MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
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NBA Accredited - B.Tech. (CIVIL, CSE, ECE, EEE, MECH, CST), MBA & MCA

A Report on Guest Lecture titled
"Opportunities for Mechanical Engineers in Additive Manufacturing"
Organized by Department of Mechanical Engineering
In association with Industry Institute Interaction Cell (IIIC)
on 08.10.2025

Report Submitted by: Mr. Aravindhan D, Assistant Professor, Department of Mechanical Engineering.
Event Coordinators: Mr. Aravindhan D, Assistant Professor, Department of Mechanical Engineering, Mr. Kumar G, Assistant Professor, Department of Mechanical Engineering.
Resource Person Details: Mr. Muralidharan D, Director, RP 3D Products LLP .
Total Participants: 45 students from the Department of ME
Venue: KKB 008
Mode of Conduct: Offline
Report Received on 14.10.2025.

Objective of the Program:

The main motive of the is to create awareness among students about the evolving role of Additive Manufacturing (AM) in industries and how mechanical engineers can leverage this technology for innovation, career development, and entrepreneurship. A key highlight of the program was the emphasis on the growing demand for mechanical engineers in design optimization, material selection, simulation, and product development tailored to additive processes.

- To showcase industry trends and emerging applications.
- To create awareness about higher education, research, and job opportunities in Additive Manufacturing.
- To inspire students to explore career paths in design, manufacturing, and product development using Additive Manufacturing.

Inaugural Session:

The program commenced with a warm **Welcome Address** delivered by **Dr. S. Baskaran**, H.O.D ME, who emphasized the significance growth of Additive Manufacturing in modern production Industries. He outlined how mechanical engineers can utilize this modern technology to transform there carriers. And followed by, the resource person **Mr. Muralidharan D** shared insights about Additive Manufacturing.

Technical Sessions: The session began with an introduction to the evolution and fundamentals of additive manufacturing, providing clarity on how it differs from conventional production methods.

Technologies in Additive Manufacturing

- Fused Deposition Modeling (FDM)
- Selective Laser Sintering (SLS)
- Direct Metal Laser Sintering (DMLS)
- Electron Beam Melting (EBM)

Role of Mechanical Engineers in Additive Manufacturing:

Mechanical engineers play a pivotal role in the advancement and implementation of additive manufacturing across industries. Their expertise in design, materials, mechanics, and manufacturing processes enables them to optimize parts specifically for 3D printing. They are responsible for developing CAD models that follow Design for Additive Manufacturing (DfAM) principles, ensuring lightweight structures, reduced material usage, and improved functionality. Mechanical engineers also evaluate material properties, select suitable polymers or metals, and conduct simulations to predict performance under real-world conditions. In industrial applications, they oversee process parameters, quality control, and post-processing operations such as machining, heat treatment, or surface finishing. Additionally, they contribute to research and innovation by improving print efficiency, reducing production costs, and integrating AM into traditional manufacturing workflows.

Career Opportunities in Additive Manufacturing:

Additive manufacturing has opened a wide range of promising career opportunities for mechanical engineers across industries such as aerospace, automotive, biomedical, defense, consumer products, and tooling.

- Design Engineer – AM
- R&D Engineer
- Process Engineer
- AM Quality and Testing Specialist
- Product Development Engineer

Outcome:

The guest lecture successfully enhanced the students' understanding of additive manufacturing and its relevance to the mechanical engineering profession. The session motivated students to acquire skills in advanced design and manufacturing technologies to stay industry-ready.

I (Mr. Aravindhan. D) express my gratitude to the Management and Dr. C Yuvaraj, Vice Chancellor (I/C) and Dr. P. Ramanadan Principal for giving permission to organize this program. I thank Dr. C. Kamal Basha, Professor & Vice Principal of Administration, for providing the necessary support on time. I thank Dr. S. Baskaran, Associate Professor & HOD/ME, for his continued guidance in all aspects.