

Lesson Plan 2025(S)

Subject: - Applied Physics-II

Course code: - TH-2

Name of faculty: - Subhasmita choudhury

Class allotted: - 4p/week

Semester: - 2nd

Branch: - Mechanical

Weeks	Date/Period	From Date:- 04/02/2025 To 17/05/2025	Teaching Aid
		Theory- Topic/Lesson	
1	04/02/2025 To 08/02/2025	UNIT - 1: Wave motion and its applications Wave motion, transverse and longitudinal waves with examples, definitions of wave velocity, frequency and wave length and their relationship, Sound and light waves and their properties, wave equation ($y = r \sin t$) amplitude, phase, phase difference, principle of superposition of waves and beat formation.	WhiteBoard Marker
2	10/02/2025 To 15/02/2025	(SHM): Simple Harmonic Motion . definition, expression for displacement, velocity, acceleration, time period, frequency etc. Simple harmonic progressive wave and energy transfer, study of vibration of cantilever and determination of its time period, Free, forced and resonant vibrations with examples. Acoustics of buildings – reverberation, reverberation time, echo, noise, coefficient of absorption of sound, methods to control reverberation time and their applications, Ultrasonic waves – Introduction and properties, engineering and medical applications of ultrasonic.	WhiteBoard Marker
3	17/02/2025 To 22/02/2025	UNIT - 2: Optics Basic optical laws; reflection and refraction, refractive index, Images and image formation by mirrors, lens and thin lenses, lens formula, power of lens, magnification and defects. Total internal reflection, Critical angle and conditions for total internal reflection, applications of total internal reflection in optical fiber.	Whiteboard Marker

4	24/02/2025 To 01/03/2025	Optical Instruments; simple and compound microscope, astronomical telescope in normal adjustment, magnifying power, resolving power, uses of microscope and telescope, optical projection systems.	WhiteBoard Marker
5	03/03/2025 To 08/03/2025	UNIT - 3: Electrostatics Coulombs law, unit of charge, Electric field, Electric lines of force and their properties, Electric flux, Electric potential and potential difference, Gauss law: Application of Gauss law to find electric field intensity of straight charged conductor, plane charged sheet and charged sphere. Capacitor and its working, Types of capacitors, Capacitance and its units.	Whiteboard Marker
6	10/03/2025 To 13/03/2025	Capacitor and its working, Types of capacitors, Capacitance and its units. Capacitance of a parallel plate capacitor, Series and parallel combination of capacitors (related numerical), dielectric and its effect on capacitance, dielectric break down.	WhiteBoard Marker
7	17/03/2025 To 22/03/2025	UNIT - 4: Current Electricity Electric Current and its units, Direct and alternating current, Resistance and its units, Specific resistance, Conductance, Specific conductance, Series and parallel combination of resistances. Factors affecting resistance of a wire, carbon resistances and colour coding.	WhiteBoard Marker
8	24/03/2025 To 29/03/2025	Ohm's law and its verification, Kirchhoff's laws, Wheatstone bridge and its applications (slide wire bridge only), Concept of terminal potential difference and Electromotive force (EMF) Heating effect of current, Electric power, Electric energy and its units (related numerical problems), Advantages of Electric Energy over other forms of energy	WhiteBoard Marker
9	02/04/2025 To 05/04/2025	UNIT - 5: Electromagnetism Types of magnetic materials; dia, para and ferromagnetic with their properties, Magnetic field and its units, magnetic intensity, magnetic lines of force, magnetic flux and units, magnetization. Concept of electromagnetic induction, Faraday's Laws,	Whiteboard Marker
	07/04/2025	Lorentz force (force on moving charge in	

10	To 12/04/2025	magnetic field). Force on current carrying conductor, force on rectangular coil placed in magnetic field. Moving coil galvanometer; principle, construction and working, Conversion of a galvanometer into ammeter and voltmeter.	WhiteBoard Marker
11	15/04/2025 To 19/04/2025	UNIT - 6: Semiconductor Physics Energy bands in solids, Types of materials (insulator, semi-conductor, conductor), intrinsic and extrinsic semiconductors, p-n junction, junction diode and V-I characteristics, types of junction diodes.	WhiteBoard Marker
12	21/04/2025 To 26/04/2025	Diode as rectifier – half wave and full wave rectifier (centre taped). Transistor; description and three terminals, Types- pnp and npn, some electronic applications (list only). Photocells, Solar cells; working principle and engineering applications	WhiteBoard Marker
13	28/04/2025 To 03/05/2025	UNIT - 7: Modern Physics Lasers Energy levels, ionization and excitation potentials; spontaneous and stimulated emission; population inversion, pumping methods, optical feedback, Types of lasers; Ruby, HeNe and semiconductor, laser characteristics, engineering and medical applications of lasers.	WhiteBoard Marker
14	05/05/2025 To 10/05/2025	Fiber Optics: Introduction to optical fibers, light propagation, acceptance angle and numerical aperture, fiber types, applications in; telecommunication, medical and sensors. Nanoscience and Nanotechnology: Introduction, nanoparticles and nanomaterials, properties at nanoscale, nanotechnology, nanotechnology based devices and applications.	WhiteBoard Marker
15	13/05/2025 To 17/05/2025	REVISION	WhiteBoard Marker


Signature of HOD

Subhasmita Chaudhury
Signature of faculty