

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF
ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN
Session-2024-2025

Semester: 6th Discipline: Metallurgy Engg.

Subject: Industrial Metallurgy

Name of the Teaching Faculty: Shashanka Sekhar Bhoi

Subject: IM. No. of Days/per week class allotted : 05
Semester From Date : 04/02/2025 To Date 17/05/2025 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
01	01	Introduction to metal joining
	02	classification of welding process
	03	pressure welding process
	04	Non pressure welding process.
	05	Introduction to gas welding.
02	01	Different types of flame
	02	Gas welding equipments and steps
	03	Advantage and disadvantages of gas welding
	04	Application of gas welding.
	05	Introduction to Arc welding.
03	01	Metallic Arc welding:
	02	Submerged arc welding.


Signature of the Faculty

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Semester From Date: 04/02/2024 To Date: 17/05/2025 No. of Weeks: 15

Week	Class Day	Theory /Practical Topics
	03	TIG welding
	04	MIG welding
	05	Introduction to Thermit welding
04	01	principle of thermit welding
	02	procedure of thermit welding
	03	Advantages of Thermit welding
	04	Disadvantages of thermit welding
	05	Introduction to Resistance welding
05	01	Explain Resistance welding
	02	Principle of Resistance welding
	03	Types of Resistance welding
	04	Introduction to welding of steel, CI & Cu


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Week	Class Day	Theory / Practical Topics
	05	Welding of steel.
06	01	Welding of C.I.
	02	Welding of Cu
	03	Required Precautions.
	04	Temperature distribution for welding of steel.
	05	Structural changes in weld metal.
07	01	Define weldability.
	02	Different welding defects and testing of welding joints.
	03	Explain brazing and its principle.
	04	Various brazing methods
	05	Soldering
08	01	basic steps of soldering.

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Week	Class Day	Theory /Practical Topics
	02	Define powder metallurgy.
	03	Historical development of powder metallurgy.
	04	Advantage, disadvantages of P/M
	05	Primary and secondary characteristics of P/M.
09	01	Introduction to Powder Production.
	02	Different methods of powder productions.
	03	mechanical method.
	04	mechanical method.
	05	chemical method.
10	01	chemical method.
	02	Electrochemical method.
	03	Electrochemical method.



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Week	Class Day	Theory /Practical Topics
	04	physical method .
	05	physical method .
11	01	Introduction to compaction of metal powders
	02	Significance of metal powder.
	03	Different method of conditioning .
	04	Different die compaction techniques.
	05	Isostatic pressing .
12	01	Brief outline on continuous compaction .
	02	Introduction to Sintering of metal powder
	03	Define Sintering .
	04	Explain its various stages .
	05	mechanism of sintering process.


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Week	Class Day	Theory /Practical Topics
13	01	Explain mechanism of sintering .
	02	Explain process variables.
	03	Furnaces used for sintering .
	04	liquid phase sintering .
	05	liquid phase sintering .
14	01	Overall chapter discussion .
	02	Introduction to flow sheets of production
	03	porous bearing .
	04	Sintered friction materials
	05	Sintered carbides
15	01	magnetic materials .
	02	cermets .


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Week	Class Day	Theory / Practical Topics
	03	Description- Dispersion strengthened material.
	04	overall chapter discussion.
	05	Doubt clearing class.


Signature of the Faculty