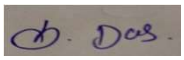
UTKAL INSTITUTE OF ENGINEERING & TECHNOLOGY

DISCIPLINE: Mechanical Engineering	SEMESTER: 3rd Sem	NAME OF THE TEACHING FACULTY: Er.Snehasis Das		
SUBJECT: ENGINEERING MATERIAL	No of Days/Per week class allotted: **4** Class P/W**(60)**	Semester From Date:15/09/2022 To Date:22/12/2022 No. Of Weeks: **15**		
WEEK	**CLASS DAY**	**THEORY TOPICS**	**REMARKS**	
1st	1st	Material classification into ferrous and non ferrous category and alloys	Date	Dean/Principal
	2nd	Properties of Materials: Physical , Chemical and Mechanical		
	3rd	Performance requirements		
	4th	Material reliability and safety		
2nd	1st	Doubt clear class		
	2nd	Characteristics and application of ferrous materials		
	3rd	Classification, composition and application of low carbon steel, medium carbon steel and High carbon steel		
	4th	Assignment		
3rd	1st	Assignment question Discussion		
	2nd	Alloy steel: Low alloy steel, high alloy steel, tool steel and stainless steel		
	3rd	Tool steel: Effect of various alloying elements such as Cr, Mn, Ni, V, Mo,		
	4th	Concept of phase diagram and cooling curves		

4th	1st	Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel		
	2nd	Crystal defines, classification of crystals, ideal crystal and crystal imperfections		
	3rd	Classification of imperfection: Point defects, line defects, surface defects and volume defects		
	4th	Types and causes of point defects: Vacancies, Interstitials and impurities		
5th	1st	Class Test		
	2nd	Effect of imperfection on material properties		
	3rd	Deformation by slip and twinning		
	4th	Effect of deformation on material properties		
6th	1st	**Revision of Last Class**		
	2nd	Assignment		
	3rd	Assignment question discussion		
	4th	Purpose of Heat treatment		
7th	1st	Process of heat treatment: Annealing, normalizing, hardening, tampering, stress relieving measures		
	2nd	Doubt Clear Class		
	3rd	Doubt clear Class		
	4th	Assignment		
8th	1st	Assignment question Discussion		
	2nd	Surface hardening: Carburizing and Nitriding		

	3rd	Effect of heat treatment on properties of steel		
	4th	Hardenability of steel		
9th	1st	Hardenability of steel		
	2nd	Aluminum alloys: Composition, property and usage of Duralmin, y-alloy.		
	3rd	Revision Class		
	4th	Copper alloys: Composition, property and usage of CopperAluminum, Copper-Tin, Babbit , Phosperous bronze, brass, Copper-Nickel		
10th	1st	Predominating elements of lead alloys, Zinc alloys and Nickel alloys		
	2nd	Internal Question Discussion		
	3rd	Doubt clear class		
	4th	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.		
11th	1st	Classification, composition, properties and uses of Copper base, Tin Base, Lead base, Cadmium base bearing materials		
	2nd	Properties and application of thermosetting and thermoplastic polymers		
	3rd	Properties and application of thermosetting and thermoplastic polymers		

	4th	Properties and application of thermosetting and thermoplastic polymers		
12th	1st	Doubt Clear Class		
	2nd	Revision Class		
	3rd	Properties of elastomers		
	4th	Last Class Discussion		
13th	1st	Internal Question Discussion		
	2nd	composition, properties and uses of particulate based and fiber reinforced		
	3rd	Doubt clear class		
	4th	Classification and uses of ceramics		
14th	1st	Classification and uses of ceramics		
	2nd	Discussion Sample paper question		
	3rd	question discussion for semester exam		
	4th	question discussion for semester exam		



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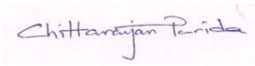

DEAN

PRINCIPAL