Lesson Plan

Name of Institute : Ambala College of Engineering and Applied Research, Devsthali.

Name of the Faculty member: Mr. Ajay Singh

Discipline : Applied Sciences and Humanities

Semester : 2nd

Subject : Applied Physics BS-111A

Applied Physics Lab BS-113 LA

Lesson Plan Duration : 15 weeks (from January 2020-April, 2020)

Work Load : L-3, T-1, P-3

Week	Theory		Practical	
	Lecture day	Topic (including assignment/ test)	Practical day	Topic
1st	1st	**Interference:** Principle of Superposition, Conditions for interference	1st	1)To verify Newton's formula and hence to find the focal length of the given convex lens.
	2nd	Division of wave-front: Fresnel's Biprism and Applications,		
	3rd	Division of amplitude: Wedge-shaped film,		
2nd	4th	Newton's rings	2nd	2)To find the frequency of A.C. mains by using Sonometer and horse shoe magnet
	5th	Michelson Interferometer and Applications		
	6th	**Diffraction:** Types of diffraction, Fraunhofer diffraction at a single slit		
3rd	7th	Plane transmission diffraction grating: theory,	3rd	3)To find the resistance of a galvanometer by post office box
	8th	secondary maxima and minima, width of principal maxima		
	9th	absent spectra, overlapping of spectral lines, determination of wavelength		
4th	10th	Dispersive power and resolving power of diffraction grating.	4th	4)To convert a galvanometer into an ammeter of desired range and verify the same
	11th	**Revision of 1st unit**		
	12th	**Polarization:** Polarization of transverse waves, Plane of polarization, Polarization by reflection		

5th	**13th**	Double refraction, Nicol Prism,	**5th**	**Viva Voce**
	14th	Quarter and half wave plate		
	15th	Specific Rotation, Laurent 's half shade polarimeter		
6th	**16th**	Biquartzpolarimeter.	**6th**	**5)** To find the wavelength of monochromatic light by Newton's ring experiment
	17th	**Laser:** Introduction, Stimulated Absorption, Spontaneous and Stimulated Emission		
	18th	Einstein's Coefficients and its derivation,		
7th	**19th**	Population Inversion, Direct and Indirect pumping, Pumping schemes, Main components of Laser,	**7th**	**6**)To find the wavelength of sodium light by Michelson's interferometer
	20th	He-Ne Laser,		
	21st	Semiconductor Laser, Characteristics of Laser, Applications of Laser.		
8th	**22nd**	**Revision of 2nd unit**	**8th**	7)To find the resolving power of telescope.
	23rd	**Optical Fiber:** Introduction, Principle of propagation of light waves in optical fibers: total internal reflection		
	24th	acceptance angle, numerical aperture, V- number;		
9th	**25th**	Modes of propagation, Types of optical fibers: single mode fiber, multimode fibers	**9th**	**8)** To find the wavelength of sodium light using Fresnel bi-prism
	26th	Fiber optics communication system		
	27th	Advantages of optical fiber communication, Applications of optical fibers.		
10th	**28th**	**Ultrasonics:** Ultrasonic waves, Properties of ultrasonic waves	**10th**	**Viva Voce**
	29th	Production of ultrasonic waves: Magnetostriction		
	30th	Piezoelectric methods		
11th	**31st**	Detection of ultrasonic waves	**11th**	9)To find the wavelength of various colours of white light with the help of plane transmission diffraction grating
	32nd	Measurement of velocity of ultrasonic waves, Applications of ultrasonic waves.		
	33rd	**Revision of 3rd unit**		
12th	**34th**	**Nuclear radiations and its Biological Effects:** Classification of nuclear radiations	**12th**	**10)** To find the specific rotation of sugar solution by

	35th	Interaction of charged particle (light and heavy)		using a Polarimeter.
	36th	gamma radiations with matter (basic concepts),		
13th	**37th**	Dosimetric units, Relative Biological Effectiveness (RBE)	**13th**	**Viva Voce**
	38th	Typical doses from commons sources in the environment		
	39th	Biological Effects		
14th	**40th**	Maximum Permissible Dose(MPD)	**14th**	**Internal Viva**
	41st	Shielding, Radiation safety in the nuclear radiation laboratory		
	42nd	**Biomaterials:** Introduction Classification of biomaterials		
15th	**43rd**	Applications.	**15th**	**Doubts/Revision**
	44th	Revision of 4th unit		
	45th	Revision/ Doubts		

Mr Ajay Singh

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