

# SHYAM LAL COLLEGE, UNIVERSITY OF DELHI

## LESSON PLAN

<b>Name of Teacher</b>	<b>Mr. MAN RAJ MEENA</b>	<b>Department</b>	<b>Physics</b>
<b>Course</b>	<b>B.Sc. (Physical Science)</b>	<b>Semester</b>	<b>IV (Sec A and Sec B)</b>
<b>Paper</b>	<b>Waves and Optics</b>	<b>Academic Year</b>	<b>2023-2024</b>
<b>Week No./ Period</b>	<b>Theme/ Curriculum</b>		
<b>1. 19-20th Jan 2024</b>	<b>Unit 1:</b> Simple harmonic motion (SHM). Superposition of Two Collinear Harmonic Oscillations: Linearity and Superposition Principle. (1) Oscillations having equal frequencies and (2) Oscillations having different frequencies (Beats).		
<b>2. 22Jan-3 Feb 2024</b>	Superposition of two perpendicular harmonic oscillations: Graphical and analytical methods. Lissajous figures with equal and unequal frequencies and their uses.		
<b>3. 5 Feb to 10 Feb 2024</b>	Superposition of two harmonic Waves: Standing (stationary) waves in a string; normal modes of stretched strings.		
<b>4. 12 Feb to 17 Feb 2024</b>	<b>Unit – II</b> Interference: Division of amplitude and division of wavefront; Young’s double slit experiment: width and shape of fringes;		
<b>5. 19 Feb to 24 Feb 2024</b>	Fresnel’s biprism; Lloyd’s mirror; Phase change on reflection: Stokes’ treatment;		
<b>6. 26Feb to 2 March 2024</b>	Interference in thin films: parallel and wedge-shaped films.		
<b>7. 4March to 9 March 2024</b>	Fringes of equal inclination (Haidinger fringes); Fringes of equal thickness (Fizeau Fringes);		
<b>8.11 March to 16 March 2024</b>	Newton’s rings: Measurement of wavelength and refractive index.		

<b>9. 18 March to 23 March 2024</b>	Unit – III Diffraction: Fraunhofer diffraction: Single slit, double slit
<b>10. 24 March to 31 March 2024</b>	<b>Mid-Semester Break, Assignment to be given for Internal Assessment</b>
<b>11. 1 Apr to 6 Apr 2024</b>	double slit, diffraction grating, Class Test to be taken
<b>12. 8 Apr to 13 Apr 2024</b>	Fresnel diffraction: Fresnel's assumptions. Fresnel's half-period zones for plane wave.
<b>13. 15 Apr to 20 Apr 2024</b>	Explanation of rectilinear propagation of light; Fresnel's diffraction pattern of a straight edge,
<b>14. 22Apr to 27 Apr 2024</b>	a slit and a wire using half-period zone analysis
<b>15. 29 Apr to 4 May 2024</b>	Numerical and Doubt Solving Week on Optics and Waves
<b>16. 6 May to 11 May 2024</b>	Revision from Old Question Papers
<b>12 May 2024</b>	<b>Dispersal of Classes, Preparation Leave, and Practical Examination Begin</b>

**B. Sc. (P) Physical Sciences VI Sem. (CBCS)**

**Paper –: BASIC INSTRUMENTATION SKILLS**

**Jun 20, 2016- May 5, 2024**

**Mid semester break: 24 March to 31 March 2024**

**Teacher's Name – Mr. Man Raj Meena**

Week	Date	Topic	Lectures
1st	18 Jan - 27 Jan 2024	<b>Basic of Measurement:</b> Instruments accuracy, precision, sensitivity, resolution range etc. Errors in measurements and loading effects.	2
2nd	29 Jan - 3 Feb 2024	<b>Multimeter: Principles of Measurement of dc voltage and dc current, ac voltage, ac current and resistance.</b> Specifications of a	2
3rd	5 Feb - 10 Feb 2024	<b>Electronic Voltmeter:</b> Advantage over conventional multimeter for voltage measurement with respect to input impedance and sensitivity.	2
4th	12 Feb - 17 Feb 2024	Specifications of an electronic Voltmeter/Multimeter and their significance. AC millivoltmeter: Type of AC millivoltmeters. Block diagram ac millivoltmeter. specifications	2
5th	19 Feb- 24 Feb 2024	<b>Oscilloscope:</b> Block diagram of basic CRO. CRT, electrostatic focusing and acceleration (Explanation only– no mathematical treatment) Brief discussion	2

6th	26 Feb - 2 March 2024	Time base operation, synchronization. Front panel controls. Specifications of CRO and their significance. Use of CRO for the	2
7th	4 March - 9 March 2024	Special features of dual trace, introduction to digital oscilloscope, probes. Digital	2
8th	11 March - 16 March 2024	<b>Signal and pulse Generators:</b> Block diagram, explanation and specifications of low	2
9th	18 March - 23 March 2024	Brief idea for testing, Specifications <i>Distortion factor meter, wave</i>	2
10th	1 Apr - 6 Apr 2024	<b>Impedance Bridges:</b> Block diagram of bridge. working principles of basic	2
11th	8 Apr - 13 Apr 2024	RLC bridge. Specifications of RLC bridge. Block diagram & working principles of a Q- Meter. Digital	2
12th	15 Apr - 20 Apr 2024	<b>Digital Instruments:</b> Comparison of analog & digital instruments. Characteristics of a digital	3
13th	22 Apr - 27 Apr 2024	<b>Digital Multimeter:</b> Block diagram and working of a digital multimeter.	3
14th	29 Apr - 4 May 2024	Working principle of time interval, frequency and period measurement using universal counter/ frequency counter,	2
15th	6 May - 11 May 2024	Practice and Revision	2

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