

Discipline:- Mechanical Engg.	Semester:- 3 <sup>rd</sup>	Name of the Teaching Faculty:- Er. RABINDRA DASH
Subject:- Engineering Material	No. Of days/week class allotted - 04	Semester from 15.09.2022 to 22.12.2022
		No. Of weeks:- 15
<b>Week</b>	<b>No. Of Period</b>	<b>Theory Topics</b>
15.09.2022 To 17.09.2022	1 <sup>st</sup>	Introduction to Engineering materials
	2 <sup>nd</sup>	Material classification into ferrous and non ferrous category
	3 <sup>rd</sup>	<b>Vishwakarma Puja</b>
19.09.2022 To 24.09.2022	1 <sup>st</sup>	Material classification into Alloys
	2 <sup>nd</sup>	Properties of Materials: Physical , Chemical and Mechanical
	3 <sup>rd</sup>	Performance requirements
	4 <sup>th</sup>	Material reliability and safety
26.09.2022 To 01.10.2022	1 <sup>st</sup>	Characteristics and application of ferrous materials
	2 <sup>nd</sup>	Classification, composition and application of low carbon steel, medium carbon steel
	3 <sup>rd</sup>	Classification, composition and application of High carbon steel
	4 <sup>th</sup>	Alloy steel: Low alloy steel, high alloy steel,
03.10.2022 To 08.10.2022	1 <sup>st</sup>	<b>DURGA PUJA HOLIDAYS</b>
	2 <sup>nd</sup>	
	3 <sup>rd</sup>	
	4 <sup>th</sup>	
10.10.2022 To 15.10.2022	1 <sup>st</sup>	tool steel and stainless steel
	2 <sup>nd</sup>	Tool steel: Effect of various alloying elements such as Cr, Mn, Ni, V, Mo,
	3 <sup>rd</sup>	Revision Of Chapter
	4 <sup>th</sup>	Concept of phase diagram and cooling curves
17.10.2022 To 22.10.2022	1 <sup>st</sup>	Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel
	2 <sup>nd</sup>	Continue the topic and revision
	3 <sup>rd</sup>	Crystal defines, classification of crystals, ideal crystal and crystal imperfections
	4 <sup>th</sup>	Classification of imperfection: Point defects, line defects,

Week	No. Of period	Theory Topics
24.10.2022 To 29.10.2022	1 <sup>st</sup>	surface defects and volume defects
	2 <sup>nd</sup>	Types and causes of point defects: Vacancies, Interstitials and impurities
	3 <sup>rd</sup>	Types and causes of line defects: Edge dislocation and screw dislocation
	4 <sup>th</sup>	Effect of imperfection on material properties
31.10.2022 To 05.11.2022	1 <sup>st</sup>	Deformation by slip and twinning
	2 <sup>nd</sup>	Effect of deformation on material properties
	3 <sup>rd</sup>	Revision the chapter
	4 <sup>th</sup>	Revision the chapter
07.11.2022 To 12.11.2022	1 <sup>st</sup>	Purpose of Heat treatment
	2 <sup>nd</sup>	Process of heat treatment: Annealing, normalizing, hardening, tempering
	3 <sup>rd</sup>	stress relieving measures
	4 <sup>th</sup>	Surface hardening: Carburizing and Nitriding
14.11.2022 To 19.11.2022	1 <sup>st</sup>	<b>Prathama Ashtami</b>
	2 <sup>nd</sup>	Effect of heat treatment on properties of steel
	3 <sup>rd</sup>	Hardenability of steel
	4 <sup>th</sup>	Revision of the chapter
21.11.2022 To 26.11.2022	1 <sup>st</sup>	Aluminum alloys: Composition, property
	2 <sup>nd</sup>	usage of Duralmin, $\gamma$ - alloy.
	3 <sup>rd</sup>	Copper alloys: Composition, property and usage of Copper- Aluminum,
	4 <sup>th</sup>	Copper-Tin, Babbit , Phosperous bronze, brass, Copper- Nickel
28.11.2022 To 3.12.2022	1 <sup>st</sup>	Predominating elements of lead alloys, Zinc alloys and Nickel alloys
	2 <sup>nd</sup>	Low alloy materials like P-91, P-22 for power plants and other
	3 <sup>rd</sup>	high temperature services. High alloy materials like stainless steel grades of duplex, super duplex materials etc.
	4 <sup>th</sup>	Revision of the chapter

<b>Week</b>	<b>No.of period</b>	<b>Theory Topics</b>
5.12.2022 To 10.12.2022	1 <sup>st</sup>	Classification, composition, properties and uses of Copper base,
	2 <sup>nd</sup>	<b>Last Thursday of Margasira</b>
	3 <sup>rd</sup>	Tin Base, Lead base, Cadmium base bearing materials
	4 <sup>th</sup>	Classification, composition, properties and uses of Iron base spring material and copper base spring material
12.12.2022 To 17.12.2022	1 <sup>st</sup>	Copper base spring material
	2 <sup>nd</sup>	Properties and application of thermosetting and thermoplastic polymers
	3 <sup>rd</sup>	Properties of elastomers
	4 <sup>th</sup>	Classification, composition, properties and uses of particulate based and fiber reinforced composites
19.12.2022 To 24.12.2022	1 <sup>st</sup>	Classification and uses of ceramics
	2 <sup>nd</sup>	Revision and previous year question discussion