



# PRAGATI ENGINEERING COLLEGE

(Autonomous)

#1-378, ADH 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)  
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DEPARTMENT OF MECHANICAL ENGINEERING

Academic year: 2024-25

Date: 01-07-2024

## CIRCULAR

Additive Manufacturing Club of Mechanical Engineering Department in association with Career Guidance Cell & Institution of Engineers (INDIA) is organizing a Guest Lecture to the Mechanical Engineering students on 3<sup>rd</sup> July 2024. The Theme of the Guest Lecture is "*A GUEST LECTURE ON ROLE OF ADDITIVE MANUFACTURING IN AUTOMOBILE INDUSTRY*".

**Date of the Event** : 3<sup>rd</sup> July 2024.

**Mode** : Offline.

INCHARGE



Copy to:

1. HOD-ME.
2. Departmental file.
3. AM Club In-charge – ME.
4. Career Guidance Cell In-charge – ME.
5. Institution of Engineers (INDIA) – ME



**PRAGATI ENGINEERING COLLEGE**

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INDUSTRY 4.0 CLUBS

Learning is Supreme Duty

# **ADDITIVE MANUFACTURING CLUB**

ORGANISED BY DEPARTMENT OF MECHANICAL ENGINEERING IN ASSOCIATION

WITH

THE INSTITUTION OF ENGINEERS (INDIA)

&

CAREER GUIDANCE CELL

## **A GUEST LECTURE ON ROLE OF ADDITIVE MANUFACTURING IN AUTOMOBILE INDUSTRY**

**SPEAKER:**

**Mr. K.Sandeep Kumar (Ph.D)**

**FACULTY COORDINATOR**

**Mr. P. Ram Prasad**

Assistant Professor

Mechanical Engineering Department

**VENUE: CAD LAB**

**DATE: 3<sup>rd</sup> July 2024**

**TIME: 1:30 PM Onwards**

**STUDENT COORDINATOR**

**Mr. M.Yadidya**

III Year Mechanical Engineering Department







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## DEPARTMENT OF MECHANICAL ENGINEERING

### A GUEST LECTURE

ON

### “ROLE OF ADDITIVE MANUFACTURING IN AUTOMOBILE INDUSTRY”

A.Y 2024-25

Dt. 03.07.2024

A Guest lecture on Role of Additive Manufacturing in Automobile Industry” was conducted to by Additive Manufacturing Club, Mechanical Department in association with Institution of Engineers & Career Guidance Cell. A total of 31 students from III Year Mechanical student were participated for the event. Participations made to sit in Mechanical CAD Lab and all are interested students were allowed. **Mr. K.Sandeep Kumar(Ph.D)** interacted well with the students.

There are so many key roles and benefits of additive manufacturing in the automobile industry are explained by resource person.

Additive manufacturing (AM), also known as 3D printing, plays a significant role in the automobile industry by offering numerous advantages in various stages of vehicle development and production.

#### 1. Prototyping

- **Rapid Prototyping:** AM allows for quick production of prototypes, enabling faster design iterations and reducing the time required to move from concept to production.
- **Cost-Effective:** A producing prototype with AM is often cheaper than traditional manufacturing methods, especially for complex parts.

#### 2. Tooling and Manufacturing Aids

- **Custom Tooling:** AM can produce custom jigs, fixtures, and other manufacturing aids quickly and cost-effectively, enhancing production efficiency.
- **Reduced Lead Time:** The ability to produce tools on-demand reduces lead times significantly.

### 3. Production Parts

- **Low-Volume Production:** AM is ideal for low-volume production runs, such as limited edition or custom vehicles, where traditional manufacturing would be cost-prohibitive.
- **Complex Geometries:** AM can create complex and intricate parts that are difficult or impossible to produce with traditional methods, leading to innovation in design and functionality.

### 4. Lightweight Components

- **Material Efficiency:** AM allows for the creation of lightweight structures without compromising strength, contributing to overall vehicle weight reduction and improved fuel efficiency.
- **Topological Optimization:** Engineers can optimize part designs for weight and strength, leading to better performance and lower material usage.

### 5. Customization

- **Personalization:** AM enables the customization of vehicle components to meet specific customer preferences, offering a unique selling proposition.
- **Aftermarket Parts:** Custom aftermarket parts can be produced efficiently, providing more options for vehicle modification and personalization.

### 6. Supply Chain Simplification

- **On-Demand Manufacturing:** AM reduces the need for large inventories by allowing parts to be produced on demand, leading to more efficient inventory management.
- **Local Production:** Parts can be manufactured closer to where they are needed, reducing transportation costs and lead times.

### 7. Sustainability

- **Material Waste Reduction:** AM processes typically generate less waste compared to subtractive manufacturing methods, contributing to more sustainable production practices.
- **Recycling and Reuse:** Some AM processes allow for the recycling and reuse of materials, further enhancing sustainability.

### 8. Innovation and Design Freedom

- **Design Flexibility:** AM frees designers from the constraints of traditional manufacturing, allowing for more innovative and creative designs.
- **Functional Integration:** Multiple components can be integrated into a single part, reducing assembly time and improving reliability.

### 9. Spare Parts Production

- **Legacy Parts:** AM can produce spare parts for older or discontinued vehicle models, ensuring availability and reducing the need for large spare parts inventories.
- **Reduced Downtime:** The ability to produce spare parts quickly can minimize vehicle downtime, especially for critical components.

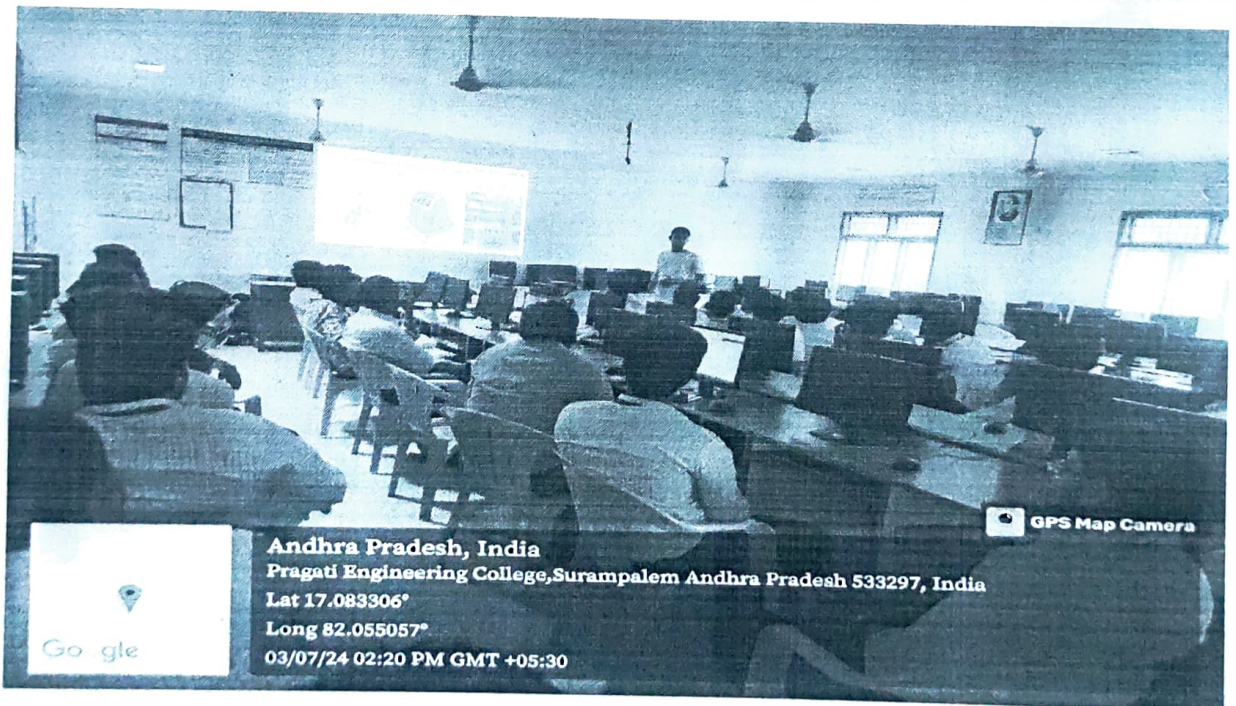
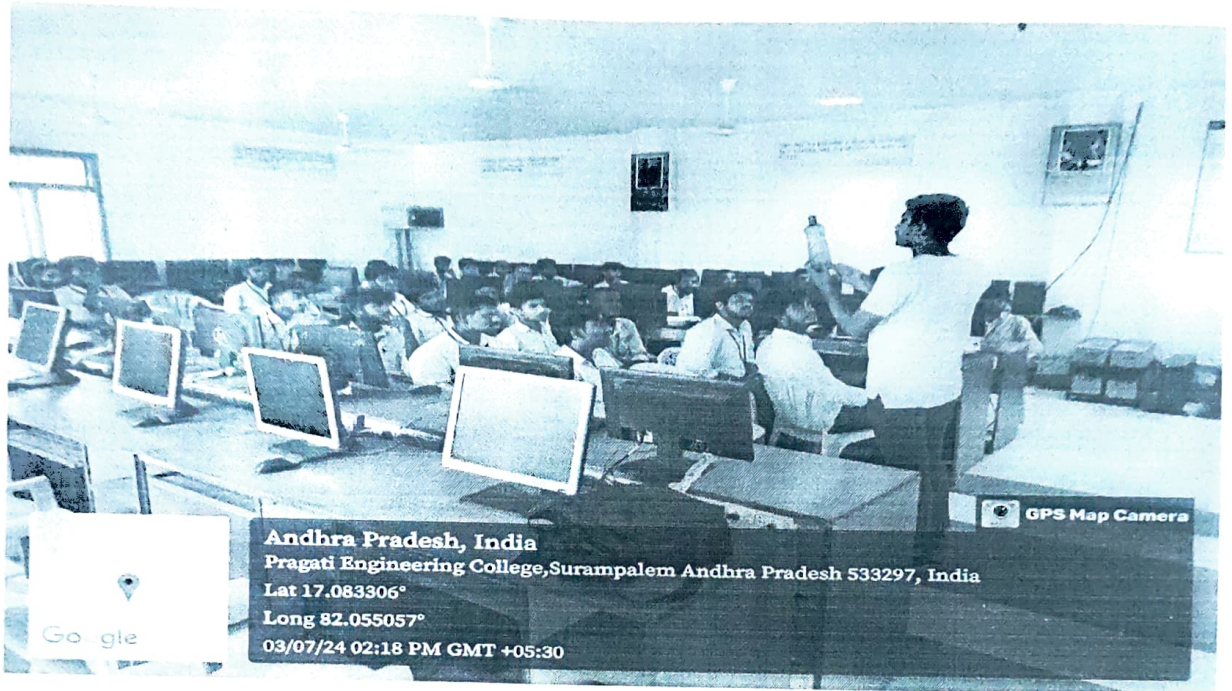
### **Case Studies and Examples**

- **BMW:** BMW has been using AM for prototyping, tooling, and producing custom parts. They have also implemented AM in the production of the i8 Roadster's window guide rail, showcasing the feasibility of AM for end-use parts.
- **Ford:** Ford has utilized AM for prototyping and manufacturing custom tools and fixtures. They have also explored AM for producing lightweight parts to improve vehicle efficiency.
- **General Motors (GM):** GM has used AM to produce lightweight seat brackets, reducing the weight of the component by 40% and improving vehicle fuel efficiency.

Additive manufacturing is transforming the automobile industry by enabling rapid prototyping, cost-effective low-volume production, customization, and innovation in design. As the technology continues to advance, its impact on the automotive sector is expected to grow, driving further improvements in efficiency, sustainability, and design flexibility.



PICTURES OF EVENT:



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## DEPARTMENT OF MECHANICAL ENGINEERING

### Participants List

Name of the Event: A Guest Lecture on Role of Additive Manufacturing in Automobile Industry

Venue : CAD LAB

Date : 03-07-2024

S.No	Roll No	Name	Signature
1	22A31A0307	B. Gangadhax	B. Gangadhax
2	22A31A0318	K. Satya prasadkumar	K.S.p.kumar
3	22A31A0324	K. Shannukh Sai	K. Sai
4	22A31A0323	K. Karthik	K. Karthik
5	22A31A0345	V. Jyashma praveen	V. praveen
6	22A31A0315	G. murali	G. murali
7	22A31A0325	K. Adarsh	K. Adarsh
8	22A31A0309	Ch. Ram Sandeep	Ch. Sandeep
9	23A35A0312	Y. Satya Sai	Y. Satya Sai
10	22A31A0306	B. Ajay	B. Ajay
11	22A31A0330	M. Bobby	M. Bobby
12	22A31A0332	M. Vinay	M. Vinay
13	22A31A0308	Ch. Mahesh	Ch. Mahesh
14	22A31A020	K. Krishna	K. Krishna
15	22A31A0346	v. Sai Sandeep	Sandeep
16	22A31A0333	M. Yadidya	Yadidya

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S.No	Roll No	Name	Signature
1	<del>23A35A0302</del> 23A35A0302	A. Harish	A. Harish
2	23A35A0306	G. Shalem Raja	G. Shalem Raja
3	23A35A0307	K. Sivakumar	K. Sivakumar
4	23A35A0308	N. Sai	N. Sai
5	23A35A0309	P. Sri Harsha vardhan	P. Harsha
6	23A35A0310	R. Sai ram	R. Saikiran
7	23A35A0311	S. Uma siva sai Dora	S. Uma Sai D
8	23A35A0304	B. Satya Sai vijay	B. Satya Sai vijay
9	23A35A0301	A. Rakesh babu	A. Rakesh
10	22A31A0348	Y. chandra Mouli	Y. chandra Mouli
11	22A31A0331	M. Rambabu	M. Rambabu
12	22A31A0337	P. kishore	P. kishore
13	22A31A0319	K.S.S.H. JaganMO.	K.S.S.H. JaganMO.
14	22A31A0316	Gr. Teja	Teja
15	22A31A0341	T. Narasimha	T. Narasimha

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