



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 & Accredited by NBA)
(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: 01-08-2024

CIRCULAR

Additive Manufacturing Club of Mechanical Engineering Department in association with Career Guidance Cell is organizing a Seminar to the Mechanical Engineering students on 3rd August 2024. The Theme of the Seminar is “*Fundamentals of Additive Manufacturing*”.

Event : Seminar.
Date of the Event : 3rd August 2024.
Venue : S-18.

INCHARGE

HOD-ME

Copy to:

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



PRAGATI ENGINEERING COLLEGE

**(AUTONOMOUS)
INDUSTRY 4.0 CLUBS**

Learning is Supreme Duty

ADDITIVE MANUFACTURING CLUB

ORGANISED BY DEPARTMENT OF MECHANICAL ENGINEERING IN ASSOCIATION

WITH

CAREER GUIDANCE CELL

FUNDAMENTALS OF ADDITIVE MANUFACTURING

SPEAKER :

Mr. P. Ram Prasad
Assistant Professor

FACULTY COORDINATOR

Mr. P. Ram Prasad
Assistant Professor
Mechanical Engineering Department

VENUE: S-18

DATE: 3rd August 2024

TIME: 12:00 PM 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: Fundamentals of Additive Manufacturing.

Venue : S-18

Date : 03-08-2024

S.No	Roll No	Name	Signature
1	24CON 223	ch. Varshini	
2	24CON221	P. Satya Sri	P. Satya.
3	24CON 137	M. Kusuma priya	M. Kusuma priya
4	24CON 108	D. Kavya vardhini	D. Kavya vardhini
5	24CON229	M. Sanjana Jyothi	Sanjana
6	24CON202	ch. Lakshmi Sri	Lakshmi Sri
7	24CON216	S. Geethanjali	S. Geethanjali
8	24CON225	P.v.s. varshita	P.v.s. Varshita
9	24CON311	M. Santosh	M. Santosh
10	24CON354	M. Siddardha Teja	M. Siddardha
11	24CON324	CH. RAKESH	Ch. Rakesh
12	24CON308	CH. Naveen Teja	CH. Naveen Teja
13	24CON155	N. Venkata kulasi Ram	N. Venkata
14	24CON301	M. Pradeep Kumar	M. Pradeep
15	24CON344	D. Karthik	D. Karthik


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S.No	Roll No	Name	Signature
1	24CON228	Y.Teja	Y.Teja
2	24CON145	B.SATYANIKAR	B.Satyankar
3	24MGM149	Ch. Kishan Kumar	Ch. K
4	24CON127	CH. Vasa Prasad	CH. V
5	24CON123	S.TRISHANK	Trishank
6	24CON147	B. GAGAN CHANDU	Gagan
7	24MGM151	G. Keshave	G. Keshave
8	24CON302	P.mahesh sidhardha	P.m. sidhardha
9	24CON117	R. waken Sai	R. waken Sai
10	24CON142	V. VIVEK	V. vivek
11	24CON376	I. Abhishek	I. Abhishek
12	24CON328	V. Dam Dharu	Dharu
13	24CON272	N.V.V.S.K. Mohan	N. Mohan
14	24MGM269	K. DAMMURONI ROJU	K. Damuroni Roju
15	24CON379	P. YuvaTeja	P. YuvaTeja

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Date : 03-08-2024

S.No	Roll No	Name	Signature
1		M. Mani Deepika	deepika
2		P. Subha Sri	P. Subha Sri
3		K. Vemasai	K. Vemasai
4		P. Pranathi Surya Naga Lakshmi	P. P. S. N. Lakshmi
5		K. J. D. Sai Pavani	K. Sai Pavani
6		G. Trijastri	G. Trijastri
7		K. Rama Hasini	K. Hasini
8		K. Krishna Kumar	K. Krishna Kumar
9		M. Sowmya Sai	Sowmya
10		N. S. N. Bhavya Sree	N. S. N. Bhavya Sree
11		K. Sharon	K. Sharon
12		M. Maunika	M. Maunika
13		Shaik. Raziya	Shaik. Raziya
14			
15			


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DEPARTMENT OF MECHANICAL ENGINEERING

A SEMINAR

ON

“FUNDAMENTALS OF ADDITIVE MANUFACTURING”

A.Y 2024-25

Dt. 03.08.2024

A Seminar on “Fundamentals of Additive Manufacturing” was conducted to by Additive Manufacturing Club, Mechanical Department in association with Career Guidance Cell. A total of 43 students from I Year Mechanical Engineering and Civil Engineering student were participated for the event. Participations made to sit in S-18 room and all are interested students were allowed. **Mr. P.Ram Prasad** interacted well with the students.

Additive manufacturing (AM), commonly known as 3D printing, is a process of creating objects by adding material layer by layer, as opposed to traditional subtractive manufacturing, which involves cutting away material from a solid block. Here's an overview of the fundamentals of additive manufacturing:

Key Concepts

1. **Digital Design and CAD:**

- The process begins with a digital 3D model created using Computer-Aided Design (CAD) software. This model serves as the blueprint for the object to be manufactured.

2. **Layer-by-Layer Construction:**

- AM builds objects one layer at a time. Each layer corresponds to a cross-section of the object, and they are stacked to create the final product.

3. **Materials:**

- A wide range of materials can be used in AM, including plastics, metals, ceramics, and composites. The choice of material depends on the application and the specific AM technology used.

4. **3D Printing Technologies:**

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- **Fused Deposition Modeling (FDM):** Melts and extrudes thermoplastic filaments to create layers.
- **Stereolithography (SLA):** Uses a laser to cure liquid resin into hardened plastic in a layer-by-layer fashion.
- **Selective Laser Sintering (SLS):** Uses a laser to fuse powdered material into solid structures.
- **Direct Metal Laser Sintering (DMLS) / Selective Laser Melting (SLM):** Similar to SLS but used for metal powders to produce metal parts.
- **Binder Jetting:** Uses a binding agent to bond layers of powder material.
- **Digital Light Processing (DLP):** Similar to SLA but uses a digital light projector screen to flash an image of each layer all at once.

5. Software and Slicing:

- After creating a 3D model, slicing software converts the model into thin layers and generates a G-code file. This file instructs the 3D printer on how to build each layer.

Advantages of Additive Manufacturing

- **Design Flexibility:** Complex geometries and intricate designs that are difficult or impossible with traditional manufacturing can be easily produced.
- **Customization:** Each item can be customized without significant additional cost, making AM ideal for bespoke and personalized products.
- **Material Efficiency:** Reduces waste by using only the material needed to create the part.
- **Rapid Prototyping:** Speeds up the design process by allowing quick production and iteration of prototypes.

Applications

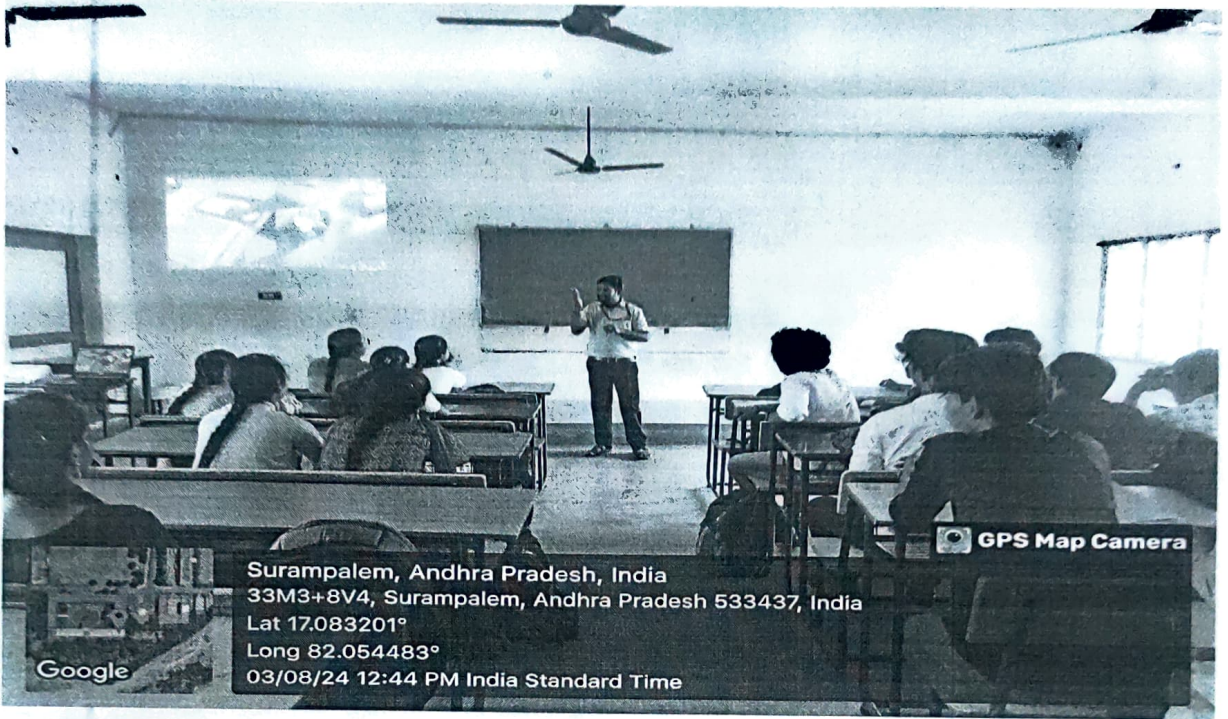
- **Prototyping:** AM is widely used for creating prototypes to test form, fit, and function before mass production.
- **Aerospace and Automotive:** Produces lightweight components, complex parts, and tools.
- **Medical and Dental:** Custom implants, prosthetics, and dental devices are made with precision.
- **Consumer Goods:** Customizable products like eyewear, footwear, and jewelry.
- **Construction:** Large-scale 3D printing for building components and structures.

Challenges

- **Material Limitations:** Not all materials are suitable for AM, and the mechanical properties may differ from traditionally manufactured materials.
- **Surface Finish:** Parts often require post-processing to achieve the desired surface quality.
- **Size Limitations:** The size of the printed object is limited by the build volume of the printer.

- **Speed and Cost:** For large production runs, AM can be slower and more expensive than traditional methods.

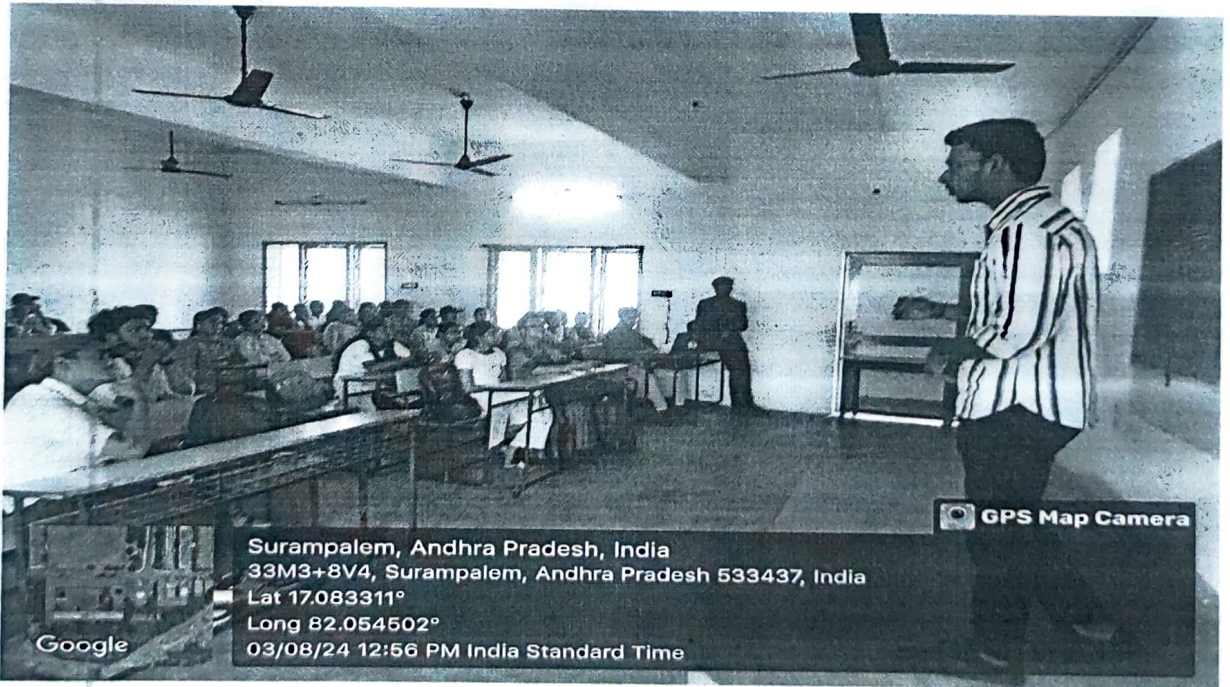
PICTURES OF THE EVENT:



Surampalem, Andhra Pradesh, India
33M3+8V4, Surampalem, Andhra Pradesh 533437, India
Lat 17.083201°
Long 82.054483°
03/08/24 12:44 PM India Standard Time

GPS Map Camera

Google



Surampalem, Andhra Pradesh, India
33M3+8V4, Surampalem, Andhra Pradesh 533437, India
Lat 17.083311°
Long 82.054502°
03/08/24 12:56 PM India Standard Time

GPS Map Camera

Google

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