Govt. Polytechnic Hamirpur

Department of Applied Sciences&Humanities

Branch : Electrical. Engg.

Subject : Applied Physics-II

Session : 27th January 2024- 25May2024

Teacher: Pritam Singh Dogra

Class Room:

Proposed Lesson Plan:

Period:27/01/24 to 25/05/24				Total Lectures Planned: 57		
Sr. No.	Week	No. of Lectures	Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1	5th Jan.	3	Wave motion and its applications	Introduction of Applied Physics-II Wave motion, transverse and longitudinal waves with examples	R1, R2, R3 and R4	
	1st Feb.	1		definitions of wave velocity, frequency and wave length and their relationship, Sound and light waves and their properties wave equation (y = r sin ωt) amplitude, phase, phase difference,		
	2nd Feb.	3		Principle of superposition of waves and beat formation Simple Harmonic Motion (SHM): definition, expression for displacement, velocity etc. Definition, expression for acceleration, time period, frequency etc. Free, forced and resonant vibrations and their examples.		
	3rd Feb.	3		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 Revision of whole Chapter		
2	4th feb.	4	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,Total internal reflection, Critical angle and conditions for total internal reflection Applications of total internal reflection in optical fiber	R1, R2, R3 and R4	
	5th Feb.	3		Optical Instruments- simple microscope Optical Instruments- compound microscope astronomical telescope in normal adjustment and their magnifying powers		
	1st Mar.	1		Revision of whole Chapter		
3	2nd Mar.	3	Electrostatics	Coulomb's law, unit of charge Electric field, Electric lines of force and their properties Electric flux, Electric potential and potential difference, Gauss's law	R1, R2, R3 and R4	
	3rd Mar.	4		Capacitor and its working, Capacitance and its units, Capacitance of a parallel plate capacitor Class Test-I Series and parallel combination of capacitors (related numerical), dielectric and its effect on capacitance, dielectric break down Revision of whole Chapter		

4	4th Mar.	4	Current Electricity	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. Ohm's law and its verification, Kirchhoff's laws. Concept of terminal potential difference and Electro motive 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.	R1, R2, R3 and R4	
	5th Mar.	3				
5	1st April	3	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 Lorentz force (force on moving charge in magnetic field), Force on current carrying conductor Moving coil galvanometer; principle, construction and working Conversion of a galvanometer into ammeter and voltmeter. Revision of whole Chapter	R1, R2, R3 and R4	
	2nd April	2				
6	3rd April	3	Semiconductor Physics	Energy bands in solids Class Test-II Types of materials (insulator, semi-conductor, conductor) intrinsic and extrinsic semiconductors. p-n junction, junction diode,V-I characteristics Diode as rectifier – half wave and full wave rectifier (centre taped). Photocells, Solar cells; working principle and engineering applications	R1, R2, R3 and R4	
	4th April	3				
	5th April	2				
7	1st May	3	Modern Physics	Lasers: Energy levels ionization and excitation potentials spontaneous and stimulated emission population inversion, pumping methods, optical feedback Types of lasers; Ruby He-Ne and semiconductor, laser characteristics Engineering and medical applications of lasers and Fiber Optics: Introduction to optical fibers House Test light propagation, acceptance angle and numerical aperture fiber types, applications in; telecommunication medical and sensors Revision of whole Chapter Revision of whole syllabus	R1, R2, R3 and R4	
	2nd May	3				
	3rd May	4				
	4th May	4				

REFERENCE RESOURCES

- Applied -Physics-II by R.A. Banwat (R1)
- Dinesh Publication (A.P.-II) (R2)
- Modern ABC of Physics-II (R3)
- Hiteshi Publications (A.P.-II) (R4)

Signature of Teacher with Date 05/2/24

Signature of H.O.D. with Date