	2	0	2	2	0
34	VISAL K S	6	0	6	0	6	100
39	ALFOUZAN B	6	0	6	0	6	100
40	ASWIN KRISHNAN U	2	0	2	0	2	100
56	SREYA PRASAD	0	2	0	2	2	0

Name And Signature of Advisor:

Name And Signature of HOD:

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MANGALAM COLLEGE OF ENGINEERING

Attendance

B.Tech in Artificial Intelligence and Machine Learning | AI &ML

Semester: MINOR | Branch: B.Tech in Artificial Intelligence and Machine Learning

Course Code: CST284 | L-T-P Credits: 3-1-0-4 | Academic Year: 2023-24

Course Name: MATHEMATICS FOR MACHINE LEARNING

Period: 29/01/2024-30/04/2024

Roll. No	Student	Attendance Types		Present	Absent	Total	%
		P	AB				
01	ASLAM B KABEER	0	2	0	2	2	0
2	ABHIJITH P L	0	2	0	2	2	0
04	C M ANANTH KRISHNA	14	0	14	0	14	100
5	ADARSH P BABU	14	2	14	2	16	87.5
8	ADITHYAN M M	14	2	14	2	16	87.5
11	AKHILA KS	0	2	0	2	2	0
12	AKSHAY SURESH	0	2	0	2	2	0
18	JISS JOHN JOSEPH	2	2	2	2	4	50
21	ARJUN K SAJITH	0	2	0	2	2	0
22	MEBIN EMMANUEL	2	0	2	0	2	100
26	ATHUL SANTHOSH	0	2	0	2	2	0
34	VISAL K S	18	0	18	0	18	100
39	ALFOUZAN B	18	0	18	0	18	100
40	ASWIN KRISHNAN U	4	0	4	0	4	100
56	SREYA PRASAD	0	2	0	2	2	0

Name And Signature of Advisor:

Name And Signature of HOD:

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Attendance

AI &ML

B.Tech in Artificial Intelligence and Machine Learning

Branch: B Tech in Artificial Intelligence and Machine Learning

Semester: MINOR

Academic Year: 2023-24

Course Code: CST284 | L-T-P Credits: 3-1-0-4

Course Name: MATHEMATICS FOR MACHINE LEARNING

Period: 29/01/2024-31/05/2024

Roll. No	Student	Attendance Types		Present	Absent	Total	%
		P	AB				
01	ASLAM B KABEER	0	2	0	2	2	0
2	ABHIJITH P L	0	2	0	2	2	0
04	C M ANANTH KRISHNA	14	0	14	0	14	100
5	ADARSH P BABU	14	2	14	2	16	87.5
8	ADITHYAN M M	14	2	14	2	16	87.5
11	AKHILA KS	0	2	0	2	2	0
12	AKSHAY SURESH	0	2	0	2	2	0
18	JISS JOHN JOSEPH	2	2	2	2	4	50
21	ARJUN K SAJITH	0	2	0	2	2	0
22	MEBIN EMMANUEL	2	0	2	0	2	100
26	ATHUL SANTHOSH	0	2	0	2	2	0
34	VISAL K S	18	0	18	0	18	100
39	ALFOUZAN B	18	0	18	0	18	100
40	ASWIN KRISHNAN U	4	0	4	0	4	100
56	SREYA PRASAD	0	2	0	2	2	0

Name And Signature of Advisor:

Name And Signature of HOD:

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MANGALAM COLLEGE OF ENGINEERING

Attendance

B.Tech in Artificial Intelligence and Machine Learning | AI &ML

Semester: MINOR | Branch: B.Tech in Artificial Intelligence and Machine Learning

Course Code: CST284 | L-T-P Credits: 3-1-0-4 | Academic Year: 2023-24

Course Name: MATHEMATICS FOR MACHINE LEARNING

Roll. No	Student	Attendance Types		Present	Absent	Total	%
		P	AB				
01	ASLAM B KABEER	0	2	0	2	2	0
2	ABHIJITH P L	0	2	0	2	2	0
04	C M ANANTH KRISHNA	14	0	14	0	14	100
5	ADARSH P BABU	14	2	14	2	16	87.5
8	ADITHYAN M M	14	2	14	2	16	87.5
11	AKHILA KS	0	2	0	2	2	0
12	AKSHAY SURESH	0	2	0	2	2	0
18	JISS JOHN JOSEPH	2	2	2	2	4	50
21	ARJUN K SAJITH	0	2	0	2	2	0
22	MEBIN EMMANUEL	2	0	2	0	2	100
26	ATHUL SANTHOSH	0	2	0	2	2	0
34	VISAL K S	18	0	18	0	18	100
39	ALFOUZAN B	18	0	18	0	18	100
40	ASWIN KRISHNAN U	4	0	4	0	4	100
56	SREYA PRASAD	0	2	0	2	2	0

Name And Signature of Advisor:

Name And Signature of HOD:

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	Internal Evaluation Report	AI &MI
B.Tech in Artificial Intelligence and Machine Learning		Branch: B.Tech in Artificial Intelligence and Machine Learning
Semester: MINOR		Academic Year: 2023-24
Course Code: CST284	L-T-P Credits: 3-1-0-4	Course Name: MATHEMATICS FOR MACHINE LEARNING

Roll. NO	Student	Attendance		Assessments				Assignments						Score Summary			
		Count	%	Activity 1		Activity 2		Activity 1		Activity 2		Activity 3		Attendance	Assessments	Assignments	Total
				SC.	WT.	SC.	WT.	SC.	WT.	SC.	WT.	SC.	WT.				
				40	100%	40	100%	15	100%	15	100%	15	100%	10	25	15	50
01	ASLAM B KABEER	0/2	0	NA	0	NA	0	NA	0	NA	0	NA	0	5	0	0	5
2	ABHIJITH P L	0/2	0	NA	0	NA	0	NA	0	NA	0	NA	0	5	0	0	5
04	C M ANANTH KRISHNA	14/14	100	20	50	20	50	15	100	15	100	15	100	10	12.5	15	38
5	ADARSH P BABU	14/16	87.5	20	50	20	50	15	100	15	100	15	100	9	12.5	15	37
6	ADITHYAN M M	14/16	87.5	20	50	20	50	15	100	15	100	15	100	9	12.5	15	37
11	AKHILA KS	0/2	0	NA	0	NA	0	NA	0	NA	0	NA	0	5	0	0	5
12	AKSHAY SURESH	0/2	0	NA	0	NA	0	NA	0	NA	0	NA	0	5	0	0	5
18	JISS JOHN JOSEPH	2/4	50	NA	0	NA	0	NA	0	NA	0	NA	0	5	0	0	5
21	ARJUN K SAJITH	0/2	0	NA	0	NA	0	NA	0	NA	0	NA	0	5	0	0	5
22	MEBIN EMMANUEL	2/2	100	NA	0	NA	0	NA	0	NA	0	NA	0	10	0	0	10
25	ATHUL SANTHOSH	0/2	0	NA	0	NA	0	NA	0	NA	0	NA	0	5	0	0	5
34	VISAL K S	18/18	100	20	50	20	50	15	100	15	100	15	100	10	12.5	15	38
39	ALFOUZAN B	18/18	100	20	50	20	50	15	100	15	100	15	100	10	12.5	15	38
40	ASWIN KRISHNAN U	4/4	100	NA	0	NA	0	NA	0	NA	0	NA	0	10	0	0	10
56	SREYA PRASAD	0/2	0	NA	0	NA	0	NA	0	NA	0	NA	0	5	0	0	5

Name And Signature of Advisor:

Name And Signature of HOD

Abbreviations: SC - Score, WT - Weightage

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Student list

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

MANGALAM COLLEGE OF ENGINEERING

Program : B.Tech
Branch/Stream : Artificial Intelligence and Machine learning
Course name/code : CST 283 Python for machine Learning

Academic year : 2023-2024
Semester/Div : S3 MINOR

Sl No.	Reg. No.	Name of Student
1	LMLM22ME084	ALFOUZAN B
2	LMLM22ME087	ASWIN KRISHNA U
3	MLM22EC002	ABHIJITH P L
4	MLM22EC005	ADARSH P BABU
5	MLM22EC008	ADITHYAN M M
6	MLM22EC011	AKHILA K S
7	MLM22EC012	AKSHAY SURESH
8	MLM22EC022	ARJUN K SAJITH
9	MLM22EC027	ATHUL SANTHOSH
10	MLM22EC059	SREYA PRASAD
11	MLM22ME039	ASLAM B KABEER
12	MLM22ME044	C M ANANTHA KRISHNA
13	MLM22ME059	JISS JOHN JOSEPH
14	MLM22ME063	MEBIN EMMANUEL
15	MLM22ME078	VISHAL K S

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Course –in-charge

Course –in-charge

HOD

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ETTUMANOOR - 686 631
MANGALAM COLLEGE OF ENGINEERING

HEAD OF DEPARTMENT
Dept of Artificial Intelligence &
Machine Learning
Mangalam College of Engineering
Ettumanoor - 686 631

Syllabus Python For Machine Learning - CST 283 - KTU Minor

SYLLABUS

Module I

Programming Environment and Python Basics:

Getting Started with Python Programming - Running code in the interactive shell, Editing, Saving, and Running a script. Using editors - IDLE, Jupyter. The software development process - Case Study.

Basic coding skills - Working with data types, Numeric data types and Character sets, Keywords,Variables and Assignment statement, Operators, Expressions, Working with numeric data, Type conversions, Comments in the program. Input, Processing, and Output. Formatting output. How Python works. Detecting and correcting syntax errors. Using built in functions and modules in math module.

Module II

Building Python Programs:

Control statements - Selection structure (if-else, switch-case), Iteration structure(for, while),Testing the control statements, Lazy evaluation. Functions - Hiding redundancy and complexity,Arguments and return values, Variable scopes and parameter passing, Named arguments, Main function, Working with recursion, Lambda functions. Strings and number systems – String function, Handling numbers in various formats.

Module III

Data Representation:

Lists - Basic list Operations and functions, List of lists, Slicing, Searching and sorting list, List comprehension. Work with tuples. Sets. Work with dates and times. Dictionaries – Dictionary

Module IV

Object Oriented Programming:

Design with classes - Objects and Classes, Methods, Instance Variables, Constructor, Accessors and Mutators. Structuring classes with Inheritance and Polymorphism. Abstract Classes.Exceptions - Handle a single exception, handle multiple exceptions.

Module V

Data Processing:

The os and sys modules. Introduction to file I/O - Reading and writing text files, Manipulating binary files. NumPy - Basics, Creating arrays, Arithmetic, Slicing, Matrix Operations, Random numbers. Plotting and visualization. Matplotlib - Basic plot, Ticks, Labels, and Legends.



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Working with CSV files. – Pandas - Reading, Manipulating, and Processing Data.

Text Books:

1.Kenneth A Lambert., Fundamentals of Python : First Programs, 2/e, Cengage Publishing, 2016

2.Wes McKinney, Python for Data Analysis, 2/e, Shroff / O'Reilly Publishers, 2017

Reference Books:

1. Allen B. Downey, Think Python: How to Think Like a Computer Scientist, 2/e, Schroff, 2016

2. Michael Urban and Joel Murach, Python Programming, Shroff/Murach, 2016

3. David M.Baezly, Python Essential Reference. Addison-Wesley Professional; 4/e, 2009.

4. Charles Severance. Python for Informatics: Exploring Information,

5. http://swcarpentry.github.io/python-novice-gapminder/

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Branch : Artificial Intelligence & Machine Learning

Semester : S3 Year : 2023-24

Subject : Python for Machine Learning

Code : CST 283

SCHEDULE OF WORK

Days	1	2	3	4	5	6	7
MON							
TUE							
WED							
THU						MINOR PML →	
FRI							
SAT						MINOR - PML →	



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Syllabus

CST 283	Python for Machine Learning	Category	L	T	P	Credit	Year of Introduction
		MINOR	3	1	0	4	2019

Preamble: This is a programming course for awarding B. Tech. Minor in Computer Science and Engineering with specialization in ***Machine Learning***. The objective of the course is to provide learners an insight into Python programming, and develop programming skills to manage the development of software systems. It covers programming environment, important instructions, data representations, intermediate level features, Object Oriented Programming and file data processing of Python. This course lays the foundation to develop web applications, Machine Learning, and Artificial Intelligence-based applications and tools, Data Science and Data Visualization applications.

Prerequisite: Nil

Course Outcomes: After the completion of the course the student will be able to

CO1	Write, test and debug Python programs (Cognitive Knowledge level: Apply)
CO2	Illustrate uses of conditional (if, if-else, if-elif-else and switch-case) and iterative (while and for) statements in Python programs (Cognitive Knowledge level: Apply)
CO3	Develop programs by utilizing the modules Lists, Tuples, Sets and Dictionaries in Python (Cognitive Knowledge level: Apply)
CO4	Implement Object Oriented programs with exception handling (Cognitive Knowledge level: Apply)
CO5	Write programs in Python to process data stored in files by utilizing the modules Numpy, Matplotlib, and Pandas (Cognitive Knowledge level: Apply)

Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✔	✔	✔		✔						✔	✔
CO2	✔	✔	✔		✔					✔		✔
CO3	✔	✔	✔		✔	✔	✔					✔
CO4	✔	✔	✔		✔		✔					✔
CO5	✔	✔	✔	✔	✔	✔						✔

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Syllabus

SYLLABUS

Module I

Programming Environment and Python Basics:

Getting Started with Python Programming - Running code in the interactive shell, Editing, Saving, and Running a script. Using editors - IDLE, Jupyter. The software development process - Case Study.

Basic coding skills - Working with data types, Numeric data types and Character sets, Keywords, Variables and Assignment statement, Operators, Expressions, Working with numeric data, Type conversions, Comments in the program, Input, Processing, and Output, Formatting output, How Python works, Detecting and correcting syntax errors, Using built in functions and modules in math module.

Module II

Building Python Programs:

Control statements - Selection structure (if-else, switch-case), Iteration structure(for, while), Testing the control statements, Lazy evaluation, Functions - Hiding redundancy and complexity, Arguments and return values, Variable scopes and parameter passing, Named arguments, Main function, Working with recursion, Lambda functions, Strings and number systems - String function, Handling numbers in various formats.

Module III

Data Representation:

Lists - Basic list Operations and functions, List of lists, Slicing, Searching and sorting list, List comprehension, Work with tuples, Sets, Work with dates and times, Dictionaries - Dictionary

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functions, dictionary literals, adding and removing keys, accessing and replacing values, traversing dictionaries, reverse lookup. Case Study - Data Structure Selection.

Module IV

Object Oriented Programming:

Design with classes - Objects and Classes, Methods, Instance Variables, Constructor, Accessors and Mutators. Structuring classes with Inheritance and Polymorphism. Abstract Classes. Exceptions - Handle a single exception, handle multiple exceptions.

Module V

Data Processing:

The *os* and *sys* modules. Introduction to file I/O - Reading and writing text files, Manipulating binary files. NumPy - Basics, Creating arrays, Arithmetic, Slicing, Matrix Operations, Random numbers. Plotting and visualization. Matplotlib - Basic plot, Ticks, Labels, and Legends. Working with CSV files. – Pandas - Reading, Manipulating, and Processing Data.

Text Books:

1. Kenneth A Lambert., Fundamentals of Python : First Programs, 2/e, Cengage Publishing, 2016
2. Wes McKinney, Python for Data Analysis, 2/e, Shroff / O'Reilly Publishers, 2017

Reference Books:

1. Allen B. Downey, Think Python: How to Think Like a Computer Scientist, 2/e, Schroff, 2016
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3. David M.Baezly, Python Essential Reference, Addison-Wesley Professional; 4/e, 2009.
4. Charles Severance. Python for Informatics: Exploring Information.
5. http://swcarpentry.github.io/python-novice-gapminder/



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COURSE PLAN AND COVERAGE

(In 'Type' column fill either of these: L-Lecture, T-Tutorial, B-Beyond syllabus, G-Gap in Syllabus and I-ICT Tools)
(For Lab based courses enter 'Expt. No.' instead of 'Module' and 'Batch' instead of 'Type' in the designated columns)

Course Plan					Course Coverage		
S. N	Date Day Period	Module /Expt No.	Type/ Batch	Topic	Date	Period	Remarks
				MODULE - I Programming Environment & Python Basis	29/9/23		
1	14/9/23 Thu 6	1.1	L	Getting started with Python Programming: Running code in the Iterative Shell Editing, Saving and Running a Script	29/9/23	6	Completed
2	14/9/23 Thu 7		L		29/9/23	7	Completed
3	15/9/23 Friday 6	1.2	L	Using editor: IDLE	30/9/23	6	Completed
4	15/9/23 Friday 7	1.3	T	Jupyter	30/9/23	7	Completed
5	21/9/23 Thu 6	1.4	L	The software development process : Case study	5/10/23	6	Completed
6	21/9/23 Thu 7	1.5	L	Basic Coding skills: Working with data types, Numeric data types and character sets, keywords variables and assignment	5/10/23	7	Completed
7	28/9/23 Thurs 6		L	Statements, Operators, Expressions	6/10/23	6	Completed
8	28/9/23 Thu 7	1.6	L	Working with Numeric data Type conversion, comments in the program	6/10/23	7	Completed
9	29/9/23 Fri 6	1.7	L	Input, Processing, and Output Formatting output - How python works	12/10/23	6	Completed
10	29/9/23 Fri 7	1.8	T	How python works - Detecting and correcting syntax error	12/10/23	7	Completed
11	5/10/23 Thu 6			Using build in functions and modules: Case - Using math module.	13/10/23	6	Completed
12	5/10/23 Thu 7	1.10	T	Examples	13/10/23	7	Completed (T)
				MODULE - 2 Building Python Programs			

Course In-charge:

Cumulative Hours: 12

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COURSE PLAN AND COVERAGE

(In 'Type' column fill either of these: L-Lecture, T-Tutorial, B-Beyond syllabus, G-Gap in Syllabus and I-ICT Tools)
(For Lab based courses enter 'Expt. No.' instead of 'Module' and 'Batch' instead of 'Type' in the designated columns)

Course Plan					Course Coverage		
SN	Date / Day / Period	Module /Expt No.	Type/ Batch	Topic	Date	Period	Remarks
13	12/10/23 Thu 6	2.1	L	Control Statements : Selection structure (if-else, switch case)	19/10/23	6 7	Completed T
14	12/10/23 Thu 7	2.2	L	Iteration structure (for, while) Testing the control statements lazy evaluvation	20/10/23	6	"
15	13/10/23 Fri 6	2.3	L	Functions : Hiding redundancy and complexity Arguments and return values.	20/10/23	7	"
16	13/10/23 Fri 7	2.4	T	Variable scopes and parameter passing	21/10/23	6	"
17	20/10/23 Thu 6	2.5	L	Named Arguments, Main function	23/10/23	7	"
18	20/10/23 Thu 7	2.6	L	Working with recursion, lambda functions	23/10/23	8	"
19	21/10/23 Fri 6	2.7	L	String and number system: String function.	26/10/23	6	"
20	21/10/23 Fri 7	2.8	T	Handling Numbers in various formats	26/10/23	7	Completed (T)
				MODULE 3 Data Representations			
21	26/10/23 Thu 6	3.1	L	Lists: Basic list operations and functions. List of lists	27/10/23	6	Completed
22	26/10/23 Thu 7	3.2.	L	Slicing, Searching and Sorting list	27/10/23	7	Completed
23	27/10/23 Fri	3.3	T	List Comprehension	28/10/23	6	Completed
24	27/10/23 Fri 7	3.4	L	Work with tuple and sets	28/10/23	7	Completed T
25	2/11/23 Thu 6	3.5	L	Work with dates and times	2/11/23	8	Completed

Cumulative Hours: 26

Course In-Charge

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COURSE PLAN AND COVERAGE

(In 'Type' column fill either of these: L-Lecture, T-Tutorial, B-Beyond syllabus, G-Gap in Syllabus and I-ICT Tools)
(For Lab based courses enter 'Expt. No.' instead of 'Module' and 'Batch' instead of 'Type' in the designated columns)

Course Plan						Course Coverage		
SN	Date / Day / Period	Module / Expt No	Type / Batch	Topic		Date	Period	Remarks
26	2/11/23 Thu 7	3.6	L	Dictionary : Dictionary functions		2/11/23	6	Completed
27	9/11/23 Thu 6	3.7	L	Dictionary literals, adding and removing keys, accessing and replacing values		2/11/23	7	Completed
28	9/11/23 Thu 7	3.8	L	Traversing dictionaries, reverse lookup		3/11/23	6	Completed
29	10/11/23 Fri 6	3.9	L	Case Study : Data structure Selection		3/11/23	7	Completed
	~~10/11/23~~ Fri 7			Module 4 Object Oriented progeamming				
30	10/11/23 Fri 7	4.1	T	Design with classes : Objects and classes, Methods instance variables		23/11/23	6	Completed (T)
31	16/11/23 Thu 6	4.2	L	Constructor, Accessor & Mutator		23/11/23	7	Completed
32	16/11/23 Thu 7	4.3	L	Structuring classes with inheritance		24/11/23	6	Completed
33	17/11/23 Fri 6	4.4	L	Polymorphism		24/11/23	7	Completed
34	17/11/23 Fri 7	4.5	T	Abstract class		30/11/23	6	Completed (T)
35	23/11/23 Thu 6	4.6	L	Abstract class		30/11/23	7	Completed (T)
36	23/11/23 Thu 7		L	Exceptions : Handle a single functions exception.		1/12/23	6	Completed
37	24/11/23 Fri 6	4.8	L	Handle multiple exception		1/12/23	7	Completed
				MODULE 5 Data Processing				

Cumulative Hours: 38

Course In-charge:

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COURSE PLAN AND COVERAGE

(In 'Type' column fill either of these: L-Lecture, T-Tutorial, B-Beyond syllabus, G-Gap in Syllabus and I-ICT Tools)
(For Lab based courses enter 'Expt. No.' instead of 'Module' and 'Batch' instead of 'Type' in the designated columns)

Course Plan					Course Coverage		
S. N.	Date / Day / Period	Module /Expt No.	Type/ Batch	Topic	Date	Period	Remarks
38	24/11/23 Fri 7	5.1	T	The os and sys module	7/12/23	6	Completed (T)
39	30/11/23 Thu 6	5.2	L	Introduction to file I/O Reading, and writing text files	7/12/23	7	Completed
40	30/11/23 Thu 7	5.3	L	Manipulating library files.	8/12/23	6	Completed (T)
41	7/12/23 Thu 6	5.4	L	Numpy: Basics, Creating, arrays Methematic, Slicing.	8/12/23	7	Completed (T)
42	7/12/23 Thu 7	5.5	L	Matrix Operations, Random Numbers.	14/12/23	6	Completed
43	8/12/23 Fri 6	5.6	L	Matplotlib: Basic plot.	14/12/23	7	Completed
44	8/12/23 Fri 7	5.7	T	Matplotlib: Ticks, Labels & Legends.	15/12/23	6	Completed (T)
45	14/12/23 Thu 6	5.8	L	Working with CSV-files	15/12/23	7	Completed (T)
46	14/12/23 Thu 7	5.9	L	Pandas: Reading, Manipulating	21/12/23	6	Completed
47	15/12/23 Fri 6	5.10	T	Pandas: Processing Data and Visualize.	21/12/23	7	Completed
				Revision	=	8	Completed
					Cumulative Hours:	49	

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Course In-charge:

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Verified by:

TUTORIAL PLAN AND COVERAGE

Tutorial Plan				Tutorial Coverage		
S. N.	Date Day Period	Module	Topic	Date	Period	Reference and Remarks
1	15/9/23 Fri 7	1	Type Conversion in python	13/10/23	7	Completed
2	22/9/23 Fri 7	1	program to reverse a number, Sum of digits	21/10/23	7	Completed
3	13/10/23 Fri 7	2	pgm: input the integer n and find the sum of cubes of all possible even nos:	27/10/23	7	Completed
4	21/10/23 Fri 7	2	format specifies, escape sequences with examples.	10/11/23	7	Completed
5	27/10/23 Fri 7	3	pgm :- i/p word list and name and return a tuple find substrings · index name	17/11/23	7	Completed
6	10/11/23 Fri 7	3	Dictionary methods	24/11/23	7	Completed
7	17/11/23 Fri 7	4	Implementation of arithmetic operations using class · constructor.	30/11/23	6	Completed
8	24/11/23 Fri 7	4	polymorphism Eg.	8/12/23	7	Completed
9	8/9/23 Fri 7	5	CSV files operations	15/12/23	6	Completed
10	15/12/23 Fri 7	5	os and os.path module	18/12/23	7	Completed
11						
12						
13						
14						
				Cumulative Hours:		60

Sign of Course In-charge:

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DETAILS OF ASSIGNMENTS

SN	Description and Module Covered	Assigement Type (Group/ common)	Due date of Submit	Submission Number Status	Date of return	Remarks
1	Basic datatypes of (I) operators in Python	Common	2/11/23	On time: 8 Late: 7	3/11/23	Completed
2	Control Statements in Python II	Common	10/11/23	On time: 8 Late: 7	9/11/23	Completed
3	Searching and Sorting in Python III	Common	17/11/23	On time: 10 Late: 5	20/11/23	Completed
4	Inheritance and polymophism (IV)	Common	24/11/23	On time: 10 Late: 5	27/11/23	Completed
5	Numpy & Matplotlib familiarization (V)	Common	7/12/23	On time: 14 Late: 1	8/12/23	Completed
				On time: Late:		
				On time: Late:		
				On time: Late:		
				On time: Late:		
				On time: Late:		
				On time: Late:		
				On time: Late:		
				On time: Late:		
				On time: Late:		
				On time: Late:		
				On time. Late:		
				On time. Late:		

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ASSIGNMENT EVALUATION SHEET

R. N.	Name	Max Marks:	DATE					Average
			10	10	10	10	10	
1	Alfouxan B		10	10	10	10	10	
2	Aswin Krishna U		10	10	10	10	10	
3	Abhijith P.L		9	9	9	9	10	
4	Adarsh P Babu		10	9	9	9	9	
5	Adithyan M.M		10	10	10	10	10	
6	Akhila K S		9	9	10	9	9	
7	Akshay Suresh		10	9	9	9	9	
8	Arjun K. Sajith		9	10	9	10	10	
9	Athul Santhosh		10	10	10	10	10	
10	Sreya Prasad		10	10	10	10	10	
11	Aslam B Kabeer		8	9	9	8	8	
12	C M Anantha Krishnan		9	9	9	9	9	
13	Jiss John Joseph		8	8	9	8	8	
14	Mebin Emmanuel		9	9	8	8	8	
15	Visal K S		10	10	10	10	10	

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MONTHLY ATTENDANCE SHEET

Month: September.

R. N.	Name	DATE	29.9.23	29.9.23	30.9.23	30.9.23	Absent (Monthly)	Absent (Cumulative)	Attendance
		Hour	6	7	6	7			
		Count:	1	2	3	4			
1	Abhijith P.L		X	X	X	X	0	0	100
2	Adarsh P. Babu		X	X	X	X	0	0	100
3	Adithyan MM		X	X	X	X	0	0	100
4	Akhila K.S		X	X	X	X	0	0	100
5	Akshay Suresh		X	X	X	X	0	0	100
6	Arjun K. Sajith		X	X	X	X	0	0	100
7	Athul Rajesh		X	X	X	X	0	0	100
8	Athul Santhosh.		X	X	X	X	0	0	100

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MONTHLY ATTENDANCE SHEET

Month: October

R. N.	Name	Count:	DATE	Absent (Monthly)	Absent (Cumulative)	Attendance %
	ECE					
1	Abhijith P L			0	0	100
2	Adarsh P Babu			0	0	100
3	Adithyan M M			0	0	100
4	Akhila K S			0	0	100
5	Akshay Suresh			0	0	100
6	Arjun K Sajith			0	4	
7	Athul Santhosh			0	4	
8	Sreya Prasad			0	4	
	ME					
1	Aslam B Kabeer			6	6	
2	C M Ananthakrishna			0	0	100
3	Jiss John Joseph			6	6	
4	Mebin Emmanuel			6	6	
5	Visal K S			0	0	100
6	Alfouzan B B			6	6	
7	Aswin Krishnan			6	6	

Signature of Course-in-charge:

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MONTHLY ATTENDANCE SHEET

Month: November

R. N.	Name	Count:	DATE 2/11/23	2/11/23	3/11/23	3/11/23	23/11/23	24/11/23	24/11/23	24/11/23	30/11/23	30/11/23	Absent (Monthly)	Absent (Cumulative)	Attendance %
		Hour	6	7	6	7	6	6	7	6	7	7			
		Count:	30	28	29	30	31	32	31	32	32	32			
	ECE														
1	Abhijith P L		x	x	x	x	x	x	x	x	x	x	0	0	100
2	Adaish P Babu		x	x	x	x	x		x	x	x	x	0	0	100
3	Adithyan M M		x	x	x	x	x	x	x	x	x	x	0	0	100
4	Akhila K S		x	x	x	x	x	x	x	x	x	x	0		
5	Akshay Suresh		x	x	x	x	x	x	x	x	x	x	0	0	
6	Arjun K Sajith		x	x	x	x	a	a	x	x	x	x	2	6	
7	Athul Santhosh		a	a	x	x	x	x	x	x	x	x	2	6	
8	Sreya Prasad		a	a	x	x	x	x	x	x	x	x	2	6	
	ME														
1	Aslam B Kabeer		a	a	x	x	a	a	x	x	x	x	4	10	
2	C M Ananthakrishnan		x	x	x	x	x	x	x	x	x	x	0	0	
3	Jiss John Joseph		a	a	x	x	a	a	x	x	x	x	4	10	
4	Mebin Emmanuel		x	x	x	x	x	x	x	x	x	x	0	6	
5	Vishal K S		x	x	x	x	x	x	x	x	x	x	0	0	100
6	Alfouzan B		x	x	x	x	a	a	x	x	x	x	2	8	
7	Aswin Krishnan		x	x	x	x	a	a	x	x	x	x	2	8	

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MONTHLY ATTENDANCE SHEET

Month: December

R. N.	Name	DATE 1/12/23	1/12/23	7/12/23	7/12/23	8/12/23	8/12/23	14/12/23	14/12/23	15/12/23	15/12/23	21/12/23	21/12/23	22/12/23	Absent (Monthly)	Absent (Cumulative)	Attendance
	Hour	6	7	6	7	6	7	6	7	6	7	6	7	8			
	Count:	37	38	39	40	41	42	43	44	45	46	47	48	49			
	ECE																
1	Abhijith P.L	x	x	x	x	x	x	x	x	x	x	x	x	x	0	0	100
2	Adarsh P. Babu	x	x	x	x	x	x	x	x	x	x	x	x	x	0	0	100
3	Adithyan M M	x	x	x	x	x	x	x	x	x	x	x	x	x	0	0	100
4	Akhila K.S	[illegible]	[illegible]	[illegible]	[illegible]	x	x	x	x	x	x	x	x	x	0	0	91
5	Akshay Suresh	x	x	x	x	[illegible]	x	[illegible]	x	[illegible]	[illegible]	x	x	x	0	0	91
6	Arjun K. Sajith	x	x	x	x	x	x	x	x	x	x	x	x	x	0	6	87
7	Athul Santhosh	x	x	x	x	x	x	x	x	x	x	x	x	x	0	6	87
8	Sreya Prasad	x	x	x	x	x	x	x	x	x	x	x	x	x	0	6	87
	ME																
1	Aslam B. Kabeer	x	x	x	x	x	x	x	x	x	x	x	x	x	0	10	79
2	C.M Ananthakrishnan	x	x	x	x	x	x	x	x	x	x	x	x	x	0	0	100
3	Diss John Joseph	x	x	x	x	x	x	x	x	x	x	x	x	x	0	10	79
4	Mebon Emmanuel	x	x	x	x	x	x	x	x	x	x	x	x	x	0	6	100
5	Visal K.S	x	x	x	x	x	x	x	x	x	x	x	x	x	0	0	100
6	Alfouzan B	x	x	x	x	x	x	x	x	x	x	x	x	x	0	8	83
7	Aswin Krishnan	x	x	x	x	x	x	x	x	x	x	x	x	x	0	8	83

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INTERNAL EVALUATION SHEET

R. N.	Name	Class Test I	Class Test II		Average (25)	assign (15)	(10) att.	attendance	Grand total
1	Alfouzan B	40	42		21	15	9	83	45
2	Aswin Krishnan U	36	37		18	15	9	83	42
3	Abhijith P.L	38	39		19	14	10	100	43
4	Adarsh P. Babu	39	37		19	14	10	100	43
5	Adithyan M M	35	35		18	15	10	100	43
6	Akhila K.S	38	36		19	14	9	91	42
7	Akshay Suresh	35	35		18	14	9	91	41
8	Arjun K. Sajith	37	39		19	14	9	87	42
9	A Thul Santhosh	40	41		20	15	9	87	44
10	Sreya Prasad	41	43		21	15	9	87	45
11	Aslam B. Kabeer	35	35		18	10	8	79	36
12	C.M Anantha Krishnan	37	38		19	14	10	100	43
13	Jiss John Joseph	35	35		18	13	8	79	39
14	Mebin Emmanuel	36	37		18	13	9	87	40
15	Visal K.S	40	38		20	15	10	100	45

Signature of Course-in-charge:

Verified by:

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Register No. :.....

Name:.....

	Mangalam College of Engineering	
	Series Exam	AI &ML
B.Tech in Artificial Intelligence and Machine Learning		Branch: Artificial Intelligence and Machine Learning
Semester: MINOR AI&ML		Academic Year: 2023-24
Course Code: CST 283	L-T-P Credits: 3-1-0-4	Course Name: PYTHON FOR MACHINE LEARNING
Time: 2:30 Hrs.	MINOR SERIES EXAM 1	Maximum Mark: 50

No.	Question	Mark	CO	ML	BL
	PART A				
	Answer 2 out of 3 questions				
1					
1.1	Explain the basic data types available in Python, with examples	5.0	CO1	Module I : Programming Environment and Python Basics	2
1.2	Write a Python program to reverse a number and also find the sum of digits of the number. Prompt the user for input.	5.0	CO1	Module I : Programming Environment and Python Basics	3
	OR				
2					
2.1	Compare and contrast interpreted languages and compiled languages. How does it affect the quality of program development and execution of the program?	5.0	CO1	Module I : Programming Environment and Python Basics	2
2.2	What are the possible errors in a Python program. Write a Python program to print the value of 22n+n+5 for n provided by the user.	5.0	CO1	Module I : Programming Environment and Python Basics	3
	OR				
3					
3.1	Explain the software development process in detail.	10.0	CO1	Module I : Programming Environment and Python Basics	1
	PART B				
	Answer 2 out of 3 questions				
4					
4.1	Explain the concept of scope and lifetime of variables in Python programming language, with a suitable example.	5.0	CO2	Module 2 : Building Python Programs	
4.2	Write a Python code to check whether a given year is a leap year or not [An year is a leap year if it's divisible by 4 but not divisible by 100 except for those divisible by 400].	5.0	CO2	Module 2 : Building Python Programs	3
	OR				

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5					
5.1	Discuss format specifiers and escape sequences with examples	5.0	CO2	Module 2 : Building Python Programs	2
5.2	Write a Python code to determine whether the given string is a Palindrome or not using slicing. Do not use any string function.	5.0	CO2	Module 2 : Building Python Programs	3
	OR				
6	Input 4 integers (+ve and -ve). Write a Python code to find the sum of negative numbers, positive numbers, and print them. Also, find the averages of these two groups of numbers and print.	10.0	CO2	Module 2 : Building Python Programs	3

PART C

Answer 1 out of 2 questions

7					
7.1	Discuss the relation between tuples, lists, and dictionaries in detail.	3.0	CO3	Module 3 : Data Representation	1
7.2	Write a Python program to read a list of numbers and sort the list in a nondecreasing order without using any built in functions. Separate function should be written to sort the list wherein the name of the list is passed as the parameter.	7.0	CO3	Module 3 : Data Representation	3
	OR				
8					
8.1	Write a Python program to check the validity of a password given by the user. The Password should satisfy the following criteria: 1. Contains at least one letter between a and z 2. Contains at least one number between 0 and 9 3. Contains at least one letter between A and Z 4. Contains at least one special character from $, #, @ 5. Minimum length of password: 6	10.0		Module 3 : Data Representation	3

CO: Course Outcomes

- CO1: Write, test and debug Python programs (Cognitive Knowledge level: Apply)
- CO2: Illustrate uses of conditional (if, if-else, if-elif-else and switch-case) and iterative (while and for) statements in Python programs (Cognitive Knowledge level: Apply)
- CO3: Develop programs by utilizing the modules Lists, Tuples, Sets and Dictionaries in Python (Cognitive Knowledge level: Apply)

BL: Blooms Taxonomy Level

6-Creating, 5-Evaluating, 4-Analyzing, 3-Applying, 2-Understanding, 1-Remembering,

ML: Module

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INTERNAL TEST - I

Name of the student	Athul Santhosh				
Roll No	27	Date		Session	FN/AN
Programme/ Branch	BTech ECE	Semester	S3	Batch	A
Course code & Name	Python for Machine learning				

(All Particulars given are correct)

Name and signature of the invigilator with date

Write down the course outcomes (COs)

CO's	Course Outcomes

Marks to be filled by the examiner

	PART A (20)			PART B (20)			PART C (10)		Grand Total Max. (Marks:50)
Qn.	1	2	3	4	5	6	7	8	
a)	4	5		5	3		8		
b)	3	2		3	5		2		40
c)									
Total	7	7		8	8		10		

Signature of Examiner with Date

All the marks are verified (Student signature with Date)

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Register No. :..... Name:.....

	Mangalam College of Engineering	
	Series Exam	AI &ML
B.Tech in Artificial Intelligence and Machine Learning		Branch: Artificial Intelligence and Machine Learning
Semester: MINOR AI&ML		Academic Year: 2023-24
Course Code: CST 283	L-T-P Credits: 3-1-0-4	Course Name: PYTHON FOR MACHINE LEARNING
Time: 2:30 Hrs.	MINOR SERIES EXAM 2	Maximum Mark: 50

No.	Question	Mark	CO	ML	BL
	PART A				
	Answer 1 out of 2 questions				
1					
1.1	Discuss the following dictionary methods with an example. i. get( ) ii. Keys( ) iii. pop( ) iv. update( ) v. values( ) vi. items( )	5.0	CO3	Module 3 : Data Representation	1
1.2	Write a Python code to create a function called list_of_frequency that takes a string and prints the letters in non-increasing order of the frequency of their occurrences. Use dictionaries.	5.0	CO3	Module 3 : Data Representation	2
	OR				
2					
2.1	Write a Python program to read a list of numbers and sort the list in a nondecreasing order without using any built in functions. Separate function should be written to sort the list wherein the name of the list is passed as the parameter	10.0	CO3	Module 3 : Data Representation	3
	PART B				
	Answer 2 out of 3 questions				
3					
3.1	What is polymorphism? Give an example in the context of OOP in Python	3.0	CO4	Module 4 : Object Oriented Programming	1
3.2	Write a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a given circle	7.0	CO4	Module 4 : Object Oriented Programming	3
	OR				
4					
4.1	How is exception handling accomplished in Python programs?	4.0	CO4	Module 4 : Object Oriented Programming	2
4.2	Explain inheritance in Python. Give examples for each type of inheritance.	6.0	CO4	Module 4 : Object Oriented Programming	2
	OR				
5					

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5.1	How can a class be instantiated in Python? Write a Python program to express the instances as return values to define a class RECTANGLE with parameters height, width, corner_x, and corner_y and member functions to find center, area, and perimeter of an instance.	10.0	CO4	Module 4 : Object Oriented Programming	3

Answer 2 out of 3 questions

6					
6.1	Write a note on the os and os.path modules in Python. Also, discuss the walk( ) and getcwd( ) methods of the os module.	5.0	CO5	Module 5 : Data Processing	1
6.2	Describe the characteristics of the CSV format.	5.0	CO5	Module 5 : Data Processing	1

OR

7					
7.1	Given the sales information of a company as CSV file with the following fields month_number, facecream, facewash, toothpaste, bathingsoap, shampoo, moisturizer, total_units, total_profit. Write Python codes to visualize the data as follows 1) Toothpaste sales data of each month and show it using a scatter plot 2) Face cream and face wash product sales data and show it using the bar chart 3) Calculate total sale data for last year for each product and show it using a Pie chart.	10.0	CO5	Module 5 : Data Processing	3

OR

8					
8.1	Write a Python program to add two matrices and also find the transpose of the resultant matrix.	10.0	CO5	Module 5 : Data Processing	3

CO: Course Outcomes

- CO3: Develop programs by utilizing the modules Lists, Tuples, Sets and Dictionaries in Python (Cognitive Knowledge level: Apply)
- CO4: Implement Object Oriented programs with exception handling (Cognitive Knowledge level: Apply)
- CO5: Write programs in Python to process data stored in files by utilizing the modules Numpy, Matplotlib, and Pandas (Cognitive Knowledge level: Apply)

BL: Blooms Taxonomy Level

6-Creating, 5-Evaluating, 4-Analyzing, 3-Applying, 2-Understanding, 1-Remembering,

ML: Module

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INTERNAL TEST –II

Name of the student	Ashwin Krishna. U				
Roll No	2 (M)	**Date**	15/12/23	**Session**	~~FN/AN~~
Programme/ Branch	~~CSE/IT/CS~~ MINOR	**Semester**	S3	**Batch**	
Course code & Name	CST - 283 Python for Machine Learning				

(All Particulars given are correct)

Name and signature of the invigilator with date 15/12/23

Write down the course outcomes (COs)

CO's	Course Outcomes
3.	Develop progeem by utilizing the modules, list, Tuples, Sets and Dictionaries in Python
4	Implement OOP.
5	Write progeems in python to procss data stored in a file by utilizing the modules Numpy, Matplotlib, and Pandas.

Marks to be filled by the examiner

	PART A (10)		PART B (20)			PART C (20)			Grand Total Max. (Marks:50)
Qn.	1	2	3	4	5	6	7	8	
a)	4.5		3		9			10	
b)	4.5		6						27
c)									
Total	9		9		9			10	

Signature of Examiner with Date 18/12/23

All the marks are verified (Student signature with Date)

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CE CSE
ME ECE

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ASSIGNMENT-1

Type: Assignment	**Date: 3/10/23**
Course Code & Name: CST 283 Python for Machine Learning	**Max. Marks:10**
Year/Sem.: II/III	**Date of Submission: 10/10/23**

Sl. No.	Questions	Marks	CO	BL
1	What is type conversion? How is it done in Python?	10	1	2

RUBRICS FOR EVALUATION:

Sl.No	Scheme	Marks
1	Explanation	10
	Diagram	-
	Solution	

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ASSIGNMENT-2

Type: Assignment	Date: 10/10/23
Course Code & Name: CST 283 Python for Machine Learning	Max. Marks:10
Year/Sem.: II/III	Date of Submission: 20/10/23

Sl. No.	Questions	Marks	CO	BL
1	Write a Python program which takes a positive integer n as input and finds the sum of cubes all positive even numbers less than or equal to the number	10	2	3

RUBRICS FOR EVALUATION:

Sl.No	Scheme	Marks
	Explanation	-
	Diagram	-
	Solution	10

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ASSIGNMENT-3

Type: Assignment	**Date: 20/10/23**
Course Code & Name: CST 283 Python for Machine Learning	**Max. Marks:10**
Year/Sem.: II/III	**Date of Submission: 27/10/23**

Sl. No.	Questions	Marks	CO	BL
1	Given is a list of of words, wordlist, and a string, name. Write a Python function which takes wordlist and name as input and returns a tuple. The first element of the output tuple is the number of words in the wordlist second element of the tuple is a list showing the index at which the name occurs in each of the words of the wordlist and a 0 if it doesn't occur.	10	3	3

RUBRICS FOR EVALUATION:

Sl.No	Scheme	Marks
1	Explanation	-
	Diagram	-
	Solution	10

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CE CSE
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DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING (AM)

ASSIGNMENT-4

Type: Assignment	**Date: 27/10/23**
Course Code & Name: CST 283 Python for Machine Learning	**Max. Marks:10**
Year/Sem.: II/III	**Date of Submission: 10/11/23**

Sl. No.	Questions	Marks	CO	BL
1	Write a Python program to implement the addition, subtraction, and multiplication of complex numbers using classes. Use constructors to create objects. The input to the program consist of real and imaginary parts of the complex numbers.	10	3	2

RUBRICS FOR EVALUATION:

Sl.No	Scheme	Marks
1	Explanation	-
	Diagram	-
	Solution	10

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ASSIGNMENT-5

Type: Assignment	Date: 10/11/23
Course Code & Name: CST 283 Python for Machine Learning	Max. Marks:10
Year/Sem.: II/III	Date of Submission: 17/11/23

Sl. No.	Questions	Marks	CO	BL
1	Given a file "auto.csv" of automobile data with the fields index, company, body-style, wheel-base, length, engine-type, num-of-cylinders, horsepower, averagemileage, and price, write python code to 1) Clean and Update the CSV file 2) Print total cars of all companies 3) Find the average mileage of all companies 4) Find the highest priced car of all companies	10	5	3

RUBRICS FOR EVALUATION:

Sl. No.	Scheme	Marks
1	Explanation	-
	Diagram	-
	program	10

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ASSIGNMENT 1

PYTHON

10

8/11/23

Submitted by: Athul Santhosh

Submitted to:

Date : 16/11/2023

Class : ECE, S3

Roll NO : 27

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1. Explain the basic data types in python with ex:

→ String
- Integer
- Tuple.
- Numbers
- Complex number
- Bytes

→ String
Text anything between " " it becomes string.
String is immutable, It is a fundamental data type used to represent and manipulate textual data.

example → "Hello"
"23.34"

→ Integer
This data type is represented with the help of int class. It consists of positive or negative whole numbers without fraction/decimals. In python there's no limit to how long integer values are often.

example → 0, 1, 2, 22, 100 . . .

→ Tuples are used to store multiple items in a single variable, Tuple is one of 4 built-in data type in python used to store collections of data, the other List, set and Dictionary all with different qualities and usage.

example → () - empty tuple
(1,) - Tuple with a single value
(1,2,3) - Tuple containing numeric objects.
('hello','world') - Tuple containing string objects.
(True,[1,2],(3,4),'hello') - Tuple containing multiple objects with different data types

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2, Describe arithemetic operator.

Operator	Description	Syntax
+	Addition : add two operands	x+y
-	Substraction : subtracts two operands	x-y
*	Multiplication : Multiplies two operands	x*y
/	Division[float] : divides the first operand by the second	x/y
//	Division [floor] : divides the first operand by 2nd	x//y
%	Modulus : returns the remainder when the first operand is divided by the 2nd	x%y
**	Power [Exponent] : Return first raised to power 2nd	x**y

b, Logical operators

Logical Operators in python are used to perform logical operations on the values of variables The value is either true / false, we can figure out the conditions by the result of the truth values. There are mainly three types of logical operators in python : Logical AND
Logical OR
Logical NOT

Operators are represented by keywords or special characters.



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c, Comparison operators.

Comparison operators in python compare the value on either side of the operand and determine the relation between them. It is also referred to as relational operators. Various comparison operators in python are (==, !=, <>, >, <=, etc...)

```
x = 4
y = 5
print('x > y is', x > y)
```

d, Assignment operators *

Assignment operators in python are used for assigning the value of the right operand to the left operand. various assignment operators used in python are (+=, -=, *=, /=, etc..)

example: python assignment operators is simply to assign the value,

```
first num = 4
second num = 5
print ("line 1 - value
print ("line 2 - value
```

e, Bitwise operators

In python, bitwise operators are used to perform bitwise calculations on integers. The integers are first converted into binary and then operations are performed on each bit or corresponding pair of bits, hence the name bitwise operators. The result is then returned in decimal format.

Bitwise AND - & — x & y

Bitwise OR - / — x/y

Bitwise NOT - ~ — ~x

Bitwise XOR - ^ — x^y

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ASSIGNMENT II

PYTHON

To

Submitted by : Arjun K Sajith

Submitted to :

Class : ECE, S3

Roll NO : 22

Date : 16/11/2023

11/11/23

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Explain the basic data types in python with ex:

→ String
- Integer
- Tuple
- Numbers
- complex number
- Bytes

→ String
Text anything between " " It becomes String.
String is immutable. It is a fundamental data type used to represent and manipulate textual data
example → "Hellow"
"23.34"

→ Integer
this data type is represented with the help of int class. It consist of positive or negative whole number. without fraction/decimals. In python there's no limit to how long integer values are often.
example → 0, 1, 2, 22, 100. . .

→ Tuples are used to store multiple items in a single variable. Tuple is one of 4 built-in data type in python used to store collection of data, the other 3 list, set and dictionary all with different qualities and usage.
example → () - empty tuple
(1) Tuple with a single value
(1, 2, 3) - Tuple containing numeric objects
('hellow', 'world') - Tuple containing string objects
(True, [1, 2], (3, 4), 'hellow') - Tuple containing multiple

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2 Decribe arithmetic operator

Operator	Decription	Syntax
+	Addition: Add two operands	x + y
-	Substraction: Subtracts two operands	x - y
*	Multiplication: Multiplies two operands	x * y
/	Division [float]: divides the first operand by the second	x/y
//	Division [floor]: divides the first operand by 2nd	x//y
%	modulus: Returns the remainder when the first operand is divided by the 2nd	x%y
**	power [Exponent]: Return first raised to power 2nd	x ** y

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3 Logical operators

Logical operators in python are used to perform logical operations on the values of variables the values are either true/false. We can figure out the conditions by the result of the truth values. There are mainly three types of logical operations in python: Logical AND
Logical OR
Logical NOT

operators are represented by keywords or special characters

c) Comparison operators

Comparison operators in python compares the values on either side of the operand and determines the relation b/w them. This also referred to as relational operations. Various comparison operators in python are (==, !=, <>, >, <=, etc...)

```
x = 4
y = 3
print ('x>y is', x>y)
```

d) Assignment operators

Assignment operators in python are used for assigning the value of the right operand to the left operand. Various assignment operators used in python are (+=, -=, *=, /=, etc...)

Example: Python assignment operators simply to assign the value.

```
first num = 4
Second num = 3
print ("line1 - value)
print ("line2 - value)
```

e) Bitwise operators

In python, bitwise operators are used to perform bitwise calculations on integers. The integers are first converted into binary and then operations are performed on each bit or corresponding pair of bits. Hence the name bitwise operators. The result is then returned in decimal formula.

- Bitwise AND - & - x&y
- Bitwise OR - | - x|y
- Bitwise Not - ~ - ~x
- Bitwise XOR - ^ - x^y

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Assignment 3

Python for Machine Learning

TD

20/11/23

Submitted by

Sreya Prasad

ECE

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QUESTION :-

Given is a list of words, wordlist, and a string, name. Write a python function which takes wordlist and name as input and returns a tuple. The first element of the output tuple is the number of words in the wordlist. Second element of the tuple is a list showing the index at which the name occurs in each of the words of the wordlist and a 0 if it doesn't occur.

ANSWER :-

Python

```
def find_name_occurrences(wordlist, name)

occurrences = []

  Indexes = [i for i in range (len(word)) if word [i:i+len(name)] == name]

  if Indexes:
      occurrences. append (indexes)
    else:
      occurrence. append ([0])

  Return (num_words, occurrences)

# Example usage:

wordlist = ["hello", world, "name, "example"]

name = "me"

result = find_name_occurrence (wordlist; name)

Print ("number of words", result. [0])

Print ("occurname", result. [1])
```

In this function

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We initialize an empty list occurrences to store the indices of occurrences of the name for each word

We iterate through each word in the wordlist and use list comprehension to find the indices at which the name occurs in the word. If the name is not found in the word, we append [0] to indicate no occurrence

We count the total number of words in the wordlist and return tuple with the number of words and list of occurrences.

You can replace the wordlist and name with your own values when using the function. The example usage provided demonstrates how to call the function and access the results



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Assignment 4

PYTHON FOR MACHINE LEARNING

Submitted By

Aswin Krishna. V

MCE

28/11/23

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QUESTION :-

Write a python program to implement the addition, subtraction and multiplication of complex numbers using classes use constructors & create objects. The input to the program consist of real and imaginary part of the complex numbers

ANSWER :-

Python CODE

```
class ComplexNumbers
    def __init__(self, real, imaginary):
        self.real = real
        self.imaginary = imaginary

    def __str__(self):
        if self.imaginary < 0:
            return f"{self.real} - {-self.imaginary}i"
        else:
            return f"{self.real} + {self.imaginary}i"

    def __add__(self, other)
        real_sum = self.real + other.real
        Imaginary_sum = self.imaginary + other.imaginary
        return ComplexNumber(real_sum, Imaginary_sum)

    def __sub__(self, other)
        real_diff = self.real - other.real
        Imaginary_diff = self.Imaginary - other.Imaginary
        return ComplexNumber(real_diff, imaginary_diff)
```

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```
def __mul__(self, other)
    real_product = (self.real * other.real) - (self.imaginary * other.imaginary)
    imaginary_Product = (self.real * other.imaginary) + (self.imaginary * other.real)
    return ComplexNumber(real_product, imaginary_product)

real1 = float(input("Enter the real part of the first complex number."))
imaginary1 = float(input("Enter the imaginary part of the first Complex Numbers"))
real2 = float(input("Enter the real part of the second complex numbers"))
imaginary2 = float(input("Enter the imaginary parts of the second complex number"))

complex_num1 = ComplexNumbers(real1, imaginary1)
complex_num2 = ComplexNumbers(real2, imaginary2)

addition_result = complex_num1 + complex_num2
Subtraction_result = complex_num1 - complex_num2
multiplication_result = complex_num1 * complex_num2

print(f"Complex Number 1 : {complex_num1}")
print(f"Complex Number 2 : {complex_num2}")
print(f"Addition results : {addition_result}")
print(f"Subtraction result: {Subtraction_results}")
print(f"multiplication results : {multiplication_result}")
```

In this program

We define a complex number class with a constructor that takes real and imaginary parts as input

We override the __add__, __sub__, and __mul__ methods to perform addition, subtraction, and multiplication of complex numbers

We takes user input for real and imaginary parts of two complex numbers

We create complex number object and perform the specified operation

Finally, we display the input numbers and the results of the operation

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ASSIGNMENT-5

Python for Machine Learning



Submitted by

Arjun K Sajith

RCF

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Questions

Given a file "auto.CSV" of automobile data the fields index, Company, body-style, Wheel-base, length, engine-type, num-of cylinders, bore ratio, average mileage, and Prices Write Python

Code to

1) Clean and Update the CSV File
2) Print total Cars of all companies
3) Find the average mileage of all companies
4) Find the Highest Priced Car of all Companies

Answers

Python

Copy Code

import Pandas as Pd

File Path = "/content/auto.csv" # Replace with the actual File Path

data = Pd.read_csv(File Path)

data.dropna(inplace = True)

Company Counts = data['Company'].value_counts()

Print("Total Cars of all companies.")

Print(Company Counts)

average mileage

data.groupby('company')['averagemileage'].mean()

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data.groupby('company')['Average mileage'].mean()
Print("\n Average mileage of all companies:",
Print(Average mileage)

highest Price index = data['Price'].idxmax()
Print("\n Highest Priced Car of all companies")
Print(Highest Priced Car)
In this Code:

We load the CSV file using Pandas.
We Clean the data by removing rows with missing values using the data by removing rows with missing values using the dropna() function.
We Print the total number of Cars for each Company using value_counts().
We find the average mileage for each company by grouping the data and Calculating the mean.
We find the highest Priced Car using idxmax() to get the index of the row with the highest Price and retrieve the corresponding data.

Make sure to replace "auto.csv" with the correct file path. This code will provide you with the total Cars for each company, the average mileage for each company, and the details of the highest Priced Car across all companies.

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