PRAGATI ENGINEERING COLLEGE

(AUTONOMOUS)

Learning is Supreme Deity

DEPARTMENT OF MECHANICAL ENGINEERING

Academic year: 2025-26

Date: 31-12-2025

CIRCULAR

Additive Manufacturing Club of Mechanical Engineering Department in association with Career Guidance Cell is organizing a Seminar to the Mechanical Engineering students on 2nd January 2026. The Theme of the Seminar is *"A Comprehensive Overview of Additive Manufacturing Technologies and Their Evolution"*.

Event	:	Seminar.
Date of the Event	:	2nd January 2026.
Venue	:	MF-12.

INCHARGE

HOD-ME

31/12

MECH-HOD

PRAGATI ENGINEERING COLLEGE (A) SURAMPALEM

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2. **Departmental file.**
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4. **Career Guidance Cell In-charge – ME.**

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INDUSTRY 4.0 CLUBS

ADDITIVE MANUFACTURING CLUB

ORGANISED BY DEPARTMENT OF MECHANICAL ENGINEERING IN ASSOCIATION
WITH
CAREER GUIDANCE CELL

A Comprehensive Overview of Additive Manufacturing Technologies and Their Evolution

SPEAKER :
Mr.M.Sunil Raj

FACULTY COORDINATOR
Mr. P. Ram Prasad
Assistant Professor
Mechanical Engineering Department

VENUE: MF-12
DATE: 2nd January 2026
TIME: 10:00 AM Onwards

STUDENT COORDINATOR
Mr. P.Eswar Prasanth (23A31A0341)
Mechanical Engineering Department

PRAGATI ENGINEERING COLLEGE

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DEPARTMENT OF MECHANICAL ENGINEERING

A.Y 2025-26 Dt. 02.01.2026

A SEMINAR

ON

"A COMPREHENSIVE OVERVIEW OF ADDITIVE MANUFACTURING TECHNOLOGIES AND THEIR EVOLUTION"

The Additive Manufacturing Club of the Mechanical Engineering Department, in collaboration with the Career Guidance Cell, successfully organized a seminar titled A Comprehensive Overview of Additive Manufacturing Technologies and Their Evolution.

The event, held in room MF-12, saw enthusiastic attendance from 35 second-year Mechanical Engineering students. The seminar was open to all interested individuals, fostering an inclusive environment that encouraged curiosity and learning about the future of manufacturing.

Mr. M. Sunil Raj delivered the session, captivating the audience with his engaging presentation. His insightful discussion made complex Additive Manufacturing (AM) concepts easy to understand, providing a valuable learning experience for all participants.

Additive Manufacturing (AM), or 3D printing, has evolved from a rapid prototyping tool to a core manufacturing method, creating complex parts layer-by-layer from digital designs using technologies like FDM, SLA, SLS, and DMLS, offering benefits such as design freedom, customization, and reduced waste, transforming industries from aerospace to healthcare with innovations in materials, processes, and software. Its evolution is marked by moving beyond prototyping to end-use part production, increasing material variety (polymers, metals, ceramics), and enabling digital supply chains, positioning it as a key part of the Fourth Industrial Revolution.

Evolution & Key Stages

- **1980s-90s: Prototyping Era:** Emergence of initial technologies like Stereolithography (SLA) for rapid creation of physical models.
- **2000s-2010s: Growth & Diversification:** Introduction of Fused Deposition Modeling (FDM), Selective Laser Sintering (SLS), and metal AM (like SLM/DMLS), expanding applications and material choices.

- **2010s-Present: Industrialization:** Transition to end-use parts, complex assemblies, customized medical devices, and integration into digital manufacturing, with innovations in software, materials (composites, bioinks), and process control.

Key AM Technologies

- **Material Extrusion (FDM/FFF):** Extruding thermoplastic filaments through a heated nozzle.
- **Vat Photopolymerization (SLA/DLP):** Curing liquid resins with UV light.
- **Powder Bed Fusion (SLS/SLM/DMLS):** Fusing powder (polymer or metal) with lasers or electron beams.
- **Material Jetting (PolyJet):** Jetting droplets of photopolymer onto a build platform.
- **Binder Jetting:** Depositing a liquid binder onto a powder bed.

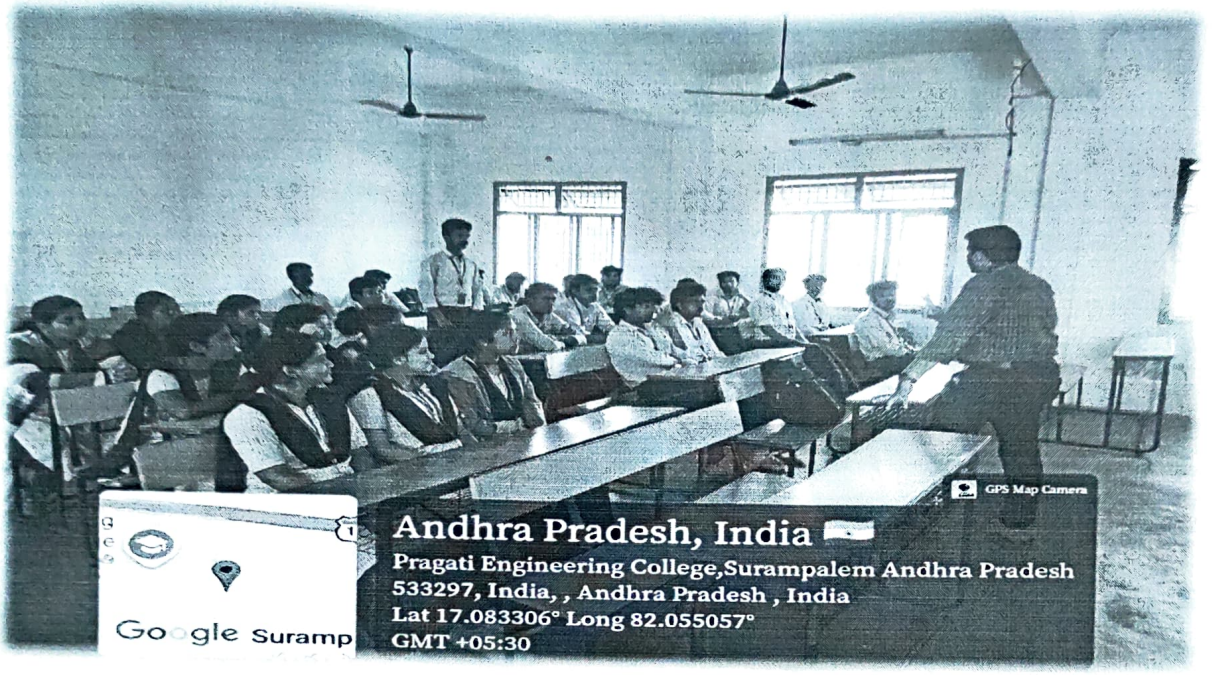
Evolution of Materials

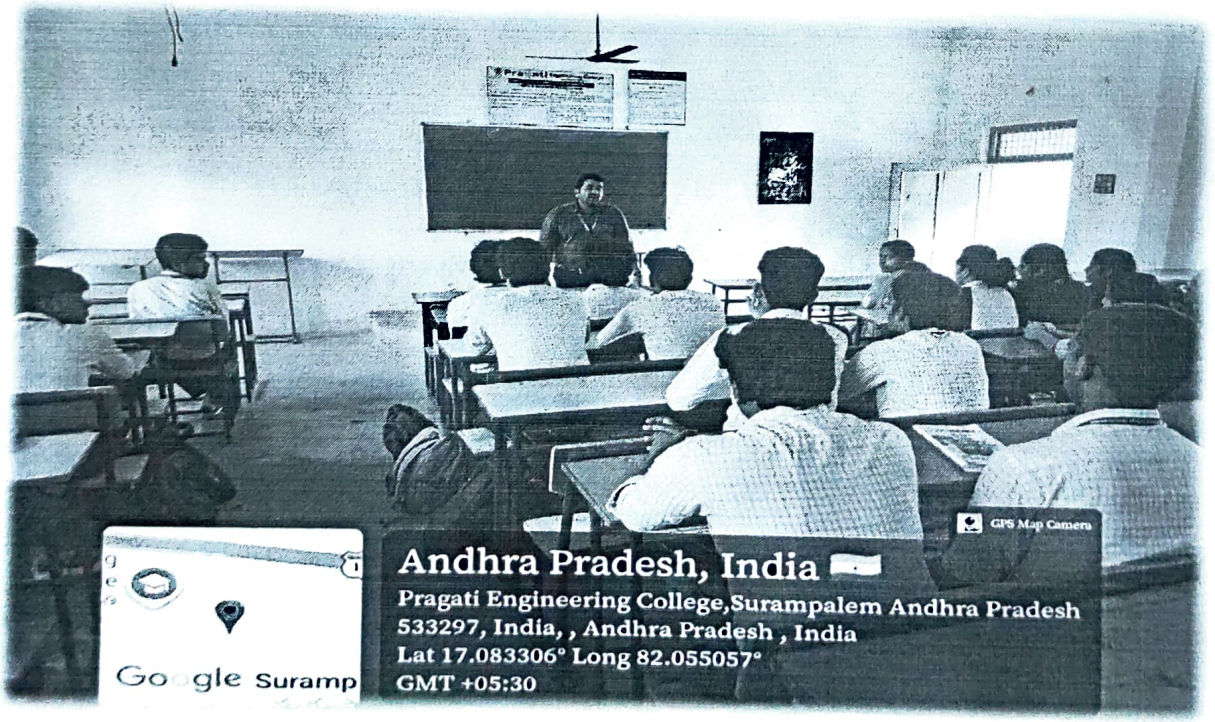
- **Polymers:** From basic plastics (ABS, PLA) to high-performance, engineering-grade materials.
- **Metals:** Stainless steels, titanium alloys, aluminum, often used in aerospace.
- **Ceramics:** For high-temperature or specialized applications.
- **Composites & Bioinks:** Advanced materials for functional parts and tissue engineering.

Future

AM is central to Industry 4.0, enabling digital factories, decentralized production, and integrated supply chains, with ongoing research focusing on new materials, multi-material printing, increased speed, and process reliability for mass customization.

PICTURES OF THE EVENT:





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ADDITIVE MANUFACTURING CLUB

PRAGATI ENGINEERING COLLEGE
(AUTONOMOUS)

DEPARTMENT OF MECHANICAL ENGINEERING

Participants List

Name of the Event: A Comprehensive overview of Additive Manufacturing Technologies & their Evolution

Venue : MF-12

Date : 02/01/26

S.No	Roll No	Name	Signature
1	24A31A0313	B. Sri Teja	
2	24A31A0346	N. Harsha.	
3	24A31A0324	G. V. karthik	
4	24A31A0355	S. Anil	
5	24A31A0350	P. Siddhu.	
6	24A31A0312	A. Anil	
7	24A31A0330	Hari	
8	24A31A0301	Ch. Deepika	
9	24A31A0303	D. Hari Santhoshi	
10	24A31A0302	G. Teja sri	
11	24A31A0304	J. charishma	
12	24A31A0305	M. Jyothika	
13	24A31A0306	K. Krishna Kumari	
14	24A31A0307	K. Hasini	
15	24A31A0309	P. Susmaritha	
16	24A31A0311	V. Shivani	
17	24A31A03..	M Santosh	
18	24A31A0317	Ch. Naveen Teja	

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19	25A35A0304	J. Swaroop	J. Swaroop
20	24A31A0328	J. Karticke Sri Ram	J. Karticke
21	25A35A0301	K. Rama Sri Bhavjavi	K. Rama
22	24A31A0351	Suresh	Suresh
23	24A31A0358	Sai Mani Kanta	Sai Mani
24	24A31A0315	Manoj	Manoj
25	24A31A0314	Badra Rao	Badra
26	24A31A0354	R. Dondababu	Rdb
27	25A35A0303	G. Viswa Teja	Viswa Teja
28	25A35A0302	A. Rakesh	Rakesh
29	25A35A0306	M. venkat sai	venkat
30	25A35A0308	V. Karthik.	Karthik
31	24A31A0345	N. Karthik	N. Karthik
32	24A31A0347	N. John	John
33	24A31A0321	venkat Ramana	Ramana
34	24A3A0308	M. Sowmya	M. Sowmya
35	24A3A0310	S. vanisha	S. vanisha
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