

GOVT. POLYTECHNIC MAYURBHANJ

LESSON PLAN OF INDUSTRIAL METALLURGY ACADEMIC YEAR (2025-26) SUMMER

Discipline: **Metallurgy Engineering**

Semester: **6th semester**

Name of the Teaching Faculty: **SUSHREE SUBHASHREE DAS**

Course: **INDUSTRIAL METALLURGY**
Course code: **TH3**

No of days /week class allotted: **05**

Semester from Date: **22/12/2025 to 18/04/2026**

Month	Week	Day	Unit	Topics	
DECEMBER	4 TH	1 ST	UNIT-1&2	METAL JOINING: Classification of Welding Processes.	
		2 ND		Classify different welding process such as pressure welding processes and no pressure welding process.	
		3 RD		Gas Welding. Explain different flames, equipment's, steps, advantages, disadvantages and application of gas welding.	
		4 TH		X-MASS DAY	
		5 TH		REVISION	
	5 TH	1 ST	UNIT-3&4	Arc Welding: Describe various arc welding process such as Metallic Arc, Submerged Arc	
		2 ND		TIG Welding, MIG Welding.	
		3 RD		Thermit Welding: Discuss the principle, procedure, advantages and disadvantages of Thermit welding.	
	JANUARY	1 ST	4 TH		DOUBT CLEARING CLASS
			5 TH		REVISION
2 ND		1 ST	UNIT-5&6	Resistance Welding: Explain the principle and various types of resistance welding.	
		2 ND		Welding of Steel, C.I. and Cu Alloys.	
		3 RD		DOUBT CLEARING CLASS	
		4 TH		Mention the precaution required for welding of steel. Explain the joint design and techniques required for C.I. welding.	
		5 TH		REVISION	
3 RD		1 ST		Describe the welding of copper and its alloys	
		2 ND		DOUBT CLEARING CLASS	
		3 RD		MAKAR SANKRANTI	
		4 TH		Metallurgy of Welding: Explain the temperature distribution in we1dng of steel.	
4 TH		5 TH	UNIT-7&8	Discuss the structural changes in weld metal and parent metal after welding	
		1 ST		Define weldability, Mention different welding defects	
		2 ND		Discuss various methods for testing welding joints.	
		4 TH		Define weldability	
	5 TH	SUBASH CHANDRA BOSE JAYANTI			
5 TH	1 ST		REPUBLIC DAY		
	2 ND	UNIT-8&9	Brazing and Soldering: Discuss various brazing methods of common ferrous and nonferrous metals.		
	3 RD		Define soldering and explain various types of solders. Describe the basic steps of		



		4 TH		soldering of common metals
		5 TH		1ST MONTHLY TEST
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FEBRUARY	2 ND	1 ST	UNIT-10&11	DOUBT CLEARING CLASS
		2 ND		Powder Metallurgy: Scope of Powder Metallurgy
		3 RD		Define powder metallurgy. Depict the historical development of powder metallurgy
		4 TH		Mention advantages disadvantages and applications of P/M,
		5 TH		Briefly describe primary and secondary characteristics of powders
	3 RD	1 ST		Methods of Powder Production: Name different methods of powder production.
		2 ND		Describe the mechanical, physical, chemical and electro chemical methods.
		3 RD		GROUP DISCUSION
		4 TH		DOUBT CLEARING CLASS
		5 TH		SURPRISE TEST
	4 TH	1 ST		Compaction of Metal Powders: Give the significance and different methods of conditioning.
		2 ND		Explain different die-compaction techniques. Describe isostatic pressing with advantages, limitation applications
		4 TH		Give brief outline on continuous compaction
		5 TH		
	5 TH	1 ST		Compaction of Metal Powders: Give the significance and different methods of conditioning.
2 ND		Explain different die-compaction techniques.		
MARCH	2 ND	1 ST	UNIT-12&13	Sintering of Metal Powder: Define sintering and explain its various stages
		2 ND		DOLA
		3 RD		HOLI
		4 TH		Explain briefly mechanism of sintering process
		5 TH		Explain the process variables and furnaces used for sintering
	3 RD	1 ST		Give a note on liquid phase sintering.
		2 ND		REVISION
		3 RD		Flow Sheets of Production: Give Flow Sheets for the Production of the Following
		4 TH		Porous bearing
		5 TH		Sintered friction materials
	4 TH	1 ST		DOUBT CLEARING CLASS
		2 ND		REVISION
		3 RD		Magnetic Materials
		4 TH		Cermets
		5 TH		Dispersion strengthened materials
	5 TH	1 ST		DOUBT CLEARING CLASS
		2 ND		REVISION
		3 RD		INTERNAL ASSESSMENT-2
		4 TH		INTERNAL ASSESSMENT-2
		5 TH		Powder Metallurgy: Scope of Powder Metallurgy
	6 TH	1 ST		Compaction of Metal Powders: Give the significance and different methods of conditioning.
		2 ND		DOUBT CLEARING CLASS

APRIL	1 ST	1 ST	UTKAL DIVAS
		2 ND	Brazing and Soldering: Discuss various brazing methods of common ferrous and nonferrous metals.
		3 RD	GOOD FRIDAY
	2 ND	1 ST	GROUP DISCUSSION
		2 ND	DOUBT CLEARING CLASS
		3 RD	REVISION
		4 TH	SURPRISE TEST
		5 TH	Metallurgy of Welding: Explain the temperature distribution in welding of steel.
	3 RD	1 ST	DOUBT CLEARING CLASS
		2 ND	PRE-SEMESTER
		3 RD	REVISION
		4 TH	REVISION


 Subject Expert
 Metallurgy Engg.


 HOD
 METALLURGY ENGINEERING
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 Academic Co-ordinator
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