

# PNS SCHOOL OF ENGG. & TECH., MARSHAGHAI

DEPARTMENT OF MECHANICAL ENGINEERING

LESSON PLAN

SUBJECT: ENGINEERING MATERIAL (3RD SEM)

NAME OF THE LECTURER: Mr. JYOTIRMAY JENA

CHAPTER	MONTH	DATE	TOPIC TO BE COVERED
CHAPTER 1&2	SEP	15.09.22	<b>CH-1</b> Material classification
		20.09.22	alloys
		21.09.22	Properties of Materials: Physical , Chemical and Mechanical
		22.09.22	Performance requirements
		23.09.22	Material reliability and safety
		24.09.22	<b>CH-2</b> Characteristics and application of ferrous materials
		27.09.22	Classification, composition-LOW CARBON STEEL
		28.09.22	Classification, composition-medium carbon steel and High carbon steel
		29.09.22	: Low alloy steel, high alloy steel
		30.09.22	TOOL STEEL AND STAINLESS STEEL
CHAPTER 3&4	OCT	10.10.22	Effect of various alloying elements such as Cr, Mn, Ni, V, Mo.
		11.10.22	<b>CH-3</b> Concept of phase diagram
		12.10.22	Concept of COOLING CURVE
		13.10.22	Iron-Carbon diagram
		15.10.22	Iron-Carbon diagram
		18.10.22	Iron-Carbon diagram
		19.10.22	salient micro-constituents OF Iron AND steel
		20.10.22	REVIEW
		22.10.22	<b>CH-4</b> Crystal defines, classification of crystals, ideal crystal
		26.10.22	crystal imperfections
		27.10.22	surface defects and volume defect
		29.10.22	<u>Vacancies, Interstitials and impurities</u>
31.10.22	Edge dislocation and screw dislocation		
CHAPTER 4&5	NOV	01.11.22	Effect of imperfection on material properties
		02.11.22	Deformation by slip and twinning
		03.11.22	Effect of deformation on material properties
		05.11.22	<b>CH-5</b> Purpose of Heat treatment
		09.11.22	Annealing, normalizing,
		10.11.22	hardening, tempering
		12.11.22	stress relieving measures
		15.11.22	Carburizing and Nitriding
		17.11.22	Effect of heat treatment on properties of steel
19.11.22	Hardenability of steel AND REVIEW		
		22.11.22	<b>CH-6</b> Composition, property and usage of Duralmin, $\gamma$ - alloy.
		23.11.22	Composition, property and usage of Copper Aluminum,
		24.11.22	, Copper-Tin, Babbit , Phosphorous bronze, brass,

CHAPTER 6 & 7	NOV	26.11.22	Copper- Nickel, Predominating elements of lead alloys, Zinc alloys and Nickel alloys
		28.11.22	Low alloy materials like P-91, P-22 for power plants and other
		29.11.22	stainless steel grades of duplex, super duplex materials
		30.11.22	review
		01.12.22	<b>CH-7</b> Classification, composition, properties and uses of Copper base
		03.12.22	Tin Base, Lead base, Cadmium base bearing materials
CHAPTER 8,9 & 10	DEC	06.12.22	REVIEW
		07.12.22	<b>CH-8</b> Classification, composition, properties and uses of Iron base
		08.21.22	Copper base spring material
		10.12.22	REVIEW
		12.12.22	<b>CH-9</b> Properties and application of thermosetting
		13.12.22	Properties and application of thermoplastic
		14.12.22	Properties of elastomers
		15.12.22	<b>REVIEW</b>
		16.12.22	<b>CH-10</b> Classification, composition, properties PARTICULATE composites
		17.12.22	Classification, composition, properties REINFORCED composites
		21.12.22	Classification and uses of ceramics
		22.12.22	REVIEW

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