

SYNERGY SCHOOL OF ENGINEERING, Dhenkanal

LESSION PLAN

Discipline : Mechanical Engg	Semester: 3rd Sem Mech	Name of faculty: Mihir kumar swain	
Sub:EM	No of Days/ week class allotted :- 4	Total no of weeks:- 15 Session:- 2023-24(W)	Start date 01/8/23 End date 02/12/23
No of Week	Class day	Topic to be taught (Theory)	
1 st	1 st	Material classification into ferrous and non ferrous category and alloys	
	2 nd	Properties of Materials: Physical, Chemical and Mechanical	
	3 rd	Properties of Materials: Mechanical	
	4 th	Performance requirements	
2 nd	1 st	Material reliability and safety	
	2 nd	Characteristics and application of ferrous materials	
	3 rd	Classification, composition and application of low carbon steel, medium carbon steel and High carbon steel	
	4 th	Alloy steel: Low alloy steel, high alloy steel, tool steel and stainless steel	
3 rd	1 st	Effect of various alloying elements such as Cr, Mn, Ni, V, Mo,	
	2 nd	Concept of phase diagram	
	3 rd	Concept of cooling curves	
	4 th	Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel	
4 th	1 st	Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel	
	2 nd	Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel	
	3 rd	Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel	
	4 th	Crystal defines, classification of crystals, ideal crystal and crystal imperfections	
5 th	1 st	Classification of imperfection: Point defects, Types and causes of point defects: Vacancies	
	2 nd	Interstitials and impurities	
	3 rd	line defects, Types and causes of line defects: Edge dislocation and screw dislocation	
	4 th	surface defects and volume defects	
6 th	1 st	Effect of imperfection on material properties	
	2 nd	Deformation by slip and twinning	
	3 rd	Effect of deformation on material properties	
	4 th	Purpose of Heat treatment	
7 th	1 st	Process of heat treatment: Annealing	
	2 nd	Process of heat treatment: Annealing	
	3 rd	normalizing, hardening,	
	4 th	tempering, stress relieving measures	

8 th	1 st	Surface hardening: Carburizing and Nitriding
	2 nd	Effect of heat treatment on properties of steel
	3 rd	Hardenability of steel
	4 th	MONTHLY TEST-1
9 th	1 st	Aluminum alloys: Composition, property and usage of Duralmin, γ - alloy
	2 nd	Aluminum alloys: Composition, property and usage of Duralmin, γ - alloy
	3 rd	Copper alloys: Composition, property and usage of CopperAluminum, Copper-Tin
	4 th	Copper alloys: Composition, property and usage of Babbit, Phosperous bronze, brass, Copper- Nickel
10 th	1 st	Predominating elements of lead alloys
	2 nd	Zinc alloys
	3 rd	Nickel alloys
	4 th	Low alloy materials like P-91, P-22 for power plants and other 10 high temperature services.
11 th	1 st	High alloy materials like stainless steel grades of duplex, super duplex materials etc.
	2 nd	Classification, composition, properties and uses of Copper base, Tin Base bearing materials
	3 rd	Classification, composition, properties and uses of Lead base, Cadmium base bearing materials
	4 th	Classification, composition, properties and uses of Ironbase spring material
12 th	1 st	Classification, composition, properties and uses of Copper base spring material
	2 nd	Properties and application of thermosetting polymers.
	3 rd	Properties and application of thermoplastic polymers.
	4 th	Properties of elastomers
13 th	1 st	Classification, composition, properties and uses of particulate based and fiber reinforced composites.
	2 nd	Classification, composition, properties and uses of particulate based and fiber reinforced composites.
	3 rd	Classification and uses of ceramics
	4 th	MONTHLY TEST-2
14 th	1 st	previous year questions & answers disscussion
	2 nd	previous year questions & answers disscussion
	3 rd	previous year questions & answers disscussion
	4 th	previous year questions & answers disscussion
15 th	1 st	previous year questions & answers disscussion
	2 nd	previous year questions & answers disscussion
	3 rd	previous year questions & answers disscussion
	4 th	previous year questions & answers disscussion

H.K. Grewal
 24/7/22
 Prepared by:

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 24/07/2022
 H.O.D