

**GOVERNMENT POLYTECHNIC MAYURBHANJ LESSONPLAN -2023/24(W)**

discipline: MECHANICAL ENGINEERING		semester : 3rd		name of the teaching faculty : BHRUGUPATI HANSDAH	
subject : EM		No. of daysper week classified:04		semester from date:1.08.23 To 30.11.2023	
MONTH	WEEK	DAY		TOPICS	
AUGUST	2nd	2nd	UNIT-1	Material classification into ferrous and non ferrous category and alloys	
		4th		Properties of Materials: Physical , Chemical and Mechanical	
		4th		Performance requirements	
		5th		Material reliability and safety	
	3rd	2nd	UNIT-2	Revision of unit 1	
		4th		Characteristics and application of ferrous materials	
		4th		Classification, composition and application of low carbon steel,medium carbon steel and High carbon steel	
		5th		Alloy steel: Low alloy steel, high alloy steel, tool steel and stainless steel	
	4th	2nd	UNIT-2	Tool steel: Effect of various alloying elements such as Cr, Mn, Ni, V, Mo	
		4th		Revision of unit 2	
		4th		Concept of phase diagram and cooling curves	
		5th		Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel	
SEPTEMBER	1st	2nd	UNIT-3	Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel	
		4th		Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel	
		4th		Revision of unit 3	
		5th		Crystal defines, classification of crystals, ideal crystal and crystal imperfections	
	2nd	2nd	UNIT-4	Crystal defines, classification of crystals, ideal crystal and crystal imperfections	
		4th		Classification of imperfection: Point defects, line defects, surface defects and volume defects	
		4th		Types and causes of point defects: Vacancies, Interstitials and impurities	
		5th		Class Test -1	
		5th		Types and causes of line defects: Edge dislocation and screw dislocation	
	3rd	2nd	UNIT-4	Effect of imperfection on material properties	
		4th		Deformation by slip and twinning	
		4th		Effect of deformation on material properties	
		5th		Revision of unit 4	
	4th	2nd	UNIT-5	Purpose of Heat treatment	
		4th		Process of heat treatment: Annealing, normalizing, hardenings tempering, stress relieving measure	
	OCTOBER	1st	4th	Surface hardening: Carburizing and Nitriding	
4th			Effect of heat treatment on properties of steel		
2nd		2 <sup>nd</sup>	Effect of heat treatment on properties of steel		
		5th	Internal Exam		
		2nd	Hardenability of steel		

NOVEMBER	4th	4th		Revision of unit 5
		4th	UNIT-06	Aluminum alloys: Composition, property and usage of Duralmin, $\gamma$ - alloy.
		5th		Aluminum alloys: Composition, property and usage of Duralmin, $\gamma$ - alloy.
	1st	2nd		Copper alloys: Composition, property and usage of Copper Aluminum, Copper-Tin, Babbit , Phosperous bronze
		4th		Copper alloys: Composition, property and usage of Copper Aluminum, Copper-Tin, Babbit , Phosperous bronze
		4th		Copper alloys: Composition, property and usage of Copper Aluminum, Copper-Tin, Babbit , Phosperous bronze
	2nd	5th		Predominating elements of lead alloys, Zinc alloys and Nickel alloys
		2nd		Low alloy materials like P-91, P-22 for power plants and other
		4th		high temperature services. High alloy materials like stainless steel grades of duplex, super duplex materials etc
		4th		Revision of unit 6
		5th		UNIT 7
	3rd	2nd		bearing materials
		4th	Unit 8	Classificaton, compositon, propertes and uses of Iron base and Copper base spring material
		4 <sup>th</sup>	Unit 9	Properties and application of thermosetting and thermoplastic polymers
	5th	Properties of elastomers		
	4th	2nd	Unit 10	Classification, composition, properties and uses of particulate
		4th		Classification and uses of ceramics
		4th		discusion of internal question paper , question paper check
5th			Class Test -2	