

LESSON PLAN FOR ACADEMIC SESSION: 2025-26 (SUMMER)

Discipline: Metallurgical Engineering	Semester : 6th	Name of the Teaching Faculty : Amarjit Mohanta
Subject : Industrial Metallurgy	No. of days / week class allotted	Semester From : 22/12/2025 to 18/04/2026 Nos. of Weeks per semester : 19
Week	Class Day	Theory Topics
1	1st	Classification of Welding Processes
	2nd	Types of Welding
	3rd	Pressure welding processes
	4th	Non-pressure welding process
2	1st	Gas Welding
	2nd	Different flames
	3rd	Equipments, steps
	4th	Advantages, disadvantages
3	1st	Application of gas welding
	2nd	Arc Welding
	3rd	Metallic Arc
	4th	Submerged Arc
4	1st	TIG Welding
	2nd	MIG Welding
	3rd	Thermit Welding
	4th	Discuss the principle of Thermit Welding
5	1st	Procedure of Termite Welding
	2nd	Advantages and disadvantages of Thermit

		welding
	3rd	Resistance Welding
	4th	Principle of Resistance Welding
6	1st	Various types of resistance welding
	2nd	Revision
	3rd	Welding of Steel, C.I. and Cu Alloys
	4th	Mention the precaution required for welding of steel
7	1st	The joint design
	2nd	Techniques required for C.I. welding
	3rd	Describe the welding of copper and its alloys
	4th	Explain the temperature distribution in welding of steel.
8	1st	Discuss the structural changes in weld metal and parent metal after welding.
	2nd	Define weldability.
	3rd	Discuss various methods for testing welding joints.
	4th	Mention different welding defects.
9	1st	Mention different welding defects.
	2nd	Define brazing and explain its principle and procedure.
	3rd	Discuss various brazing methods of common ferrous and nonferrous metals.

	4th	Define soldering and explain various types of solders.
10	1st	Describe the basic steps of soldering of common metals.
	2nd	Define powder metallurgy.
	3rd	Depict the historical development of powder metallurgy.
	4th	Mention advantages disadvantages and applications of P/M
11	1st	Briefly describe primary and secondary characteristics of powders.
	2nd	Methods of Powder Production
	3rd	Name different methods of powder production.
	4th	Name different methods of powder production.
	1st	Name different methods of powder production.
12	2nd	Name different methods of powder production.
	3rd	Name different methods of powder production.
	4th	Describe the mechanical, physical, chemical and electro chemical methods.
	1st	Describe the mechanical, physical, chemical and electro chemical methods.
13	2nd	Describe the mechanical, physical, chemical and electro chemical methods.
	3rd	Describe the mechanical, physical, chemical and electro chemical methods.
	1st	Describe the mechanical, physical, chemical and electro chemical methods.

14	4th	Compaction of Metal Powders
	1st	Give the significance and different methods of conditioning
	2nd	Explain different die-compaction techniques
	3rd	Describe isostatic pressing with advantages, limitation applications.
15	4th	Give a brief outline on continuous compaction.
	1st	Class Test
	2nd	Sintering of Metal Powder
	3rd	Define sintering and Explain its various stages.
16	4th	Define sintering and Explain its various stages.
	1st	Explain briefly the mechanism of the sintering process.
	2nd	Explain briefly the mechanism of the sintering process.
	3rd	Revision
17	4th	Class Test
	1st	Explain the process variables and furnaces used for sintering
	2nd	Explain the process variables and furnaces used for sintering
	3rd	Give a note on liquid phase sintering.
18	4th	Porous bearing
	1st	Sintered friction materials
	2nd	Sintered friction materials
	3rd	Sintered carbides

	4th	Sintered carbides
19	1st	Magnetic Materials
	2nd	Cermets
	3rd	Dispersion strengthened materials
	4th	Revision

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22/12/25
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