Government College, Chhachhrauli

Summary of Lesson Plan

Name of Teacher: Himshikha Pathak **Academic Session : 2025-26**

Class : BSc II year **Semester : IVSubject :Physics**

Unit	Topic/Chapters to be covered	Duration	Assignment and Tests
III	Polarization: Polarisation by reflection, refraction and scattering, Malus Law	**10-03-26 22-03-26**	
III	Phenomenon of double refraction, Huygens's wave theory of double refraction (Normal and oblique incidence), Analysis of polarized Light. Nicol prism, Quarter wave plate and half wave plate, production and detection of (i) Plane polarized light (ii) Circularly polarized light and (iii) Elliptically polarized light. Optical activity,	**23-03-26 29-03-26**	
III	Fresnel's theory of optical rotation, Specific rotation, Polarimeters (half shade and Biquartz)	**30-03-26 05-04-26**	
IV	Lasers: Basic concept of absorption and emission of radiations, amplification and population inversion; Main components of lasers: (i) Active Medium (ii) Pumping (iii) Optical Resonator;	**06-04-26 12-04-26**	Assignment on fibre optics
IV	Properties of laser beam: Monochromaticity, Directionality, Intensity, Coherence (Spatial & Temporal coherence); Metastable state, Excitation mechanism and Types of Lasers (He-Ne Laser & Ruby Laser), Applications of Lasers	**13-04-26 19-04-26**	Test of unit III
IV	Fibre optics: Optical fibres and their properties, Principal of light propagation through a optical fibre, Acceptance angle and numerical aperture, Types of optical fibles: Single mode and multimode fibres, Advantages and Disadvantages of optical fibres, Applications of optical fibres, Fibre optic sensors: Fibre Bragg Grating	**20-04-26 26-04-26**	

	Revision and test	**27-04-26** **05-05-26**	

Government College, Chhachhrauli

Summary of Lesson Plan

Name of Teacher: Dr. Shruti Bhardwaj **Academic Session : 2025-26**

Class : B.Sc. **Semester : 6th** **Subject :**

Unit	Topic/Chapters to be covered	Duration	Assignment and Tests
1.	**SEMI-CONDUCTOR DIODES:** Serniconductors: Intrinsic and Extrinsic Semiconductor.	**12-01-26 20-01-26**	
1.	P-N Junction diode and its V-I characteristics, Ideal Diode, Zener and Avalanche Breakdown.	**21-01-26 31-01-26**	
1.	Zener Diode and its application as Voltage regulator. Photo-Diode. Light Emitting Diode, Solar Cell.	**01-02-26 08-02-26**	
1.	P-N Junction as Half Wave and Full Wave Rectifiers: Efficiency and Ripple Factor, Comparison of Rectifiers,	**09-02-26 15-02-26**	
1.	Clipping and Clamping circuits, Voltage Multiplier Circuits; Doubler and Tripler.	**16-02-26 22-02-26**	
2.	**THE BIPOLAR TRANSISTOR:** The Bipolar Junction Transistor, Transistor Action and Working (PNP and NPN transistor), Transistor Circuit configurations: Common Base (CB),	**23-02-26 28-02-26**	Test
	HOLI Break	**01-03-26 08-03-26**	

2.	Common Emitter (CE) and Common Collector (CC) configurations, Current Amplification Factors (α, β and y) and Relationship betweert them, Comparison of characteristics of Transistor in different configurations.	**09-03-26** **15-03-26**	
2.	**Amplifiers:** CB, CC and CE amplifiers, Transistor Biasing: selection of operating point, Load line analysts and operating point. Methods of Transistor biasing and stabilization (Fixed Base Bias, Bias with emitter resistor and voltage divider circuit).	**16-03-26** **22-03-26**	
3.	**MULTISTAGE TRANSISTOR AMPLIFIERS:** RC Coupled amplifier (two-stage, concept of bandwidth, no derivation), Classification of amplifiers Class A, B, AB and C amplifiers.	**23-02-26** **29-03-26**	Assignment
3.	**Feedback in Amplifiers:** Principle, Types of feedback, voltage gain, Advantages of negative feedback: Stabilization of gain, reduction in frequency distortion, reduction in non-linear distortion.	**30-03-26** **05-04-26**	
3.	reduction in noise. Effect of negative feedback on Input impedance, output impedance and bandwidth Emitter follower circuit.	**06-04-26** **12-04-26**	
4.	**OSCILLATORS:** Oscillations, Damped and Undamped Oscillations, Oscillatory circuit. Principle of Oscillation.	**13-04-26** **19-04-26**	
4.	Condition for self-sustained oscillation: Barkhausen Criteria for sustained oscillations. Essentials of Transistor oscillator.	**20-04-26** **26-04-26**	
4.	Selection of an Oscillator, Classification of oscillators, LC oscillators; Tuned collector, Tuned Base, Hartley Oscillator, Colpitt's Oscillator, RC oscillators: Phase Shift and Wein Bridge Oscillator.	**27-04-26** **05-05-26**	

Government College, Chhachhrauli

Summary of Lesson Plan

Name of Teacher: Dr. Shruti Bhardwaj **Academic Session : 2025-26**

Class : B.Sc. **Semester : 2nd** **Subject : Electricity,Magnetism and EM Theory**

Unit	Topic/Chapters to be covered	Duration	Assignment and Tests
4.	**Alternating Current Circuits and Network Theorems:** Electric current and current density, Electrical-conduclivity and Ohm's law (Review).	**12-01-26 20-01-26**	
4.	**Alternating Current Circuits:** A resonance circuit, Phasor, Complex Reactance and Impedance, Analysis for RL, RC and LC Circuits, Series LCR Circuit: Resonance, Power Dissipation, Quality Factor and Band Width, Parallel LCR Circuit.	**21-01-26 31-01-26**	
4.	Kirchhof's laws for D.C. networks Network Theorems: Thevenin's Theorem, Norton theorem. Superposition Theorem.	**01-02-26 08-02-26**	
3.	**Time Varying Electromagnetic Fields:** Electromagnetic induction Faraday's laws of induction and Lenz's Law, Self-inductance, Mutual inductance, Energy stored in a Magnetic field, Derivation of Maxwell's equations, Displacement current, Maxwell's equations in differential and integral form and their physical significance.	**09-02-26 15-02-26**	
3.	**Electromagnetic Waves:** Electromagnetic waves, Transverse nature of electromagnetic wave, energy transported by electromagnetic waves.	**16-02-26 22-02-26**	

3.	Poynting vector, Poynting's theorem. Propagation of Plane electromagnetic waves in free space & Dielectrics.	**23-02-26** **28-02-26**	Test
	HOLI Break	**01-03-26** **08-03-26**	
2.	**Magnetic Field:** Biot-Savart law and its simple applications: straight wire and circular loop, Current Loop as a Magnetic Dipole and its Dipole Moment, Ampere's Circuital Law and its applications to (1) Solenoid and (2) Toroid. properties of B: curl and divergence.	**09-03-26** **15-03-26**	
2.	**Magnetic Properties of Matter:** Force on a dipole in an external field, Electric currents in Atoms, Electron spin and Magnetic moment, types of magnetic materials, Magnetization vector (M), Magnetic Intensity (H), Magnetic Susceptibility and permeability,	**16-03-26** **22-03-26**	
2.	Relation between B, H and M, Electronic theory of dia and paramagnetism. Domain theory of ferromagnetism (Langevin's theory), Cycle of Magnetization-B-H curve ind hysteresis loop: Energy dissipation. Hysteresis loss and importance of Hysleresis Curve	**23-02-26** **29-03-26**	Assignment
1.	**Vector Background and Electric Field:** Gradient of a scalar and its physical significance, Line, Surface and Volume integrals of a vector and their physical significance, Flux of a vector field.	**30-03-26** **05-04-26**	
1.	Divergence and curl of a vector and thieir physical significance, Gauss's divergence theorem.	**06-04-26** **12-04-26**	
1.	Stoke's theorem. Conservative nature of Electrostatic Field, Electrostatic Potential, Potential as line integral of field.	**13-04-26** **19-04-26**	

1.	potential difference Derivation of electric field E from potential as gradient. Derivation of Laplace and Poisson equations.	**20-04-26** **26-04-26**	
1.	Electric flux, Gauss's Law. Differential form of Gauss's law and applications of Gauss's law. Mechanical force of charged surface. Energy per unit volume.	**27-04-26** **05-05-26**	

Government College, Chhachhrauli

Summary of Lesson Plan

Name of Teacher: Dr. Sandeep Kumar **Academic Session : 2025-26**

Class : B.Sc. **Semester : 4th** **Subject : Wave And Optics**

Unit	Topic/Chapters to be covered	Duration	Assignment and Tests
1.	**Interference by Division of wavefront:** Young's experiment, phase difference.	**12-01-26 20-01-26**	
1.	Fresnel's biprism and its applications to determine the wavelength of sodium light and thickness of a mica sheet. phase change on reflection.	**21-01-26 31-01-26**	
1.	**Interference by Division of Amplitude:** Plane parallel thin film, production of colors inthin films, classification of fringes in films.	**01-02-26 08-02-26**	
1.	Interference due to transmitted light and reflected light, wedge shaped film, Newton's rings.	**09-02-26 15-02-26**	
2.	**Fresnel's diffraction:** Huygen-Fresnel's theory, Fresnel's assumptions, rectilinear propagation of light, diffraction at a straight edge, rectangular slit and diffractions circular aperture Diffraction due to a narrow slit, diffraction due to a narrow wire.	**16-02-26 22-02-26**	
2.	**Fraunhoffer diffraction:** Single slit diffraction, double slit diffraction, plane transmission grating spectrum,	**23-02-26 28-02-26**	Test

	HOLI Break	**01-03-26** **08-03-26**	
2.	dispersive power of grating, limit of resolution, resolving power of telescope and a grating Rayleigh's criterion,	**09-03-26** **15-03-26**	
3.	**Polarization:** Polarization by reflection refraction and scattering, Malus Law, Phenome of double refraction, Huygen's wave theory of double refraction (Normal and lig incidence), Analysis of polarized Light. Nicol prism,	**16-03-26** **22-03-26**	
3.	Quarter wave plate and half plate, production and detection of (i) Plane polarized light (ii) Circularly polarized and (iii) Elliptically polarized light.	**23-02-26** **29-03-26**	Assignmen**t**
4.	Optical activity, Fresnel's theory of optical m Specific rotation. Polarimeters (half shade and Biquartz).	**30-03-26** **05-04-26**	
4.	**Lasers:** Basic concept of absorption and emission of radiations, amplificati population inversion, Main components of lasers: (i) Active Medium (ii) P (iii) Optical Resonator, Properties of laser beam; Monochromaticity, Directionality, Intensity.	**06-04-26** **12-04-26**	
4.	Coherence (Spatial & Temporal coherence); Metastable state, Excitation mechanism and Types of Lasers (He-Ne Laser & Ruby Laser), Applications of Laser.	**13-04-26** **19-04-26**	
4.	**Fibre Optics:** Optical fibres and their properties, Principal of light propagation through a optical fibre, Acceptance angle and numerical aperture.	**20-04-26** **26-04-26**	
4.	Types of optical fibles: single mode and multimode fibres, Advantages and Disadvantages of optical fibres,Application of optical fibres, Fibre optic sensors, Fibre Bragg Grating..	**27-04-26** **05-05-26**	