

**SVRK GOVERNMENT DEGREE COLLEGE: NIDADAVOLE**  
**TABLE – A – CURRICULAR PLAN – LECTURERE WISE: 2024-25**

**NAME OF THE LECTURER:** S. NAGESWARA RAO

**DEPARTMENT:** Physics **CLASS:** II B.Sc. Honors (Comp.Sci)

**YEAR:** II

**SEMESTER:** III

**COURSE:** Physics Minor – Course II - (Optics)

SERIAL NUMBER	MONTH & WEEK	HOURS AVAILABLE	SYLLABUS TOPIC	ADDITIONAL INPUT /VALUE ADDITION	CURRICULAR ACTIVITY				CO-CURRICULAR ACTIVITY				REMARKS
					ACTIVITY	HOURS ALLOTTED	WHETHER CONDUCTED	IF NOT, ALTERNATIVE DATE	ACTIVITY	HOURS ALLOTTED	WHETHER CONDUCTED	IF NOT, ALTERNATIVE DATE	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	July 1 <sup>st</sup> week	3	<b>UNIT-I Aberrations:</b> Monochromatic aberrations, Spherical aberration, Methods of minimizing spherical aberration,	Deviation produced by a thin lens and Dispersion through a Prism.	Lecture + Experimental teaching	3 2							
2	July 2 <sup>nd</sup> week	3	Coma, Astigmatism and Curvature of field, Distortion;		Interactive + Experimental teaching	2 2			Assignment	1			
3	July 3 <sup>rd</sup> week	3	Chromatic aberration-the achromatic doublet; Achromatism for two lenses (i) in contact and (ii) separated by a distance		Lecture + Experimental teaching	3 2							

4	July 4 <sup>th</sup> week	3 2	<b>Unit – II- Interference:</b> Principle of superposition – coherence Conditions for interference of light. Fresnel's biprism determination of wavelength of light –change of phase on reflection	Young's double slit Experiment and Llyod's mirror	Lecture + Experimental teaching	2 2			Quiz	1			
5	August 1 <sup>st</sup> week	3 2	Oblique incidence of a plane wave on a thin film due to reflected light (cosine law) –colors of thin films- Interference by a film with two non-parallel reflecting surfaces (Wedge shaped film). Determination of diameter of wire,		Lecture + Experimental teaching	3 2							
6	August 2 <sup>nd</sup> week	3 2	Newton's rings in reflected light. Determination of wavelength of monochromatic light using Newton's rings and Michelson Interferometer.		Lecture + Experimental teaching	3 2							
7	August 3 <sup>rd</sup> week	3 2	<b>UNIT-III Diffraction:</b> Introduction, distinction between Fresnel and Fraunhofer diffraction,	Fraunhofer diffraction at double slit and circular aperture	Lecture + Experimental teaching	2 2			Seminar	1			
8	August 4 <sup>th</sup> week	1 2	Fraunhofer diffraction – Diffraction due to single slit-Fraunhofer		Lecture + Experimental teaching	1 2			<b>I MID Examinations</b>	2			
9	September 1 <sup>st</sup> week	3 2	Fraunhofer diffraction pattern with N slits (diffraction grating). Resolving power of grating, Determination of wavelength of light in normal incidence using diffraction grating.		Lecture + Experimental teaching	3 2			Assignment	1			
10	September 2 <sup>nd</sup> week	3 2	Fresnel's half period zones-area of the half period zones-zone plate-comparison of zone plate with convex lens-difference between interference and diffraction.		Lecture + Experimental teaching	3 2							

11	September 3 <sup>rd</sup> week	3 2	<b>UNIT-IV Polarization:</b> Polarized light: methods of polarization by reflection, refraction, double refraction, Brewster's law-	BABINET's Compensator And biquartz polarimeter	Lecture + Experimental teaching	2 2			Group discussion/ Quiz	1			
12	September 4 <sup>th</sup> week	3 2	Mauls law-Nicol prism polarizer and analyser, Quarter wave plate, Half wave plate		Lecture + Experimental teaching	3 2							
13	October 1 <sup>st</sup> week	3 2	optical activity, determination of specific rotation by Laurent's half shade Polarimeter. Idea of elliptical and circular polarization		Lecture + Experimental teaching	2 2			Student seminar	1			
14	October 2 <sup>nd</sup> week	3 2	<b>UNIT-V Lasers and Holography:</b> Lasers: introduction, spontaneous emission, stimulated emission. Population Inversion, Laser principle-Einstein Coefficients	Gabor hologram. Recording of hologram and	Lecture + Experimental teaching	2 2			Assignment	1			
15	October 3 <sup>rd</sup> week	3 2	Types of lasers-He-Ne laser, Ruby laser- Applications of lasers. Holography: Basic principle of holography-Gabor hologram and its limitations, Applications of holography.	Reconstructi on of image from hologram.	Lecture + Experimental teaching	2 2			Assignment	1			
16	October 4 <sup>th</sup> week	3 2	Revision		revision	1			<b>II MID Examinations</b>	2			

SIGNATURE OF THE LECTURER

SIGNATURE OF THE DEPARTMENT INCHARGE

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