

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF
ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN
Session-2022-2023

Discipline: Mechanical Engg. Engg. Semester: 3rd

Name of the Teaching Faculty: Yadabanand Sambit Barik

Subject: Engineering Material No. of Days/per week class allotted 04

Semester From Date: 15.09.22 To Date: 22.12.22 No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
1	1	Material classification.
	2	Ferrous materials & Non ferrous materials
	3	Properties of material - Physical & Chemical property
	4	Mechanical properties - Elasticity, Plasticity, Hardness,
2	5	Yield strength, Tensile strength, Toughness.
	6	Performance requirements.
	7	Material Reliability & safety.
	8	Ferrous materials & alloys - Characteristics
3	9	Applications of ferrous material
	10	Classification, composition & application of low carbon steel.
	11	Medium carbon steel.
	12	High carbon steel.

Yadabamoni Sombit Sarkar

Signature of the Faculty

Subject: Engineering Material No. of Days/per week class allotted 04

Semester From Date: 15.09.22 To Date: 25.12.22 No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
4	13	Alloy steel - low alloy steel.
	14	High alloy steel.
	15	Tool steel & stainless steel.
	16	Tool steel - effect of various elements such as Cr, Mn, Ni, V, Mo.
5	17	Iron Carbon system - introduction.
	18	Concept of phase diagram & cooling curves.
	19	Features of Iron-Carbon diagram.
	20	Crystal imperfections - crystal definitions.
6	21	Classification of crystals.
	22	Crystal imperfections - point defect, line defect, surface defect, Volume defect.
	23	Types & cause of point defects.
	24	Types & cause of line defects.

Yadabonand Simbit Bansk
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Semester From Date : 15. 09. 22 To Date : 29. 12. 2022 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
7	25	Effect of imperfection on material properties.
	26	Deformation by slip & twinning.
	27	Effect of deformation on material properties.
	28	Heat treatment - purpose.
8	29	Processes of heat treatment.
	30	Surface hardening.
	31	Effect of heat treatment on properties of steel.
	32	Hardenability of steel.
9	33	Non ferrous alloys. Aluminium alloy.
	34	Composition, property & usage.
	35	Copper alloy - composition.
	36	Property and usage of Cu-Al.

Yadabandh Sambit Barik

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Semester From Date: 15.09.2022 To Date: 22.12.2022 No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
10	37	Copper-tin, Babbitt, Phosphorous bronze, brass.
	38	Predominating elements of lead alloys.
	39	Zinc alloy.
	40	Nickel alloy.
11	41	Low alloy material like P-91, P-22,
	42	High alloy steel.
	43	Stainless steel grade of duplex.
	44	Super duplex materials.
12	45	Bearing materials. -
	46	Classification, composition
	47	Properties & uses of copper base,
	48	Tin base, lead base, Cadmium base bearings.

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Semester From Date : 15.09.22 To Date : 22.12.22 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
13	49	Spring materials. - classification
	50	Composition, properties
	51	Uses of Iron-base, Copper base.
	52	Polymers - properties.
14	53	Application of thermosetting.
	54	Application of thermoplastic polymers.
	55	Properties of elastomers.
	56	Composites & ceramics.
15	57	Classification of composites.
	58	Composition, properties & use of composites.
	59	Classification & use of ceramics.
	60	Previous year question discussion.

Katabanand Sarbit Barik
Signature of the Faculty