EM
3rd Mech.

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH

LESSON PLAN

Session-2023-2024

Discipline: Mechanical Engg. Semester: 3rd

Subject: EM

Name of the Teaching Faculty: Yadabanand Sambit Barik

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

Semester From Date : 1.8.23 To Date : 30.8.23 No. of Weeks : 15

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

Yadabanand Saubib Barik

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Semester From Date : 1.8.23 To Date : 30.11.23 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
4	13	Alloy steel.
	14	High alloy steel
	15	Tool steel & stainless steel.
	16	Tool steel – Effect of Cr, Mn, Ni, V, Mo.
5	17	Iron Carbon system.
	18	Concept of phase diagram & cooling curves.
	19	Features of Iron-Carbon diagram.
	20	Crystal Imperfections.
6	21	Classification of crystals
	22	Point defect, line defect, Surface, Volume defect
	23	Type & cause of point defect
	24	Type & cause of line defects.

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Week	Class Day	Theory /Practical Topics
7	25	Effect of imperfection on material properties.
	26	Deformation by slip & twining.
	27	Effect of deformation on material properties.
	28	Heat treatment - purpose.
8	29	Process of heat treatment.
	30	Surface hardening.
	31	Effect of H.T. on properties of steel.
	32	Hardenability of steel.
9	33	Ninferrous alloy - Al alloy
	34	Composition, Property & wage.
	35	Copper alloy - Composition
	36	Properties & wage of Cu - Al

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Semester From Date : 1.8.23 To Date : 30.11.23 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
10	37	Copper-Tin, Babbit, Phosphorous Bronze, brass
	38	Predominating elements of lead alloys
	39	Zinc alloy.
	40	Nickel alloy.
11	41	Low alloy materials 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, compositions
	47	Properties, Class of Cu base
	48	Tin base, lead base, Cadmium base bearings.

Yashbanand Sahib Sonin

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Semester From Date : 1.8.13 To Date : 30.11.13 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
12	49	Spring materials - classification
	50	Composition, properties
	51	Uses of iron base, Cu base
	52	Polymers - properties.
14	53	Application of thermosetting
	54	Application of thermoplastic.
	55	Properties of elastomers
	56	Composite, Ceramics.
15	57	Composites - classification.
	58	Composition, properties, use
	59	Ceramics - use
	60	Previous year question discussion.

Yadalarasu Sunil Kumar

Signature of the Faculty