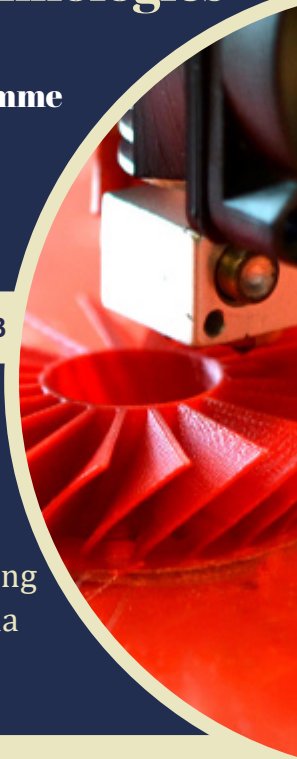
Advances in Subtractive and Additive Manufacturing Technologies

AICTE Sponsored ATAL Faculty Development Programme



4 December - 9 December, 2023

Organized by
Department of
Mechanical Engineering
Mangalam College of Engineering
Ettumanoor, Kottayam, Kerala

विश्वं शास्त्रे प्रतिष्ठितम्।

Accredited B.Tech Programmes in
CE CSE
ME ECE

Co-ordinators
Dr. Manikandan H- 8239821122
Dr. K Pratheesh- 9846399099

AICTE Academy

AICTE has the vision to provide faculties with facilities such as access to learning materials, Orientation of faculties and also empowering younger faculties by conducting Free Faculty Development programs. The aim of AICTE is to improve the quality of technical education in India by initiating different useful schemes launched by Govt. of India, Ministry of Human Resource Development. AICTE council recognizes that there is a need to train young generation in their respective disciplines. The Training of faculties will increase the knowledge and skills and make them more employable. As part of this commitment Mangalam college of Engineering, Ettumanoor, Kottayam, Kerala is wishing to conduct AICTE sponsored one week FDP a on "Advances in Subtractive and Additive Manufacturing Technologies" on 04th-09th December 2023.

About the Institute

Mangalam College of Engineering, located in Ettumanoor, Kerala, is a prominent educational institution dedicated to providing quality engineering education to aspiring students. Established in 2002, the college has grown to become one of the premier engineering colleges in the region, offering undergraduate and postgraduate programs in various disciplines.

Mangalam College of Engineering is affiliated with the prestigious APJ Abdul Kalam Technological University recognized by the All India Council for Technical Education (AICTE). The college offers Seven B.Tech programs, Five M.Tech programs, MCA, MBA programmes and PhD Programmes. The college is known for its commitment to academic excellence, fostering a conducive learning environment, and nurturing the overall development of its students.

The college campus sprawls over a vast area, providing state-of-the-art infrastructure and modern facilities to enhance the learning experience. The classrooms are well-equipped with audio-visual aids, enabling effective teaching and interactive sessions. The laboratories are equipped with the latest equipment and technology, allowing students to gain practical knowledge and hands-on experience.In addition to academic programs, the college places a strong emphasis on co-curricular and extracurricular activities. It has various clubs and societies that promote student engagement in cultural, technical, and sports activities. These activities help students develop leadership skills, teamwork, and a well-rounded personality.

Mangalam College of Engineering encourages research and innovation among its faculty and students. The institution promotes research collaborations, organizes conferences, and provides research grants to foster a research-oriented environment. The college actively participates in national and international conferences and encourages students to present their research work.Furthermore, the college emphasizes social responsibility and community outreach. It organizes various community development programs, awareness campaigns, and environmental initiatives to create socially conscious engineers who contribute positively to Society

In recognition to the Institute's academic excellence and overall growth, Mangalam College of Engineering has been accredited with 'A' grade by the National Assessment and Accreditation Council (NAAC). Four B Tech Programmes, Civil Engineering. Computer Science and Engineering, Electronics and Communication Engineering and Mechanical Engineering are accredited with NBA.

Vision and Mission of the Institute:

Vision

To emerge as a center of excellence in technical education and research, creating employable and committed professionals.

Mission

Inspire the learners to be globally competent engineers through innovative teaching and learning methods and imbibe a sense of social responsibility and creative inquiry in them that leads to higher learning and research.

About the Department:

The Mechanical Engineering department started in the year 2004, offers both undergraduate (B. Tech.) and postgraduate (M. Tech.) programmes. The annual intake of the B. Tech. programme is 60 students and that of the M. Tech. is 18. The AICTE has given the approval to start one more batch of 60 students in B. Tech programme from 2012 academic year onwards. The department provides its students an environment that stimulates their intellectual growth and personality development. Infrastructure facilities are excellent with well-equipped labs, classrooms and libraries.

Vision

Tobe a centerof excellence in MechanicalEngineering by creatinginnovative 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.

Program Educational Objectives

DOMAIN KNOWLEDGE: Graduates will be able to solve the contemporary issues and challenges in mechanical engineering by applying their strong base in Mathematics, Science and Engineering.

LIFELONG LEARNING: Graduates shall have a passion to engage in lifelong learning process through self study, continuing education and professional studies in engineering.

CREATIVE SKILLSET: Graduates will become an effective innovator, to address social, technical and business challenges by enhancing their technical competencies, communication skill and team spirit.

Program Specific Objectives

PSO 1: Able to identify, formulate design and analyze the contemporary challenges and engineering problems in the realm of Design, Industrial and Thermal sciences, utilizing latest technology.

PSO 2: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.

Objectives of the FDP:

The objectives of this FDP program is to provide the basic and in-depth knowledge of Advanced Trends in Manufacturing Technology. It is classified into two streams like Subtractive and Additive Manufacturing to give insight about various manufacturing technologies and their multidisciplinary applications in various sectors of science and technology.

Topics to be covered

- Introduction to Advanced Manufacturing Methods
- Fundamentals of CNC Technology
- Fundamentals of Additive Manufacturing
- Surface Engineering and Quality of Components in Advanced SM and AM
- Advanced Metal Joining and Forming Processes
- Metal Additive Manufacturing
- AM in Healthcare and Sports.
- Applications of Commercial AM Techniques

Date/ Session	09.30 AM-12.00 Noon	02.00 PM-04 .30 PM
04-12-2023 Monday	**Micro-Scale Based Analysis of 3D Printed Structures** Dr Anoop M S Assistant Professor Mechanical Engineering SCT College of Engineering Thiruvananthapuram	**Recent Advances in Additive Manufacturing** Dr. GL.Samuel Professor Manufacturing Engineering Section Department of Mechanical Engineering Indian Institute of Technology, Madras
05-12-2023 Tuesday	**Electric Discharge Based Surface, Post-Treatment of Metal Additive Manufactured Components** Dr. Afzaal Ahmed Associate Professor Mechanical Engineering IIT Palakkad	**Computer Aided Process Planning and CNC Manufacturing** Dr T C Bera Associate Professor Mechanical Engineering BITS Pilani, Pilani Campus, Rajasthan
06-12-2023 Wednesday	**Cyber Physical Machine Tools and Machine Tool 4.0** Dr R Manu Professor Mechanical Engineering NIT Calicut	**Industrial Visit** MSME PPDC
07-12-2023 Thursday	**Additive Manufacturing - Industrial Approach** Dr Ramesh Krishnan Mechanical Engineering RIT Kottayam	**Electrospinning and Additive Manufacturing: Converging Technologies** Dr Gibin George Assistant Professor Mechanical Engineering SCMS School of Engineering and Technology, Kochi
08-12-2023 Friday	**AM in Healthcare and Sports** **Commercial Applications of AM** **Best Practices in AM** Mr. Sreenath Polackal EMI Product India	**AM LAB** EMI Product India
09-12-2023 Saturday	**Advancements in Welding Consumables : An Additive Manufacturing Perspective** Dr Sreejith Mohan Assistant Professor Mechanical Engineering NIT Trichy Examination and Evaluation	**Valedictory Function**

Mangalam
College of Engineering
Ettumanoor Kottayam
mangalam.ac.in