

**A Report on Online Guest Lecture on
“Fundamentals & Applications of Additive Manufacturing”
Organised by Department of Mechanical Engineering
in association with ISTE, MITS
on 01.10.2024**



Conveners: Dr. Nagesha K.V, Assoc. Professor, Dept. Of ME; Dr. Jagannath Pattar, Asst. Professor, Dept. Of ME & Co-ordinator; Mr. Raghavendra H, Asst. Professor, Dept. Of ME

Resource Person: Dr. Vishwanatha H M, Assistant Director- Quality Assurance (IQAC), Associate Professor, Department of Mechanical and Industrial Engineering, Manipal Academy for Higher Education.

Participants: II- & III-Year ME Department Students. **Attendance:** 110 participants (Internal)

Venue: Seminar Hall-A

Mode of Conduct: Online.

Report Received on 04.10.2024

Department of Mechanical Engineering has organized a one-day Guest Lecture on “Fundamentals & Applications of Additive Manufacturing” on 01.10.2024 (Tuesday), 10:30 AM to 12:30 PM.

Objectives:

1. **Introduce Additive Manufacturing (AM) Concepts:** To provide students with a comprehensive understanding of the fundamental principles and concepts of additive manufacturing.
2. **Explore AM Technologies:** To familiarize students with different types of additive manufacturing processes, such as Fused Deposition Modelling (FDM), Stereolithography (SLA), and Selective Laser Sintering (SLS).
3. **Understand AM Materials:** To highlight the various materials used in additive manufacturing, including polymers, metals, ceramics, and composites.
4. **Identify Real-World Applications:** To showcase practical applications of additive manufacturing in industries such as aerospace, automotive, healthcare, and consumer products.
5. **Discuss Advantages and Challenges:** To analyse the benefits and limitations of additive manufacturing compared to traditional manufacturing methods.
6. **Highlight Future Trends and Opportunities:** To inspire students by discussing emerging trends, innovations, and potential career opportunities in the field of additive manufacturing.
7. **Encourage Research and Innovation:** To motivate students to explore further research, projects, and innovative solutions using additive manufacturing technologies.

The Programme Started at 10:30 AM with a welcome address to all the audience by Mr. Raghavendra H, Assistant Professor, Department of ME, MITS, Madanapalle. Later Dr. Jagannath Pattar Asst. Professor, Dr. I. Arun Professor, Dr. Anantha Raman L Asst. Professor, Dr. Ved Prakash Asst. Professor, And Dr. S. Baskaran, Assoc. Professor & Head ME, address the gathering.

The resource person started the session by extending his hearty thanks to the participants, organizing members, HOD, Principal and Management of MITS Madanapalle, for giving the opportunity to share her knowledge and experience in on “Fundamentals & Applications of Additive Manufacturing”.



The Resource Person Delivered a Lecture on the Following Topics:

1. **Introduction to Additive Manufacturing:** An overview of AM and its evolution as a modern manufacturing technology.
2. **Types of Additive Manufacturing Processes:** Detailed discussion on processes like Fused Deposition Modelling (FDM), Stereolithography (SLA), Selective Laser Sintering (SLS), and others.
3. **Materials in Additive Manufacturing:** Exploration of various materials such as plastics, metals, ceramics, and composites used in AM.
4. **Applications of Additive Manufacturing:** Case studies showcasing the use of AM in aerospace, automotive, healthcare, and consumer goods industries.
5. **Design for Additive Manufacturing:** Insights into the design principles and software tools used for creating AM models.
6. **Benefits and Challenges:** Analysing the advantages of AM, including customization, rapid prototyping, and sustainability, as well as its limitations and challenges.
7. **Future Trends and Career Opportunities:** A look at the latest advancements in AM technology and the potential career paths for mechanical engineers in this field.

Event Outcomes:

1. Grasp the fundamental principles and applications of additive manufacturing (AM).
2. Identify various AM processes and materials utilized across different industries.
3. Recognize the benefits and limitations of additive manufacturing in modern engineering.
4. Gain valuable insights into real-world applications and the influence of AM on traditional manufacturing practices.
5. Cultivate an interest in further studies or career opportunities in the field of additive manufacturing.

The session successfully met its objectives, with students acquiring a deeper understanding of AM technologies, their practical uses, and potential career paths. It encouraged students to think innovatively and apply the knowledge gained in future projects and professional endeavours.

Vote of Thanks:

The session concluded at 12:20 PM, followed by a vote of thanks delivered by **Dr. Jagannath Pattar**, Assistant Professor, Department of Mechanical Engineering. He expressed heartfelt gratitude to the resource person for sharing invaluable expertise and guiding students toward a deep understanding of the fundamentals, applications, and future potential of additive manufacturing. This knowledge will empower them to engage with this transformative technology in their respective fields. Dr. Jagannath Pattar encouraged students to apply the insights gained during the lecture to shape their career paths effectively and wished them success in their future endeavours. He also extended his sincere thanks to the MITS Management and higher officials for providing this valuable opportunity.

Lastly, he expressed his gratitude to all the faculty members and students for their support and active participation, which made the event a grand success. This event marked yet another successful academic engagement at MITS, contributing to the overall development and growth of students in the field of mechanical engineering.



Interaction Session with Students:

The resource person actively encouraged questions and discussions, allowing students to clarify their doubts and deepen their understanding of additive manufacturing.

Key highlights of the interaction session included:

- Students inquiring about the **real-world challenges** in implementing additive manufacturing in various industries.
- Questions regarding **specific applications** of AM in fields like aerospace, healthcare, and automotive.
- A discussion on the **career opportunities** and the future scope of AM technology for budding mechanical engineers.
- Students sought guidance on the **latest software tools** and design principles used in additive manufacturing.
- The resource person shared insights on the **cost-effectiveness** and **environmental impact** of additive manufacturing compared to traditional methods.

This interactive exchange of ideas fostered a dynamic learning environment, encouraging students to think critically and explore innovative applications of additive manufacturing.

Closing Remarks and Acknowledgment:

Dr. Nagesha K.V., Associate Professor, Department of Mechanical Engineering and Convener of the event, concluded the **Online Guest Lecture on “Fundamentals & Applications of Additive Manufacturing”** by expressing his gratitude to the resource person, faculty, and students for their active participation. He highlighted the importance of additive manufacturing in shaping the future of engineering and emphasized the need for students to apply the knowledge gained from the session in their academic and professional pursuits. Dr. Nagesha K V also extended his thanks to the organizing team and ISTE-MITS for their support in making the event a success.