

SESSION:		WINTER 2023				
BRANCH:		MECHANICAL ENGINEERING				
SEMESTER:		3RD SEC-A				
SUBJECT:		ENGINEERING MATERIAL (TH-3)				
NAME OF THE FACULTY:			SUMIT SAHOO			
SL NO.	MONTH	CHAPT. NO.	DATE	TOPICS TO BE COVERED	NO. OF ACADEMIC DAYS AVAILABLE FOR THE SUBJECT	% COVERED
1	AUGUST	1	4/8/2023	1.1 Material classification into ferrous and non ferrous category and alloys	16	29%
			8/8/2023	1.2 Properties of Materials: Physical, Chemical and Mechanical		
			9/8/2023	Properties of Materials: Physical, Chemical and Mechanical		
			10/8/2023	Properties of Materials: Physical, Chemical and Mechanical		
			11/8/2023	1.3 Performance requirements		
			16/8/23	1.4 Material reliability and safety		
		2	17/8/23	2.1 Characteristics and application of ferrous materials		
			18/8/23	2.2 Classification, composition and application of low carbon steel,		
			21/8/23	medium carbon steel and High carbon steel		
			22/8/23	2.3 Alloy steel: Low alloy steel, high alloy steel, tool steel and stainless steel		
			23/8/23	Alloy steel: Low alloy steel, high alloy steel, tool steel and stainless steel		
			24/8/23	2.4 Tool steel: Effect of various alloying elements such as Cr, Mn, Ni, V, Mo,		
			25/8/23	Tool steel: Effect of various alloying elements such as Cr, Mn, Ni, V, Mo,		
		3	28/8/23	3.1 Concept of phase diagram and cooling curves		
			29/8/23	3.2 Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel		
31/8/23	Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel					
SEPT.	4	1/9/2023	4.1 Crystal defines, classification of crystals, ideal crystal and crystal imperfections	17	30%	
		4/9/2023	Crystal defines, classification of crystals, ideal crystal and crystal imperfections			
		5/9/2023	4.2 Classification of imperfection: Point defects, line defects, surface defects and volume defects			

2	SEPT.	4	7/9/2023	Classification of imperfection: Point defects, line defects, surface defects and volume defects	17	30%				
			8/9/2023	4.3Types and causes of point defects: Vacancies, Interstitials and impurities						
			11/9/2023	4.3Types and causes of point defects: Vacancies, Interstitials and impurities						
			12/9/2023	4.4Types and causes of line defects: Edge dislocation and screw dislocation						
			13/9/23	4.5Effect of imperfection on material properties						
			14/9/23	4.6Deformation by slip and twinning						
			15/9/23	4.7Effect of deformation on material properties						
		5	21/9/23	5.1Purpose of Heat treatment						
			22/9/23	5.2Process of heat treatment: Annealing, normalizing, hardening, tempering, stress relieving measures						
			25/9/23	5.3Surface hardening: Carburizing and Nitriding						
			26/9/23	5.4Effect of heat treatment on properties of steel						
			27/9/23	Hardenability of steel						
		6	28/9/23	6.1Aluminum alloys: Composition, property and usage of Duralmin, γ -alloy						
			29/9/23	6.2Copper alloys: Composition, property and usage of Copper- Aluminum, Copper-Tin, Babbitt , Phosperous bronze, brass, Copper- Nickel						
		3	OCT.	6			3/10/2023	6.2Copper alloys: Composition, property and usage of Copper- Aluminum, Copper-Tin, Babbitt , Phosperous bronze, brass, Copper- Nickel	10	18%
							4/10/2023	Copper alloys: Composition, property and usage of Copper- Aluminum, Copper-Tin, Babbitt , Phosperous bronze, brass, Copper- Nickel		
							5/10/2023	6.3Predominating elements of lead alloys, Zinc alloys and Nickel alloys		
6/10/2023	6.4Low alloy materials like P-91, P-22 for power plants and other									
9/10/2023	high temperature services. High alloy materials like stainless steel grades of duplex, super duplex materials etc									
10/10/2023	high temperature services. High alloy materials like stainless steel grades of duplex, super duplex materials etc									
7	11/10/2023			7.1Classification, composition, properties and uses of Copper base,						
	12/10/2023			Tin Base, Lead base, Cadmium base bearing materials						

		8	13/10/23	8.1 Classification, composition, properties and uses of Iron-base and Copper base spring material	10	18%
			31/10/23	8.1 Classification, composition, properties and uses of Iron-base and Copper base spring material		
4	NOV.	8	1/11/2023	Classification, composition, properties and uses of Iron-base and Copper base spring material	13	23%
			9	2/11/2023		
		3/11/2023		Properties and application of thermosetting and thermoplastic polymers		
		6/11/2023		9.2 Properties of elastomers		
		10	7/11/2023	Properties of elastomers		
			8/11/2023	10.1 Classification, composition, properties		
			9/11/2023	Classification, composition, properties		
			10/11/2023	uses of particulate based and fiber reinforced composites		
			13/11/23	10.2 Classification and uses of ceramics		
			14/11/23	Classification and uses of ceramics		
			15/11/2023	Classification and uses of ceramics		
			16/11/2023	REVISION		
			17/11/2023	REVISION		

BRIEF SUMMARY OF THE PLAN

SL. NO.	MONTH	UNIT/CHAPTER TO BE COVERED	% COVERAGE
1	AUGUST	CHAPTER - 1, 2 & 3	29%
2	SEPTEMBER	CHAPTER - 4, 5 & 6	30%
3	OCTOBER	CHAPTER - 6, 7 & 8	18%
4	NOVEMBER	CHAPTER - 8, 9 & 10	23%

S. Shree
signature of faculty

S. S. H. S.
signature of HOD 31/8/23

[Signature]
signature of principal 2/8/23