



# PRAGATI ENGINEERING COLLEGE

(Autonomous)

#1-378, ADB Road, Surampalem – 533 437, Near Peddapuram, E.G Dist., A.P.

(Approved by AICTE, Permanently Affiliated to JNTUK Kakinada)

(Recognized by UGC Under Sections 2(f) and 12 (b) of UGC act, 1956)

Ph 08852 – 252233, 252234, 252235 Fax: 08852 – 252232, website: www.pragati.ac.in

## DEPARTMENT OF MECHANICAL ENGINEERING

Academic year: 2024-25

Date: 27-11-2024

### CIRCULAR

Additive Manufacturing Club of Mechanical Engineering Department in association with Career Guidance Cell is organizing a Seminar to the Mechanical Engineering students on 29<sup>th</sup> November 2024. The Theme of the Seminar is “*Current Advances in Additive Manufacturing*”.

- Event** : Seminar.
- Date of the Event** : 29<sup>th</sup> November 2024.
- Venue** : MF-13.

  
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Copy to:

1. HOD-ME.
2. Departmental file.
3. AM Club In-charge – ME.
4. Career Guidance Cell In-charge – ME.





**PRAGATI ENGINEERING COLLEGE**

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**INDUSTRY 4.0 CLUBS**

# **ADDITIVE MANUFACTURING CLUB**

ORGANISED BY DEPARTMENT OF MECHANICAL ENGINEERING IN ASSOCIATION

WITH

CAREER GUIDANCE CELL

## **CURRENT ADVANCES IN ADDITIVE MANUFACTURING**

**SPEAKER :**

Mr. P. Ram Prasad  
Assistant Professor

**FACULTY COORDINATOR**

Mr. P. Ram Prasad  
Assistant Professor  
Mechanical Engineering Department

VENUE: MF-13

DATE: 29th November 2024

TIME: 1:00 PM Onwards

**STUDENT COORDINATOR**

Mr. M.Yadidya  
III Year Mechanical Engineering Department



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## DEPARTMENT OF MECHANICAL ENGINEERING

### A SEMINAR

ON

### “CURRENT ADVANCES IN ADDITIVE MANUFACTURING”

A.Y 2024-25

Dt. 29.11.2024

A Seminar on “ Current Advances in Additive Manufacturing ” was conducted to by Additive Manufacturing Club, Mechanical Engineering Department in association with Career Guidance Cell. A total of 29 students from III Year Mechanical Engineering students were participated for the event. Participations made to sit in MF-13 room and all are interested students were allowed. **Mr. P.Ram Prasad** interacted well with the students.

General overview of some recent trends and advances in additive manufacturing based on prior knowledge.

#### 1. Materials Innovation

- **Metal 3D Printing:** There has been significant progress in expanding the variety of metals used in 3D printing. High-strength materials like titanium, aluminum, and Inconel are now more commonly used in industries like aerospace, automotive, and medical fields.
- **Composite Materials:** Advances in composite materials, including carbon fiber-reinforced thermoplastics, are allowing for stronger, lighter, and more durable prints, making additive manufacturing viable for more demanding applications.
- **Bioprinting:** Bioprinting, especially for creating tissues and organs, continues to evolve. Researchers are working on more sophisticated bioinks and improving the precision and resolution of printed biological structures, which could eventually enable printing human tissues.

#### 2. Speed and Scalability

- **Speed of Printing:** Faster printing techniques, such as continuous liquid interface production (CLIP) or Multi-Jet Fusion (MJF), are reducing production time significantly. CLIP, for example, allows for printing in hours rather than days.

ADDITIVE MANUFACTURING CLUB

- **Mass Production:** Additive manufacturing is moving beyond prototyping to full-scale production. Companies are now using 3D printing for small-scale production lines and even mass customization of consumer goods, especially in industries like footwear and automotive.

### 3. Software and Automation

- **AI and Machine Learning:** The integration of AI and machine learning in the design and manufacturing process is helping to optimize print paths, improve material properties, and predict defects before they occur. This makes the process more reliable and efficient.
- **Generative Design:** This AI-powered design method creates complex structures that are impossible to design manually, optimizing the strength-to-weight ratio of parts. It's particularly useful in industries like aerospace, where performance and weight are critical.
- **Automated Post-Processing:** Innovations in automating the post-processing of 3D printed parts (such as support removal, polishing, and curing) are reducing labor costs and turnaround times for finished parts.

### 4. Sustainability and Recycling

- **Recycling 3D Printed Materials:** As the demand for eco-friendly manufacturing grows, there are more initiatives focused on recycling 3D printed materials. Technologies are being developed to reuse plastic filaments or even repurpose waste material from prints into new products.
- **Eco-friendly Materials:** There's increasing research into sustainable materials, like biodegradable plastics and recycled filaments, to make additive manufacturing more environmentally friendly.

### 5. Industrial Applications

- **Aerospace:** Additive manufacturing is allowing for more complex, lightweight parts to be produced, reducing weight and costs while improving efficiency. GE and Boeing, for example, are using 3D printing to create fuel nozzles and other aerospace components.
- **Healthcare:** 3D printing has enabled custom prosthetics and implants, with even more tailored approaches on the horizon. The ability to print implants specific to an individual's anatomy is revolutionizing the healthcare industry.
- **Construction:** Large-scale 3D printing for building houses and infrastructure is gaining traction, with some companies printing entire homes from concrete or composite materials, aiming to reduce labor and material costs.

PICTURES OF THE EVENT:



*R*

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## DEPARTMENT OF MECHANICAL ENGINEERING

### Participants List

Name of the Event: Current Advances in Additive Manufacturing

Venue : MF-13

Date : 29-11-2024

S.No	Roll No	Name	Signature
1	22A31A0324	K. Shanmukh Sai	K. Sai Sai
2	23A35A0321	K. S. S. Rajesh	K. Rajesh
3	23A35A0322	Penumaka Siva Samkari	T. Siva Samkari
4	22A31A0320	K. Kali Krishna	K. K. Krishna
5	23A35A0316	Avinash Sai Rangada	A. Avinash Sai
6	23A35A0306	K. Shalem Raju	K. Shalem
7	23A35A0313	N. Jnaneswari	N. Jnaneswari
8	23A35A0314	R. Krishmasri	R. K.
9	23A35A0316	.Adharsh. D	Adharsh D
10	22A31A0379	P. Gunna Sekhar.	P. Gunna
11	22A31A0369	K. Ashish Vardham	K. Ashish
12	23A35A0320	K. D. S. Mahesh	K. Mahesh
13	23A35A0319	D. Dinesh	D. Dinesh
14	22A31A0370	K. Sumanth reddy.	K. Sumanth
15	22A31A0386	R. S. S. G. RAJKUMAR.	Rajkumar

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16.	22A31A0307	B. Gangadhar	B. Gangadhar
17.	22A31A0330	M. Bobby	M. Bobby
18.	22A31A0314	G. Venkatadri	G. Venkatadri
19.	23A35A0310	R. S. V. V. Sai ram	Sai ram
20.	22A31A0322	K. Nookaraju	K. Nookaraju
21.	22A31A0321	K. Sai	K. Sai
22.	22A31A0333	M. Yadidya	M. Yadidya
23.	22A31A0335	N. Bharat	Bharat
24.	22A31A0329	M. Trimurtulu	Trimurtulu
25.	22A31A0340	S. Satya Mahesh	S. S. Mahesh
26.	22A31A0328	I. Manikanta	I. Manikanta
27.	22A31A0315	G. Murali Surya Venkat	Venkat
28.	22A31A0346	V. Sai Sandeep	Sandeep
29.	22A31A0306	B. Aray	B. Aray

Total

29

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