PRAGATI ENGINEERING COLLEGE

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#1-378, ADB Road, Surampalem – 533 437, Near Peddapuram, A.P.
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DEPARTMENT OF MECHANICAL ENGINEERING

Academic year: 2024-25 Date: 21-01-2025

CIRCULAR

Additive Manufacturing Club of Mechanical Engineering Department in association with Career Guidance Cell is organizing a Seminar to the Mechanical Engineering students on 24th January 2025. The Theme of the Seminar is *"An Overview of Additive Manufacturing"*.

Event	:	Seminar.
Date of the Event	:	24th January 2025.
Venue	:	CAD Lab.

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PRAGATI ENGINEERING COLLEGE (A) MECH-HOD SURAMPALEM

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

AN OVERVIEW OF ADDITIVE MANUFACTURING

SPEAKER :
Mr. P. Ram Prasad
Assistant Professor

FACULTY COORDINATOR

Mr. P. Ram Prasad
Assistant Professor
Mechanical Engineering Department

VENUE: CAD LAB
DATE: 24th January 2025
TIME: 10:00 AM Onwards

STUDENT COORDINATOR

Mr. M.Yadidya
III Year Mechanical Engineering Department

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DEPARTMENT OF MECHANICAL ENGINEERING

Participants List

Name of the Event: An Overview of Additive Manufacturing

Venue : CAD LAB

Date : 24/01/2025

S.No	Roll No	Name	Signature
1	23A31A0351	V. Venkata Kowshik	V. Kowshik.
2	23A31A0313	B. Saiteja	B. Saiteja
3	23A31A0352	V. V. B. Trinath	V. V. B. Trinath.
4	23A31A0326	K. Kameswara Rao	K. Kameswara Rao
5.	23A31A0314	B. M. Vardhan	B. M. V
6	23A31A0346	S. Naga Veerendra	S. Naga Veerendra
7	23A31A0309	A. Vasanth Surya	A. Vasanth Surya
8.	23A31A0345	S. Siva Sai	S. Siva Sai
9.	23A31A0348	T. A. Narasimhan	T. Narasimhan.
10	23A31A0341	P. E. Prasanth	Prasanth
11	23A31A0347	S. Uday	S. Uday
12.	23A31A0310	A Rajesh	A. Rajesh
13.	23A31A0316	Ch. Santosh Kumar	Ch. Santosh
14.	23A31A0317	Ch. Satyanarayana	Ch. V V Satya
18.	23A31A0311	B. H. S. D. Mrityunjay	B. H. S. D. Mrityunjay

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Date : 24/01/2025

S.No	Roll No	Name	Signature
16	23A31A0305	M. Revathi	Revathi. M.
17.	23A31A0301	B. Sai Ramya	B. Ramya.
18.	23A31A0306	S. Yohanna.	yoha
19.	23A31A0302	D. Avanthi	Avanthi
20	23A31A0303	N. Swapna	N. Swapna
21	24A35A0305	K. Satwik	
22	24A35A0304	D. Mouli	D. Mouli
23	24A35A0306	K. Pawan Surya kumar	K. pawan kumar
24	24A35A0307	Mh. B.B. Sankar	Mh.
25	24A35A0310	P. Rishikesh	P. Rishikesh.
26	24A35A0315	S. Chandhu	S Chandu
27	24A35A0311	P. Neelesh kumar	
28	23A31A0333	B.V. Vamsi Krishna	B. Vamsi Krishna
29	23A31A0342	R. Manideep	R. Manideep.
30.	23A31A0344	A. Sai Kaushik	A.S. Kaushik

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Date : 24/01/2025

S.No	Roll No	Name	Signature
31	23A31A0328	K. satya chakra Dhora	K. S. C. Dhora
32	24A35A0313	S. Manikanta	S. Manikanta
33	24A35A0316	T. Deva Chanda Rao	Deva Chanda Rao
34	23A31A0332	N. Yeshwanth	N. Yeshwanth
35	24A35A0314	S. Sriram.	S. Sriram
36.	24A35A0301	A. Deepak	A. Deepak
37.	23A31A0327	K. Sivaji Ganesh	Sivaji Ganesh
38	24A31A0303	D. Divakar	Divakar.
38.	24A31A0302	D. Lakshmi Narayana.	D. Lucky
39.	24A35A0309	P. Mahesh	Mahesh
40.	24A35A0312	A. Kiran	Kiran
41	24A35A0317	Y. Siva Shankar	Shankar

TOTAL 41

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DEPARTMENT OF MECHANICAL ENGINEERING

A SEMINAR

ON

"AN OVERVIEW OF ADDITIVE MANUFACTURING"

A.Y 2024-25 Dt. 24.01.2025

A Seminar on " An Overview of Additive Manufacturing " was conducted to by Additive Manufacturing Club, Mechanical Engineering Department in association with Career Guidance Cell. A total of 41 students from II Year Mechanical Engineering students were participated for the event. Participations made to sit in CAD Lab and all are interested students were allowed. **Mr. P.Ram Prasad** interacted well with the students.

Additive manufacturing (AM), often referred to as 3D printing, is a process that creates three-dimensional objects by adding material layer by layer based on a digital model. Unlike traditional subtractive manufacturing methods, which involve cutting or drilling material from a larger piece, additive manufacturing builds the object from the ground up, allowing for more complex and customized designs.

Key Aspects of Additive Manufacturing:

1. **Process**:
   - The process begins with creating a 3D model using computer-aided design (CAD) software.
   - The model is then sliced into thin layers, which serve as a blueprint for the printer.
   - The printer deposits material (plastic, metal, resin, etc.) in layers according to the sliced design. This continues until the full object is formed.
2. **Materials**:
   - AM can use a wide range of materials, including plastics, metals, ceramics, and even food and biological materials.

- Common materials used in 3D printing include PLA (polylactic acid), ABS (acrylonitrile butadiene styrene), and titanium alloys, each offering specific properties suited to different applications.

3. **Techniques**: There are several different methods of additive manufacturing, including:
   - **Fused Deposition Modeling (FDM)**: Extrudes melted plastic to build layers.
   - **Stereolithography (SLA)**: Uses ultraviolet light to cure resin layer by layer.
   - **Selective Laser Sintering (SLS)**: Uses a laser to sinter powdered material, typically nylon or metal.
   - **Direct Metal Laser Sintering (DMLS)**: Similar to SLS, but specifically for metal powders.
   - **Inkjet 3D Printing**: Deposits liquid material that is then solidified layer by layer.
4. **Advantages**:
   - **Customization**: AM allows for the creation of highly customized parts or products.
   - **Complex geometries**: It's well-suited for creating intricate shapes and structures that would be difficult or impossible to achieve with traditional methods.
   - **Reduced Waste**: Since material is added rather than removed, additive manufacturing typically results in less material waste compared to subtractive processes.
   - **Rapid Prototyping**: Prototypes can be created quickly and inexpensively, allowing for faster iteration and testing in product development.
5. **Applications**:
   - **Prototyping**: AM is commonly used for rapid prototyping in industries like automotive, aerospace, and consumer electronics.
   - **Manufacturing**: It's used for small-batch production, especially for customized parts or on-demand production.
   - **Medical**: AM is increasingly used to create prosthetics, implants, and even bioprinted tissues.
   - **Aerospace**: Lightweight, strong components are often 3D printed for aircraft and spacecraft.
   - **Construction**: 3D printing is being explored for creating large-scale buildings and infrastructure projects.
6. **Challenges**:
   - **Speed and Size**: While additive manufacturing can be faster for small objects, large-scale parts or high-volume production can still be slow.

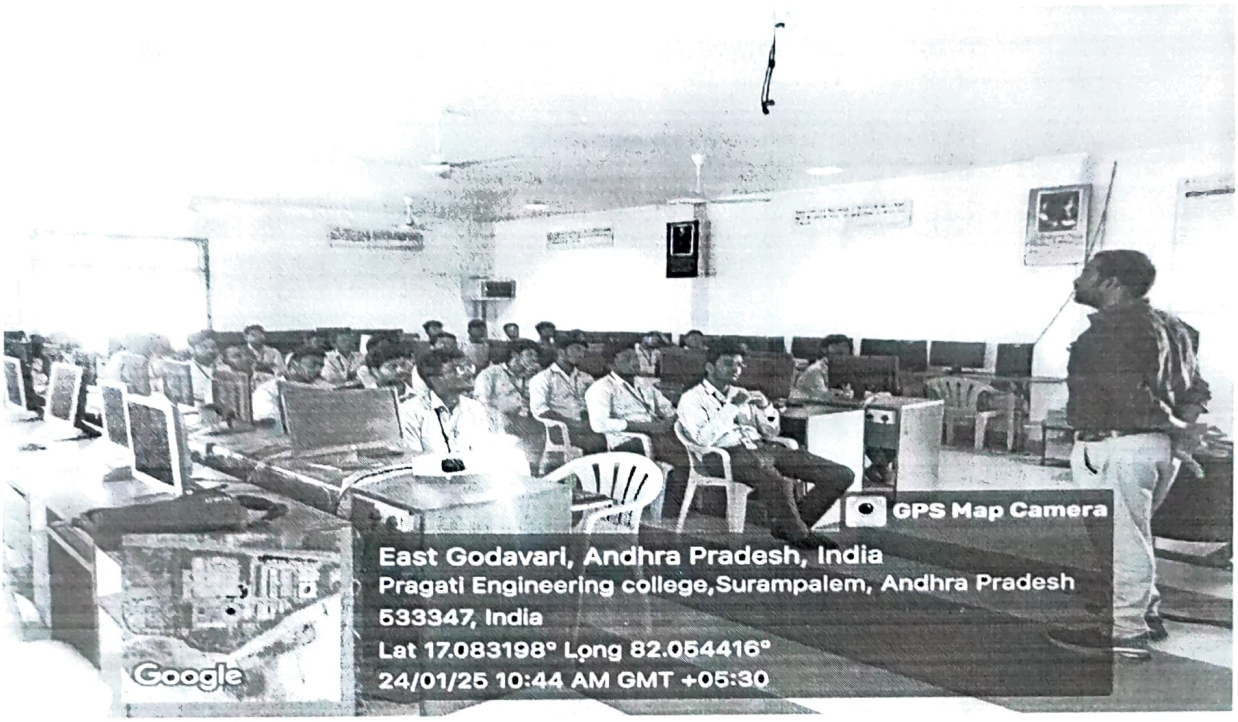
- **Material Limitations**: Not all materials are suitable for AM, and the material properties may differ from traditionally manufactured materials.
- **Post-processing**: Many 3D printed objects require additional finishing steps, like sanding, painting, or assembly.

Future Trends:

As additive manufacturing continues to evolve, we can expect:

- Improved material properties, making 3D-printed parts more durable and functional for industrial use.
- Increased adoption in large-scale manufacturing and even in construction (such as 3D-printed houses).
- Greater automation and integration into existing manufacturing workflows.

PICTURES OF THE EVENT:



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