PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH

LESSON PLAN

Session-2024-2025

Semester:6th Discipline: Metallurgical engineering

Subject: MECHANICAL METALLURGY (Th-02)

Name of the Teaching Faculty: Mr. Sunil kumar mahakud

Subject: MECHANICAL METALLURGY (Th-02) No. of Days/per week class allotted : 4

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

Week	Class Day	Theory /Practical Topics
1	1	Introduction to mechanical metallurgy
	2	Dislocation, types, its basic behavior & role in deformation.
	3	Dislocation in various crystals
	4	Source of dislocation , Twinning & deformation.
2	5	Slip & Deformation
	6	Introduction to Deformation of metals.
	7	Explain the elastic & plastic behaviour of metals.
	8	Explain yielding criteria.
3	9	Derive critically resolved shear stress.
	10	Explain deformation of polycrystalline aggregates
	11	Introduction Strengthening mechanism
	12	Explain strengthening mechanism

Sunil Kumar Mahato

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Week	Class Day	Theory /Practical Topics
7	25	State the advantages and disadvantages of hot and cold working
	26	Introduction to Recovery,
	27	Introduction to recrystallization
	28	Explain grain growth
8	29	Recovery
	30	Recrystallization
	31	Grain growth
	32	Class test-2 (20min) Rolling:
9	33	Explain principles of rolling
	34	Compare between hot rolling and cold rolling
	35	Explain the types of roll pass-open pass and box pass.
	36	State different types of rolling detects and their control

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Week	Class Day	Theory /Practical Topics
4	13	Describe the role of grain boundary in strengthening
	14	Define Hall Petch equation
	15	Describe yield point phenomenon.
	16	Explain strain-aging
5	17	Explain solid solution strengthening from fine particles
	18	Describe fiber strengthening
	19	Describe martensitic strengthening
	20	Explain strain hardening
6	21	Describe Bauschinger's effect.
	22	Class test-1 (20min) , Introduction to Fundamentals of Metal working
	23	Classify different metal working process.
	24	Explain hot working and cold working of metals and alloys

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Week	Class Day	Theory /Practical Topics
13	49	Describe the elementary concept of deep drawing
	50	Explain different sheet metal forming - bending shearing aid blanking
	51	Question answer -2020
	52	Question answer -2021
14	53	Question answer -2022
	54	Question answer -2023
	55	Question answer -2024
	56	Similar test -1
15	57	Similar test -2
	58	Similar test -3
	59	Doubt class
	60	Doubt class

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Week	Class Day	Theory /Practical Topics
10	37	Introduction to Forging
	38	Explain types of forging process
	39	Describe the properties of forged products
	40	Explain the defects of forged products and their control
11	41	Introduction to Extrusion
	42	Explain the elementary principle of extrusion
	43	Classify the defects in extruded product
	44	Explain the manufacturing of seamless pipes
12	45	Class test-3 (20min) Introduction to Wire drawing
	46	Explain the elementary principle of wire drawing
	47	Classify the defects of wire drawing
	48	Introduction to Forming methods

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