

**BHAI GURDAS INSTITUTE OF ENGINEERING &
TECHNOLOGY**

DEPARTMENT OF APPLIED SCIENCES

LESSON PLAN

**Subject Name: - Optics and Electromagnetism
BTPH-106-18**

Subject Code: -

Year: - 2022-23

Semester: - 2ND

Lecture	Unit	Date/ Week	Topic	Teaching Aids	Reference
Lecture :1	UNIT-I	WEEK-1	Introduction to Diffraction	Chalk Board	Engineering physics by Dr. Rakesh Dogra
Lecture :2			Concept of diffraction	Presentation	
Lecture :3			Fraunhofer and Fresnel diffraction and its type	Chalk Board	
Lecture :4			Numerical problems	Chalk Board	
Lecture :5		WEEK-2	Diffraction grating and its applications	Presentation	Engineering physics by Dr. Rakesh Dogra
Lecture :6			Introduction to polarization	Chalk Board	
Lecture :7			Scattering of light and optical activity	Chalk Board	
Lecture :8			Numerical problems	Chalk Board	
Lecture :9		WEEK-3	Introduction to Fibre optics	Chalk Board	S Chanda Engineering Physiics
Lecture :10			Impedence matching, Standing wave , Longitudnal waves and their equation	Chalk Board	
Lecture :11			Free electron theory, Drude model, Dependence of Fermi level on carrier concentration and temperature	Presentation	
Lecture :12			Numerical problems	Chalk Board	
Lecture :13		WEEK-4	Bloch theorm, Density of states in 1-D,2-D, 3-D And origin of energy bands	Presentation	S Chanda Engineering Physiics
Lecture :14			Problem discussion	Chalk Board	
Lecture :15			Numerical problems	Chalk Board	
Lecture :16	UNIT-II	WEEK-5	Introduction to Optics and laser	Presentation	Engineering physics by Dr. Rakesh Dogra
Lecture :17			Young's double slit experiment	Presentation	
Lecture :18			Hygens's Principle	Presentation	
Lecture :19			Numerical problems	Chalk Board	
Lecture :20		WEEK-6	Michelson interferometer	Presentation	
Lecture :21			Classification of Diffraction	Presentation	
Lecture :22			Methods of Obtaining Interference patterns; division by wavefront and amplitude	Chalk Board	
Lecture :23			Numerical problems	Chalk Board	
Lecture :24		WEEK-7	Diffraction grating and resolution power	Chalk Board	Engineering physics by Dr. Rakesh Dogra
Lecture :25			Laser; stimulated absorption, spontaneous emission, stimulated emission	Presentation	
Lecture :26			Light amplification of stimulated emission of radiations;Population inversion and conditions of laser action	Presentation	
Lecture :27			Numerical problems	Chalk Board	
Lecture :28		WEEK-8	Various notes and properties of laser beam	Chalk Board	
Lecture :29			Types of laser; solid state and gas laser and its applications	Presentation	
Lecture :30	He-Ne laser and Ruby laser working and applications		Presentation		

Lecture :31			Numerical problems	Chalk Board		
Lecture :32	UNIT-III	WEEK-9	Problem discussion	Chalk Board		
Lecture :33			Introduction to Quantum mechanics	Chalk Board	Engineering physics by Dr. Rakesh Dogra	
Lecture :34			Wave nature of particles	Chalk Board		
Lecture :35			Numerical problems	Chalk Board		
Lecture :36		WEEK-10	Probability density	Chalk Board		Engineering physics by Dr. Rakesh Dogra
Lecture :37			Uncertainty Principle	Chalk Board		
Lecture :38			Time dependent and independent schrodinger equation for wave function	Chalk Board		
Lecture :39			Numerical problems	Chalk Board		
Lecture :40		WEEK-11	Solution of stationary states schrodinger equation for one dimension particle in box	Chalk Board	S Chanda Engineering Physiics	
Lecture :41			Expectation values	Chalk Board	S Chanda Engineering Physiics	
Lecture :42			Linear Harmonic oscillator	Presentation		
Lecture :43			Numerical problems	Chalk Board		
Lecture :44		UNIT-IV	WEEK-12	Introduction to Semiconductors and Solids	Chalk Board	Engineering physics by Dr. Rakesh Dogra
Lecture :45				P type and N type semiconductors	Chalk Board	
Lecture :46	Carrier generation and recombination process			Chalk Board		
Lecture :47	Numerical problems			Chalk Board		
Lecture :48	WEEK-13		Types of electronic materials	Chalk Board		
Lecture :49			Carrier transport	Chalk Board		
Lecture :50			PN Junction diode and Zener diode	Chalk Board		
Lecture :51			Numerical problems	Chalk Board		
Lecture :52	WEEK-14		Problem Discussion	Chalk Board	Engineering physics by Dr. Rakesh Dogra	
Lecture :53			Previous year question paper discussion	Class Test		
Lecture :54			Numerical problems	Chalk Board	Engineering physics by Dr. Rakesh Dogra	
Lecture :55		Doubt session	Chalk Board			