SGK Government Degree College, Vinukonda

Semester Wise Curricular Plan :2020-21

Name of the Lecturer: B. Nageswara Rao

Name of the Department: PHYSICS

Class: BSc Year: I

Paper:2.WAVE OPTICS

Month	Week	Hours available	Syllabus topic	Proposed Learning Objective	Proposed teaching method	Additional Input/ Value Addition /taught	Curricular Activity				Co-curricular Activity				Remarks
							Activity Proposed	Hours allotted	Whether conducted	If not, alternate date	Activity Proposed	Hours allotted	Whether conducted	If not, alternate date	
Aug-21	4	4(Theory)	Lasers: Introduction, Spontaneous emission, stimulated emission, Population Inversion, Laser principle, Einstein coefficients	Understand the principle involved in laser action	Lecture method,question& answer method	Absorption of radiation	Teaching	4							
		2(Lab)	Determination of wavelength of light using diffraction grating-minimum deviation method		virtual lab		Vedio demo	1			prepare observation notes	1			
Sep-21	1	4(Theory)	Types of lasers-He-Ne laser, Ruby laser, Applications of lasers; Holography: Basic principle of holography, Applications of holography	Understand the working of He-Ne,Ruby lasers	Lecture method,question& answer method	Gas lasers	Teaching	4			Assignments				
		2(Lab)	Determination of wavelength of light using diffraction grating-minimum deviation method		Leccture Demonstration		Demonstration	2							

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Sep-21	2	4(Theory)	Interference of light,Conditions for interference of light,division of wave front and amplitude,Phase change on reflection,Stokes' treatment, Lloyd's single mirror	Know the phenomenon of interference	Lecture method,question& answer method	Super position of waves	Teaching	3			Group discussion	1			
		2(Lab)	Determination of wavelength of light using diffraction grating-normal incidence method		virtual lab		Vedio demo	2							
	3	4(Theory)	Interference in thin films, Plane parallel and wedge shaped films, colours in thin films, Newton's rings	Understand the process of formation of newton rings	Lecture method,question& answer method	notes	Teaching	3			Seminars	1			
		2(Lab)	Determination of wavelength of light using diffraction grating-normal incidence method		Lecture Demonstration		Demonstration	1			Viva voce	1			
	4	4(Theory)	Michelson interferometer,Diffraction of light,Types of diffraction: Fresnel and Fraunhoffer diffractions	Observe the formation of diffraction patterns	ppt,Lecture method,question& answer method	light properties	Teaching	4			Assignments				
		2(Lab)	Resolving power of grating		virtual lab		Vedio demo	2							

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Oct-21	1	4(Theory)	Fraunhoffer diffraction at a single slit, Plane diffraction grating,diffraction grating, Resolving power of grating.	understand the working of diffraction grating	Lecture method,question& answer method	Inertial& Non inertial frames	Teaching	4							
		2(Lab)	Dispersive power of a prism.		virtual lab	Basic idea of prism	Demonstration	1			Viva voce	1			
	2	4(Theory)	Fresnel's half period zones,rectilinear propagation of light, Zone plate, comparison of zone plate with convex lens	know the construction and working of zone plate	Lecture method,question& answer method		Teaching	3			Quiz	1			
		2(Lab)	Determination of radius of curvature of a given convex lens-Newton's rings		Lecture Demonstration		Demonstration	2							
	3	4(Theory)	Polarized light, Methods of production of plane polarized light, Double refraction, Brewster's law	understand the various methods of polarisation	Lecture method,question& answer method	Numerical problems	Teaching	3			Group discussion	1			
		2(Lab)	Determination of radius of curvature of a given convex lens-Newton's rings		Virtual lab		Demonstration	2							

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							Activity Proposed	Hours allotted	Whether conducted	If not, alternate date	Activity Proposed	Hours allotted	Whether conducted	If not, alternate date	
Oct-21	4	4(Theory)	Malus law, Nicol prism, Nicol prism as polarizer and analyzer, Quarter wave plate, Half wave plate, Plane, Circularly and Elliptically polarized light-Production and detection	able to undersatnd how nicol prism used as polariser and analiser	Lecture method,question& answer method	Determinent of matrices	Teaching	4			Assignments				
		2(Lab)	Refractive index of a liquid-hallow prism		virtual lab		Vedio demo	2							
Nov-21	1	6(Theory)	Laurent's half shade polarimeter, Monochromatic aberrations, Spherical aberration, Methods of minimizing spherical aberration, Coma, Astigmatism and Curvature of field, Distortion; Chromatic aberration-the achromatic doublet; Achromatism for two lenses	understand the reasons behind formation abberations in lenses	Lecture method,question& answer method		Teaching	5			Seminars	1			