

GOVT.POLYTECHNIC MAYURBHANJ
LESSON PLAN OF MECHANICAL METALLURGY
(SUMMER 2023-2024)

Discipline: Metallurgy Engineering		Semester: 6th		Name of the Teaching Faculty: ARABINDA NAYAK	
Subject: Mechanical Metallurgy (MM) Course code: TH-2		No. of Days/ Per week class allotted: 04		Semester From date: 16.01.2024 To Date: 26.04.2024	
MONTH	Week	Day	Unit	Topics	
JANUARY	1st	3rd	UNIT-1	Introduction to Mechanical Metallurgy	
		5th		Dislocation types, its basic behavior & role in deformation.	
		6th		Its basic behavior & role in deformation	
	2nd	1st		Dislocation in various crystals, Source of dislocation	
		3rd		Twinning & Slip & Deformation.	
		5th		UNIT-2	Deformation of metals:
	6th	Holiday. (Second Saturday)			
	3rd	1st	Explain the elastic behavior of metals & plastic behavior of metals.		
		3rd	Explain yielding criteria		
		5th	Derive critically resolved shear stress		
		6th	Explain deformation of polycrystalline aggregates.		
	4th	1st	Explain deformation of polycrystalline aggregates.		
		3rd	Holiday (Mahashiv Ratri)		
		5th	Von mises yield criterion		

FEBRUARY	1st	6th		Holiday (Fourth Saturday)
		1st		Tresca yield criterion
		3rd		Holiday (panchayat raj Diwas)
		5th		Surprise test
		6th	UJNT-3	Strengthening mechanism:
	2nd	1st		Explain strengthening mechanism.
		3rd		Describe the role of grain boundary in strengthening.
		5th		Holiday (HOLI)
		6th		HOLIDAY (Second Saturday)
	3rd	1st		Explain strain-aging.
		3rd		Explain solid solution strengthening from fine particles.
		5th		Describe fiber strengthening
		6th		Describe martensitic strengthening
	4th	1st		Explain strain hardening
3rd			Describe Bauschinger 's effect.	
5th		UJNT-4	Fundamentals of Metalworking:	
6th			HOLIDAY (Fourth Saturday)	
1st			Explain hot working and cold working of metals and alloys	
MARCH	1st	1st		Holiday (Utkal Diwas).
		3rd	UNIT-5	Recovery, recrystallization and grain growth
		5th		State the advantages and disadvantages of hot and coldworking
	2nd	6th		Explain the following phenomena, (a) Recovery (b) Recrystallization (c) Grain growth
		1st	UNIT-6	Rolling:
		3rd		Explain principles of rolling
		6th		Compare between hot rolling and cold rolling.
	3rd	1st		HOLIDAY (Mohabisuba Sankranti)
		3rd		Explain the types of roll pass- open pass and box pass.
		5th		Holiday (Good Friday)
6th			State different types of Rolling ,Explain the types of roll pass-open pass and box pass.	

APRIL	4th	1st	UNIT-7	Forging:	
		3rd		State different types of rolling defects and their control	
		5th		Describe the properties of forged products	
		6th		Describe the properties of forged products, Explain the defects of forged products and their control	
	5 TH	1st		UNIT-10	INTERNAL EXAMINATION
		3rd			INTERNAL EXAMINATION
		5th			Describe the elementary concept of deep drawing,
	2nd	1st			Classify the defects in extruded product
		3rd			Classify the defects of wire drawing ,Describe the elementary concept of deep drawing,
		5th			Forming methods
3rd	1st		HOLIDAY (Budha Purnima)		
	3rd		Revision		
	5th		Previous year question answer discussion		
	6th		Previous year question answer discussion		

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