ARYAN SCHOOL OF ENGINEERING & TECHNOLOGY

Dicipline: Mech.	Semester: 3rd.	Name of the Teaching Faculty: Tapas Kumar Pandey	
Subject: Engg. Material.	No of Days/Week Class Allotted: 04	Semester From date:_____ To date_____	No.of Weeks:

WEEK	Class Day	Theory Topics
	1st	Engg. Material & their properties :- Material classification into ferrous & non ferrous & alloys.
	2nd	Properties of Materials :- physical, chemical & Mechanical.
	3rd	Performance requirements, Material reliability & safety.
	4th	Ferrous Materials & its alloy Materials characteristics & application of ferrous.
	5th	
	1st	Classification, composition & application of low carbon steel, medium carbon steel, High carbon steel.
	2nd	Alloy steel : low alloy steel, high alloy steel tool steel & stainless steel.
	3rd	Tool steel : Effect of various alloying elements such as Cr, Mn, Ni, V, Mo.
	4th	Iron-Carbon System :- concept of phase diagram & cooling curves
	5th	
	1st	Iron-Carbon System :- concept of phase diagram & cooling curves
	2nd	features of Iron-Carbon diagram with salient micro-constituents in Iron & steel
	3rd	features of Iron-Carbon diagram with salient micro-constituents Iron & steel.
	4th	features of Iron-Carbon diagram with salient micro-constituents in Iron & steel.
	5th	

WEEK	Class Day	Theory
1	1st	Concept of phase diagram & cooling curves
	2nd	features of Iron - Carbon diagram with salient micro - constituents of Iron & steel.
	3rd	(Unit Test - I)
	4th	Discussion with students
	5th	
1	1st	Crystal imperfection :- Crystal defines, classification of crystal, ideal crystal & crystal imperfection
	2nd	Classification of imperfection : point defect line defect, surface defect, & volume defect
	3rd	Types & causes of point defects : vacancies Interstitial & impurities
	4th	Types & causes of line defects : Edge dislocation & Screw dislocation.
1	5th	
1	1st	Effect of imperfection on material properties
	2nd	Deformation by slip & twinning
	3rd	Effect of deformation on material properties
	4th	Effect of deformation on material properties.
1	5th	

Subject: Engg. Materials	No of Days/Week Class Allotted: 04	Semester From date:_____ To date_____	No.of Weeks:

WEEK	Class Day	Theory Topics
	1st	Heat Treatment :- purpose of Heat treatment
	2nd	Process of heat treatment : Annealing, normalizing, hardening, tempering, stress
	3rd	Process of heat treatment : tempering., stress relieving measure.
	4th	Surface hardening :- Carburizing & Nitriding
	5th	Surface hardening :- Carburizing & Nitriding
	1st	Surface hardening : Carburizing & Nitriding
	2nd	Effect of heat treatment on properties steel
	3rd	Effect of heat treatment on properties steel.
	4th	Hardenability of steel.
	5th	
	1st	Non-ferrous alloys :- Alluminum alloy, Composition, property & usage of duralmin Y-alloy
	2nd	Alluminum alloy, Composition, property & usage of duralmin y-alloy
	3rd	Copper alloy : Composition, property & usage of copper Alumenums.
	4th	Copper-Tin, Babbit, Phosphorous bronze, brass copper. Nickel
	5th	

Theory

WEEK	Class Day	
1	1st	Predominating elements of lead alloys. Zinc alloys & Nickel alloys.
	2nd	Predominating elements of lead alloys, Zinc alloy & Nickel alloys
	3rd	low alloy materials like P-91, P-22 for power plants & other
	4th	low alloy materials like P-91, P-22. power plant & other. high temp. ~~material stainless steel grades of duplex, Super~~
1	5th	
	1st	(Unit test - II)
	2nd	discussion with students.
	3rd	Bearing Material :— classification, composition.
	4th	properties and uses of Copper base, Tin Base.
1	5th	~~Rao~~.
	1st	Properties & uses of ~~Copper~~ Lead base. Cadmium base, bearing materials.
	2nd	Spring materials :- classification, composition
	3rd	properties & uses of Iron base
	4th	Properties & uses of Copper base Spring material.
1	5th	

ne: Mech.	Semester: 3rd.	Name of the Teaching Faculty T. K. Panda.	
ject: Engg. Material	No of Days/Week Class Allotted: 04	Semester From date:_____ To date_____	No.of Weeks:

WEEK	Class Day	Theory Topics
	1st	Polymers :- properties & application of thermosetting & thermoplastic polymers
	2nd	Discuss regarding thermosetters & thermo plastics.
	3rd	Properties of elastomers.
	4th	Composites & ceramics :- classification composition.
	5th	
	1st	properties & uses of particulate based & fiber reinforced composites
	2nd	classification & uses of ceramics
	3rd	discussion with students.
	4th	Doubt clearing class.
	5th	
	1st	(Unit Test - III)
	2nd	
	3rd	
	4th	
	5th	