

GOVT. POLYTECHNIC, BOLANGIR
LESSON PLAN

Discipline : Mechanical	Semester:3rd	Name of the Teaching Faculty : Sachidananda Padhi
Subject :EM	No. of Days / per week class allotted : 4	Semester From date : 27.08.2024 to Date :08.11.2024 No. of Weeks : 10
Week	Class Day	Topics
Dt. 27.08.2024 to Dt.31.08.2024	1st	Material classification into ferrous and non ferrous category and alloys
	2nd	Properties of Materials :Physical
	3rd	Chemical and Mechanical properties
	4th	Performance requirements , Material reliability and safety
Dt. 02.09.2024 to Dt.07.09.2024	1st	Characteristics and applications of ferrous materials
	2nd	Classification, composition and application of low carbon steel, Medium carbon steel and High carbon steel
	3rd	Alloy steel: Low alloy steel, high alloy steel
	4th	tool steel
Dt. 09.09.2024 to Dt.14.09.2024	1st	stainless steel
	2nd	Effect of various alloying elements such as Cr, Mn, Ni, V, Mo
	3rd	Concept of phase diagram
	4th	cooling curves
Dt. 16.09.2024 to Dt.21.09.2024	1st	Features of Iron-Carbon diagram
	2nd	Salient micro-constituents of Iron and Steel
	3rd	Crystal defines, classification of crystals
	4th	Ideal crystals, crystal imperfections, Classification of imperfection
Dt. 23.09.2024 to Dt.28.09.2024	1st	Point defects
	2nd	line defects
	3rd	surface defects, volume defects
	4th	Types and causes of point defects : Vacancies
Dt. 30.09.2024 to Dt.05.10.2024	1st	Interstitials and impurities
	2nd	Types and causes of line defects : Edge dislocation and screw dislocation
	3rd	Effect of imperfection on material properties
	4th	Deformation by slip and twinning
Dt. 14.10.2024 to Dt.19.10.2024	1st	Effect of deformation on material properties
	2nd	Purpose of Heat treatment, Process of heat treatment: Annealing
	3rd	Normalizing, Hardening
	4th	Tampering, Stress relieving measures
Dt. 21.10.2024 to Dt.26.10.2024	1st	Surface hardening: Carburizing and Nitriding
	2nd	Effect of heat treatment on properties of steel
	3rd	Hardenability of steel
	4th	Aluminum alloys: Composition, property and usage of Duralmin, y- alloy.
Dt. 28.10.2024 to Dt.02.11.2024	1st	Copper alloys: Composition, property and usage of Copper- Aluminum, Copper-Tin, Babbitt , Phosperous bronze, brass, Copper- Nickel
	2nd	Predominating elements of lead alloys, Zinc alloys and Nickel alloys
	3rd	Low alloy materials like P-91, P-22 for power plants and other high temperature services. High alloy materials like stainless steel grades of duplex, super duplex materials, etc.
	4th	Bearing materials : - Classification, composition, properties and uses of Copper base, Tin Base, Lead base, Cadmium base bearing materials
Dt. 04.11.2024 to Dt.08.11.2024	1st	Spring Materials : - Classification, composition, properties and uses of Iron- base and Copper base spring material
	2nd	Polymers : - Properties and application of thermosetting and thermoplastic polymers, Properties of elastomers
	3rd	Composites and Ceramics : - Classification, composition, properties and uses of particulate based and fiber reinforced composites , Classification and uses of ceramics
	4th	Revision and Question, Answer discussion


 Signature of
 Concerned Faculty