



PRAGATI ENGINEERING COLLEGE

(Autonomous)

#1-378, ADB Road, Surampalem – 533 437, Near Peddapuram, 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: 01-04-2025

CIRCULAR

Additive Manufacturing Club of Mechanical Engineering Department in association with Career Guidance Cell is organizing a Seminar to the Mechanical Engineering students on 3rd April 2025. The Theme of the Seminar is “*Direct Energy Deposition Process in Additive Manufacturing*”.

Event : Seminar.
Date of the Event : 3rd April 2025.
Venue : MF-12.


INCHARGE

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

DIRECT ENERGY DEPOSITION PROCESS IN ADDITIVE MANUFACTURING

SPEAKER :

Mr. P. Ram Prasad
Assistant Professor

FACULTY COORDINATOR

Mr. P. Ram Prasad
Assistant Professor
Mechanical Engineering Department

VENUE: MF-12

DATE: 3rd April 2025

TIME: 01:30 PM Onwards

STUDENT COORDINATOR

Mr. M.Yadidya
III Year Mechanical Engineering Department





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DEPARTMENT OF MECHANICAL ENGINEERING

A SEMINAR

ON

“DIRECT ENERGY DEPOSITION PROCESS IN ADDITIVE MANUFACTURING”

A.Y 2024-25

Dt.03.04.2025

A Seminar on “**Direct Energy Deposition Process In Additive Manufacturing**” was conducted by Additive Manufacturing Club, Mechanical Engineering Department in association with Career Guidance Cell. A total of 36 students from II Year Mechanical Engineering students were participated for the event. Participations made to sit in room (MF-12) and all are interested students were allowed. **Mr. P.Ram Prasad** interacted well with the students.

Direct Energy Deposition (DED) is an advanced additive manufacturing (AM) process primarily used for repairing, adding material to existing parts, or building new components, especially with metals. It is distinct from other AM techniques like Powder Bed Fusion (PBF) in terms of setup and applications.

1. **Material Feedstock:** DED utilizes either metal powder or wire as the raw material. The choice depends on the specific application and desired properties of the final part.
2. **Energy Source:** A focused energy beam—such as a laser, electron beam, or plasma arc—is directed at the material feedstock to melt it. The selection of the energy source affects the deposition rate, precision, and material compatibility.
3. **Deposition Head:** This component integrates the material feed and energy source, directing them to the build area. It's typically mounted on a multi-axis robotic arm or gantry system, allowing for complex geometries and precise movements.
4. **Melt Pool Formation:** As the energy source melts the material, a small, localized pool of molten metal forms. Controlling the size and stability of this melt pool is crucial for achieving desired mechanical properties and dimensional accuracy.
5. **Layer-by-Layer Deposition:** The DED process builds parts by depositing material layer upon layer. Each layer solidifies upon cooling, and subsequent layers are added until the final geometry is achieved.

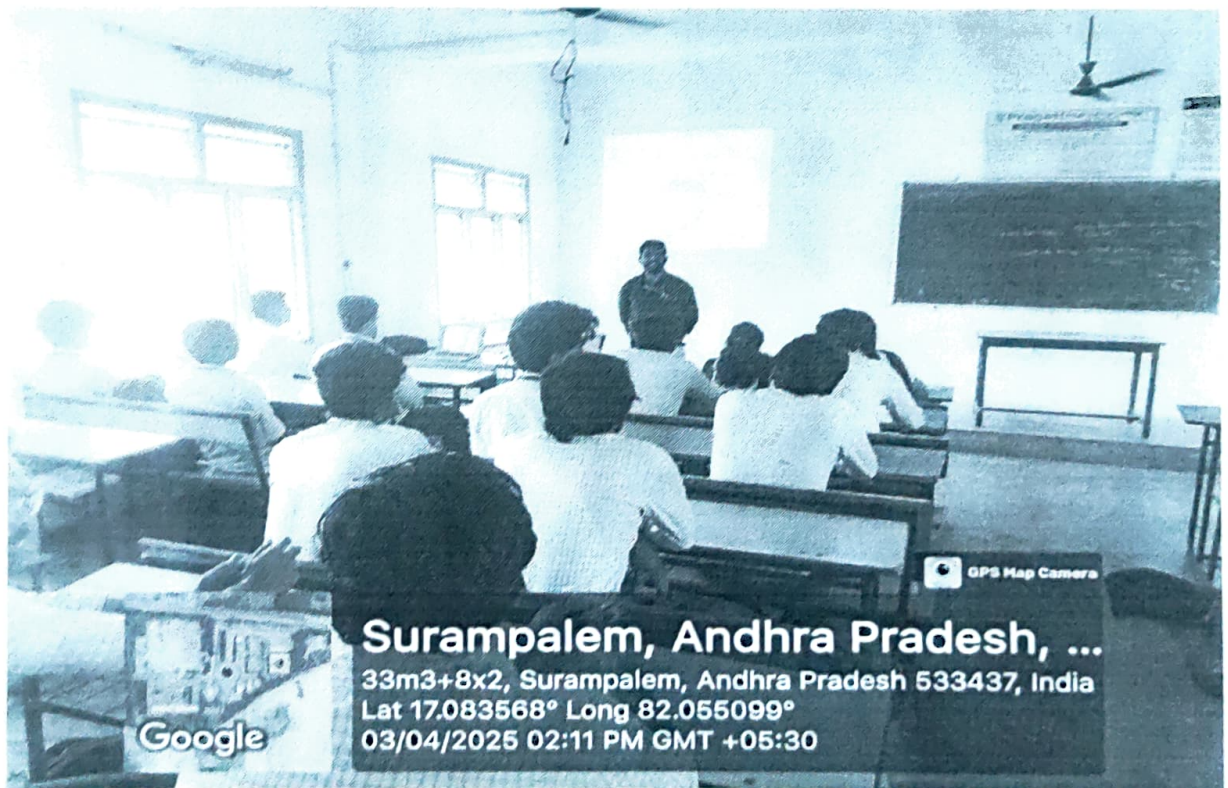
ADDITIVE MANUFACTURING CLUB

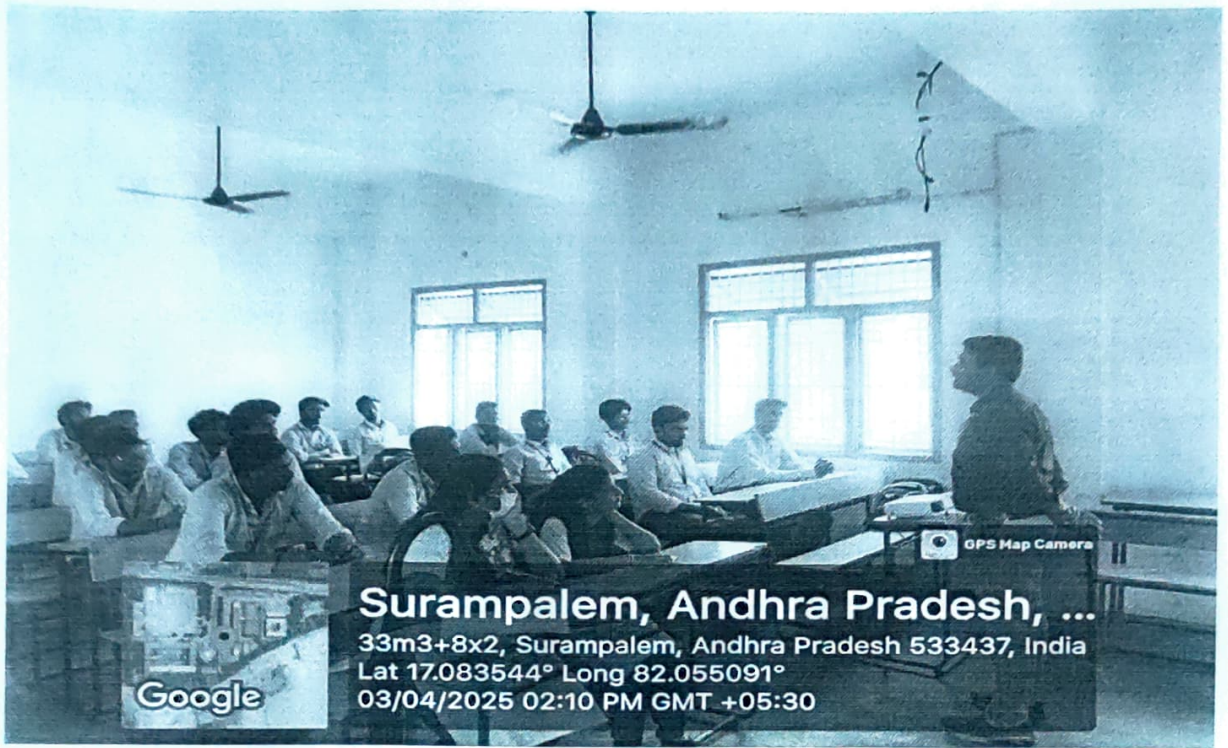
6. **Inert Gas Shielding:** To prevent oxidation and contamination, an inert gas (commonly argon or nitrogen) is directed at the melt pool. This shielding ensures the integrity and quality of the deposited material.
7. **Substrate or Build Platform:** The base on which the material is deposited can be a new platform or an existing component requiring repair or enhancement. The substrate's properties and preparation affect the adhesion and quality of the build.

Additional Insights:

- **Flexibility:** DED is versatile, allowing for the repair of existing components, addition of features, or fabrication of entirely new parts.
- **Material Compatibility:** Common materials used include titanium, stainless steel, aluminum, and nickel-based alloys.
- **Applications:** Widely used in aerospace, automotive, and medical industries for tasks like repairing turbine blades, adding wear-resistant coatings, and creating complex geometries.

PICTURES OF THE EVENT:





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DEPARTMENT OF MECHANICAL ENGINEERING

Participants List

Name of the Event: Direct Energy Deposition process in Additive manufacturing

Venue : MF-12

Date : 3rd April 2025

S.No	Roll No	Name	Signature
1.	23A31A0310	A.L.D.M. Rajesh	A. Rajesh
2.	23A31A0349	S. Uday	S. Uday
3.	23A31A0352	U. Trinath	U. Trinath
4.	23A31A0301	B. Sou Ranya	B. Sou Ranya
5.	23A31A0326	K. Kameswara Rao	K. Kameswara Rao
6.	23A31A0306	S. Yohanna	S. Yohanna
7.	23A31A0313	B. Saiteja	B. Saiteja
8.	23A31A0315	B. Sivasai	B. Sivasai
9.	23A31A0321	Y. S. Suresh	Y. Suresh
10.	24A35A0307	Mh. Bala Bhavani Sankar	Mh. Bala Bhavani Sankar
11.	23A31A0341	P. Prashanth	P. Prashanth
12.	24A35A0315	S. Chandu	S. Chandu
13.	24A35A0310	P. Rishikesh	P. Rishikesh
14.	24A35A0306	K. Parani Surya Kumar	K. Parani Surya Kumar
15.	24A35A0305	K. Satwik	K. Satwik

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16	23A31A0314	B.M.Vardhan	B.M.Vardhan
17	23A31A0309	A.Vasanth Surya	A.Vasanth Surya
18	23A31A0333	V. Bala Vamsi Krishna	V. Vamsi
19	23A31A0336	P. Durga Ashok	P. D. Ashok
20	23A31A0327	K. Sivaji Ganesh	K. Sivaji Ganesh
21	23A31A0345	S. Siva Sai	S. Siva Sai
22	23A31A0341	P. Prasanth	P. Prasanth
23	24A35A0309	M. Durga Suresh	M. Suresh
24	24A35A0303	D. Divakar	D. Divakar
25	23A31A0337	P.V.N. Venkata Siva	P.V.N. Siva
26	23A31A0350	V.V.V. Satyanarayana	V.V.V. Satya
27	23A31A0340	P. Bhanu	P. Bhanu
28	23A31A0312	B. B.S.D.V. Pothuraju	B. Bheeyana
29	23A331A0331	M. Kiran Teja	M. Kiran Teja
30	24A35A0302	D. Lakshmi Narayana	D. Lakshmi

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