BHAI GURDAS INSTITUTE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF APPLIED SCIENCES

LESSON PLAN

Subject Name: - Optics and Modern Physics **Subject Code: - BTPH-102-18**

Year: - 2022-23 **Semester: - 2ND**

Lecture	Unit	Date/ Week	Topic	Teaching Aids	Reference
Lecture :1	UNIT -I	WEEK-1	**Introduction to Oscillators**	Chalk Board	Engineeering physics by Dr. Rakesh Dogra
Lecture :2			Simple Harmonic oscillators and its Differential equations	Presentation	
Lecture :3			Forced Mechanical Oscillator and its fundamentals	Chalk Board	
Lecture :4			Numerical problems	Chalk Board	
Lecture :5		WEEK-2	Damping and Damped oscillations and steady state motion	Presentation	Engineeering physics by Dr. Rakesh Dogra
Lecture :6			Waves and transverse wave equation of string	Chalk Board	
Lecture :7			Wave equation of string	Chalk Board	
Lecture :8			Numerical problems	Chalk Board	
Lecture :9		WEEK-3	Reflection and Transmission of string	Chalk Board	S Chanda Engineering Physiics
Lecture :10			Impendence 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	Presentation	Semiconductor physics by S.P Taneja and Sandeep Rajan

			1-D,2-D, 3-D And origin of energy bands		
Lecture :14			Problem discussion	Chalk Board	
Lecture :15			Numerical problems	Chalk Board	
Lecture :16	UNIT -II	WEEK-5	**Introduction to Optics and laser**	Presentation	Engineeering 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	https://youtube.com/watch?v=6EIzGeU27vw&si=EnSIkaIECMiOmarE
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	Engineeering 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	
Lectur			He-Ne laser and	Presentatio	https://youtube.com/watch?

e :30			Ruby laser working and aplications	n	v=RyY4PEpV2RQ&si=EnSIkaIECMiOmarE
Lecture :31			Numerical problems	Chalk Board	
Lecture :32	UNIT -III	WEEK-9	Problem discussion	Chalk Board	
Lecture :33			**Introduction to Quantum mechanics**	Chalk Board	Engineeering 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	Engineeering physics by Dr. Rakesh Dogra
Lecture :37			Uncertainity 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	https://youtube.com/watch?v=hXdGKLMLq-Y&si=EnSIkaIECMiOmarE
Lecture :43			Numerical problems	Chalk Board	
Lecture :44	UNIT -IV	WEEK-12	**Introduction to Semiconductors and Solids**	Chalk Board	Semiconductor physics by S.P Taneja and Sandeep Rajan
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	
Lectur			Numerical	Chalk	

e :51			problems	Board	
Lectur e :52		WEE K-14	Problem Discussion	Chalk Board	Semiconductor physics by S.P Taneja and Sandeep Rajan
Lectur e :53			Previous year question paper discussion	Class Test	
Lectur e :54			Numerical problems	Chalk Board	Engineeering physics by Dr. Rakesh Dogra
Lectur e :55			Doubt session	Chalk Board	