



OFFICE OF THE DEPARTMENT OF METALLURGY:
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Notice No. 204/Melt /Date 06-08-2026
Suggested Project Topics for Diploma Final Year (5th & 6th Semester)
Metallurgical Engineering

A. Heat Treatment & Mechanical Metallurgy

Sl. No.	Project Title
1	Optimization of Heat Treatment Parameters of Medium Carbon Steel for Improved Hardness
2	Comparative Study of Annealing, Normalizing and Quenching of Mild Steel
3	Effect of Tempering Temperature on Hardness of EN-8 Steel
4	Surface Hardening of Mild Steel by Flame Hardening Technique
5	Microstructural Analysis of Heat Treated Steel Samples
6	Effect of Cooling Media on Mechanical Properties of Steel
7	Study of Case Hardening by Carburizing Process
8	Comparative Study of Different Quenching Oils
9	Failure Analysis of Heat Treated Components
10	Hardness Mapping of Different Engineering Materials

B. Welding & Fabrication

Sl. No.	Project Title
11	Optimization of SMAW Welding Parameters of Mild Steel
12	Comparative Study of Arc Welding and MIG Welding
13	Weld Defect Analysis and Prevention Techniques
14	Effect of Welding Current on Tensile Strength of Weld Joint
15	Fabrication and Testing of a Portable Welding Table
16	Comparative Study of Different Welding Electrodes
17	Microstructure of Heat Affected Zone (HAZ) in Welded Steel
18	Fabrication of Low-Cost Sheet Metal Bending Device
19	Study of Residual Stress in Welded Components
20	Weld Quality Inspection using Visual and Dye Penetrant

	Testing
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C. Foundry & Casting Technology

Sl. No.	Project Title
21	Study of Sand Grain Size on Casting Surface Finish
22	Effect of Moisture Content on Green Sand Properties
23	Comparative Study of Green Sand and CO ₂ Sand Moulding
24	Casting Defect Identification and Root Cause Analysis
25	Design and Fabrication of Low-Cost Moulding Box
26	Yield Improvement in Sand Casting Process
27	Optimization of Gating System Design
28	Reclamation of Used Foundry Sand

D. Corrosion & Surface Engineering

Sl. No.	Project Title
29	Comparative Corrosion Behaviour of Mild Steel in Different Salt Solutions
30	Performance Evaluation of Anti-Corrosive Coatings
31	Rust Prevention Techniques for Engineering Components
32	Electrochemical Corrosion Study of Steel in Acidic Medium
33	Zinc Coating versus Paint Coating for Corrosion Protection
34	Effect of Temperature on Corrosion Rate of Mild Steel
35	Low-Cost Surface Protection Methods for Steel Structures

E. Powder Metallurgy & Advanced Materials

Sl. No.	Project Title
36	Fabrication of Powder Metallurgy Specimens using Iron Powder
37	Effect of Compaction Pressure on PM Components
38	Recycling of Metal Chips into Powder Metallurgy Components
39	Comparative Study of Conventional and Powder Metallurgy Manufacturing
40	Preparation of Metal Matrix Composite using Low-Cost Reinforcement

F. Recycling, Sustainability & Environment

Sl. No.	Project Title
41	Recycling of Aluminium Beverage Cans into Useful Products
42	Recovery of Metals from Electronic Waste
43	Briquetting of Mill Scale and Iron Fines

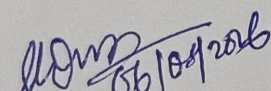
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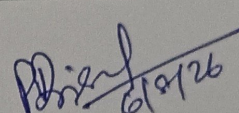
44	Utilization of Blast Furnace Slag in Construction Materials
45	Recycling of Scrap Steel for Small Foundry Applications
46	Waste Heat Recovery Opportunities in Metallurgical Industries

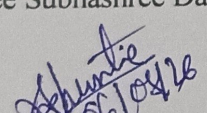
G. Quality Control, Testing & Industry 4.0

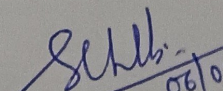
Sl. No.	Project Title
47	Statistical Quality Control in a Small Manufacturing Industry
48	Comparative Study of Destructive and Non-Destructive Testing Methods
49	Digital Inventory Management System for Metallurgical Laboratory
50	Development of Standard Operating Procedures (SOPs) for a Metallurgical Laboratory

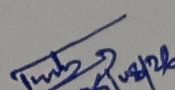
Internal Committee Members For Formulation of Project Topics


Sushree Subhashree Das, Sr. Lecturer


Parasmitha Biswal, Lecturer (S-II)

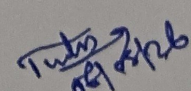

Sitanjali Khuntia, Lecturer (S-I)


Suvendu Muduli, Lecturer (S-II)


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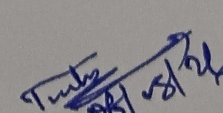
Memo No 205/melt Date 06-08-2026

Copy to the Department Notice Board/all the students' whatsapp group/the parents' whatsapp group for information and necessary action.


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Memo No 206/melt Date 06-08-2026

Copy to the Principal, OSME Keonjhar for information.


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