MVJ COLLEGE OF ENGINEERING
Since 1982
Engineering A Better Tomorrow

An Autonomous Institute
Approved by AICTE, New Delhi
Affiliated to VTU, Belagavi
Recognized by UGC under 2(f) & 12(B)
Accredited by NBA & NAAC

Guest Lecture on "Recent Advancement Techniques in Additive Manufacturing"

The **Department of Mechanical Engineering** organised a **Guest Lecture** titled **Recent Advancement Techniques in Additive Manufacturing** on **13-02-2026** from **10.30 AM to 01.00 PM**, in **Seminar Hall 02**.

The guest lecture on "Recent Advancement Techniques in Additive Manufacturing (AM)" by **Mr. Vinod AR,** Scientist-D, Central Manufacturing Technology Institute, Bangalore, provided an in-depth overview of the latest trends, innovations, and industrial practices in the field of 3D printing and advanced manufacturing. The session highlighted how additive manufacturing has evolved beyond prototyping to become a crucial technology in high-precision engineering, aerospace, biomedical applications, automotive design, and customised product development.

The speaker discussed modern AM processes such as metal additive manufacturing, hybrid manufacturing, multi-material printing, and AI-driven optimisation techniques. Emerging technologies such as Direct Energy Deposition (DED), Selective Laser Melting (SLM), Electron Beam Melting (EBM), and advanced polymer-based printing were explained with real-world examples. The lecture also emphasised improvements in material science, process monitoring, part quality, surface finishing, and industrial scalability.

Additionally, the session provided insights into current research challenges such as porosity control, residual stress management, thermal distortion, micro-structural consistency, and certification of AM parts. Students (around 84 in number) from Aeronautical Engineering, Aerospace Engineering, Chemical Engineering, Civil Engineering, and Mechanical Engineering gained a practical understanding of how recent advancements are pushing AM toward faster, more accurate, and more cost-effective production systems.

Objectives of the Event

- To introduce students to the latest developments and innovations in additive manufacturing technologies.
- To explain advanced AM processes, materials, and equipment used in modern industries.
- To provide insight into current research trends and technical challenges in AM.
- To strengthen students' ability to analyse AM case studies and understand real-world use cases.
- To help students understand the industrial relevance and future scope of AM technologies.
- To highlight opportunities for research, entrepreneurship, and employment in additive manufacturing sectors.
- To motivate students to adopt AM tools in innovative product design, rapid prototyping, and manufacturing workflows.

Event Overview

The Department of Mechanical Engineering organised a guest lecture on the topic "Recent Advancement Techniques in Additive Manufacturing (AM)", aimed at providing students, researchers, and faculty members with insights into the rapidly evolving landscape of 3D printing and digital manufacturing technologies. The session focused on the latest developments across materials, processes, applications, and industrial adoption of AM.

The resource person highlighted how additive manufacturing has progressed far beyond conventional prototyping, emerging as a transformative production technology across sectors such as aerospace, biomedical engineering, automotive, tooling, and energy. Advancements in multi-material printing, metal additive manufacturing, high-performance polymer printing, and hybrid manufacturing systems were discussed in detail. The speaker also emphasised breakthroughs such as laser-based powder bed fusion, direct energy deposition, topology optimization, lattice structure design, and AI/ML-driven process control, which are enabling unprecedented levels of design freedom, customisation, structural efficiency, and automation.

Photographs from the Event

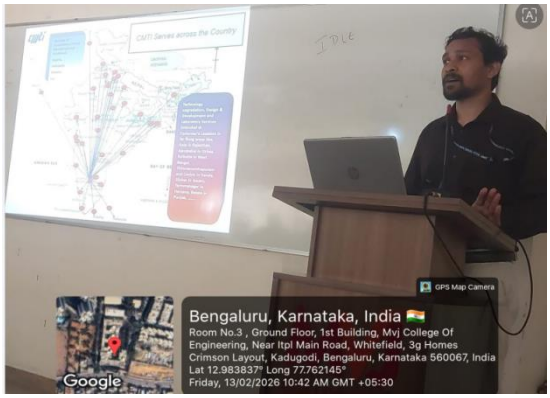

Figure 1: Session delivery by the resource person

Figure 2: Faculty members, resource person, and students during the guest lecture

Figure 3: Dr. Arun Kumar K delivering the vote of thanks

Schedule of the Event

Table 1 demonstrates the schedule of the event. The session began with the introduction of the resource person by the Head of the Department, followed by the overview of the guest lecture by Dr. Rajesh Kumar P, Assistant Professor, Department of Mechanical Engineering and Coordinator of the Guest Lecture.

Day	Time	Session Details
Friday, February 13, 2026	10.30 am - 10.40 am 10.40 am - 10.50 am	Welcome Address Introduction of the Resource Person
Friday, February 13, 2026	10.50 am - 12.50 pm 12.50 pm - 01.00 pm	Session Delivery Vote of Thanks

Table 1: Schedule of the Event

Outcomes and Impact

- Participants were introduced to the latest industrial practices such as laser powder bed fusion, direct energy deposition, 4D printing, bioprinting, and sustainable AM materials.
- The lecture highlighted current research trends and open problems in AM, motivating students and research scholars to explore project topics, publications, and interdisciplinary innovation in areas like biomaterials, aerospace components, and custom medical implants.
- Learners gained clarity on the skills required to build a career in additive manufacturing, including CAD/CAE, process simulation, material characterization, and AM-specific design guidelines.
- The session inspired students to consider innovation opportunities such as rapid prototyping services, customised tooling, 3D-printed biomedical devices, and small-scale AM startups – areas with high commercial potential.

Conclusions

Through insightful discussions and practical case examples, the lecture enhanced students' technical awareness, encouraged research-oriented thinking, and highlighted the skills required to excel in advanced manufacturing domains. Overall, the session proved highly informative, enriching the academic environment and motivating participants to explore innovative applications of additive manufacturing in their future projects and professional pursuits.

.

Report by: Dr. Rajesh Kumar P

COLLEGE OF ENGINEERING
Since 1982
Engineering A Better Tomorrow

An Autonomous Institute
Approved by AICTE, New Delhi
Affiliated to VTU, Belagavi
Recognized by UGC under 2(f) & 12(B)
Accredited by NBA & NAAC

Affiliation: Faculty in the Department of Mechanical Engineering, MVJ College of Engineering