

LESSON PLAN 2025(W)

SUBJECT:- INTRODUCTION TO MATERIALS ENGINEERING

SUBJECT CODE:- TH-1

SEMESTER:-3rd

BRANCH:-METALLURGICAL

NAME OF FACULTY:- SAGARIKA PALEI

CLASS ALLOTTED:-3P/WEEK

WEEKS	DATE	DATE :- FROM- 14/07/2025 TO 15/11/2025		TEACHING AID
		THEORY- TOPIC/LESSON		
1	15/07/2025 TO 19/07/2025	Introduction Historical perspective Scope of Materials engineering		White board & Marker
2	21/07/2025 TO 26/07/2025	Processing/Structure/Properties/ Performance Correlations Atomic structure and interatomic bonding Fundamental concepts on atoms		White board & Marker
3	28/07/2025 TO 02/08/2025	Bonding Forces and Energies. Interatomic bonds (Covalent bond, Metallic bond, Ionic bond, Hydrogen bond and Van der waals bond)		White board & Marker
4	04/08/2025 TO 09/08/2025	The Structure of Crystalline Solids Crystal and crystallography. Bravais lattices, unit cells.		White board & Marker
5	11/08/2025 TO 16/08/2025	Crystal structures (SC, FCC, BCC and HCP). Point Coordinates, Crystallographic Directions, Crystallographic Planes.		White board & Marker
6	18/08/2025 TO 23/08/2025	Linear and Planar Densities. Close-Packed Crystal Structures.		White board & Marker
7	25/08/2025 TO 30/08/2025	Calculation of APF and Density. Imperfections in Solids Point defects (Vacancies and Self- Interstitials).		White board & Marker
8	01/09/2025 TO 06/09/2025	Dislocations—Linear Defects Interfacial Defects. Bulk or Volume Defects.		White board & Marker
9	08/09/2025 TO 13/09/2025	Mechanical Properties Basic concepts on stress and strain Deformation and its types Hooke's Law Electrical Properties Electrical Resistivity of Metals, Ohm's Law Electrical Conductivity		White board & Marker
10	15/09/2025 TO 20/09/2025	Electronic and Ionic Conduction Energy Band Structures in Solids. Electrical Characteristics of Commercial Alloys. Materials of Importance—Aluminum Electrical Wires.		White board & Marker

11	22/09/2025 TO 27/09/2025	SEMICONDUCTIVITY (Intrinsic Semiconduction and Extrinsic Semiconduction) Factors that Affect Carrier Mobility. Piezoelectricity and Its applications.	White board & Marker
12	08/10/2025 TO 11/10/2025	Magnetic Properties Diamagnetism, Paramagnetism, Ferromagnetism. Antiferromagnetism and Ferrimagnetism Superconductivity	White board & Marker
13	13/10/2025 TO 18/10/2025	Optical Properties Electromagnetic Radiation. Light Interactions with Solids. Atomic and Electronic Interactions.	White board & Marker
14	20/10/2025 TO 25/10/2025	Refraction, Reflection, Absorption and Transmission Applications of optical phenomena (Luminescence, Photoconductivity, Light-Emitting Diodes, Lasers and Optical Fibers In Communications)	White board & Marker
15	27/10/2025 TO 01/11/2025	Engineering Materials Fundamentals of Engineering Materials. Classification of Engineering •	White board & Marker
16	03/11/2025 TO 08/11/2025	Material (Metal, Polymer, Ceramic, Composite and Electronic material) Material Selection	White board & Marker
17	10/11/2025 TO 15/11/2025	Revision.....	White board & Marker

Signature of HDD

Signature of Faculty