

BHAI GURDAS INSTITUTE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF APPLIED SCIENCES

LESSON PLAN

Subject Name: - Electromagnetism

Subject Code: - BTPH-103-

18

Year: - 2022-23

Semester: - 2nd

Lecture	Unit	Date/Week	Topic	Teaching Aids	Reference	
Lecture :1	UNIT-I	WEEK-1	Introduction to electric field and electric potential.	Chalk Board	Engineering physics by Dr. Rakesh Dogra	
Lecture :2			Distribution of charges and divergence and curl of electric field	Presentation		
Lecture :3			Laplace's and Poisson's equation for electric potential.	Chalk Board		
Lecture :4			Numerical problems	Chalk Board		
Lecture :5		WEEK-2	Uniqueness theorem with examples	Presentation	Engineering physics by Dr. Rakesh Dogra	
Lecture :6			Boundary conditions of electric field	Chalk Board		
Lecture :7			Average energy density of electric field	Chalk Board		
Lecture :8			Numerical problems	Chalk Board		
Lecture :9		WEEK-3	Electric dipole and electric dipole moment	Chalk Board	S Chanda Engineering Physics	
Lecture :10			Polarization of dielectric slab	Chalk Board		
Lecture :11			Electric displacement with examples	Presentation		
Lecture :12			Numerical problems	Chalk Board		
Lecture :13		WEEK-4	Charge in front of a dielectric slab	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 Biot savart's law and its derivation	Presentation	Engineering physics by Dr. Rakesh Dogra	
Lecture :17			Divergence and curl of magnetic field	Presentation		
Lecture :18			Concept of vector potential, magnetization	Presentation		
Lecture :19			Numerical problems	Chalk Board		
Lecture :20		WEEK-6	Magnetization of bound current and magnetic field	Presentation	Electricity and Magnetism by Dr. A.K. Sikri	
Lecture :21			Boundary conditions of magnetization and magnetic field	Presentation		
Lecture :22			Magnetic susceptibility and magnetic field due to bar magnet	Chalk Board		
Lecture :23			Numerical problems	Chalk Board		
Lecture :24		WEEK-7	Concept of paramagnetic, diamagnetic and ferromagnetic substances	Chalk Board	Engineering physics by Dr. Rakesh Dogra	
Lecture :25			Hysteresis loop and B-H curve	Presentation		
Lecture :26			Numerical problems	Chalk Board		
Lecture :27		UNIT-III	WEEK-8	Introduction and derivation of Faraday's laws of electromagnetic induction	Chalk Board	Engineering physics by Dr. Rakesh Dogra
Lecture :28				Mathematical formation of motional EMF	Presentation	
Lecture :29	Brief information of Lenz law			Presentation		
Lecture :30	Numerical problems			Chalk Board		
Lecture :31	WEEK-9		Problem discussion	Chalk Board	Electricity and Magnetism	
Lecture :32			Experimental verification of lenz law	Chalk Board		

Lecture :33	UNIT-IV		Some important questions related to lenz law and faraday's law	Chalk Board	by Dr. A.K. Sikri		
Lecture :34			Energy flow of electromagnetic induction	Chalk Board			
Lecture :35			Numerical problems	Chalk Board			
Lecture :36		WEEK-10	Applications of faraday's law of electromagnetic induction	Chalk Board	Engineering physics by Dr. Rakesh Dogra		
Lecture :37			Energy stored in magnetic field	Chalk Board			
Lecture :38			Equation of continuity for current densities				
Lecture :39			Numerical problems	Chalk Board			
Lecture :40		WEEK-11	Modification of equation of continuity	Chalk Board	S Chanda Engineering Physics		
Lecture :41			Maxwell equations in conducting medium	Chalk Board			
Lecture :42			Maxwell equations in non-conducting medium	Presentation			
Lecture :43			Numerical problems	Chalk Board			
Lecture :44		UNIT-IV	WEEK-12	Pointing vector and pointing theorem	Chalk Board	Engineering physics by Dr. Rakesh Dogra	
Lecture :45				Some important questions related to Maxwell equations	Chalk Board		
Lecture :46				Introduction of electromagnetic waves	Chalk Board		
Lecture :47			Numerical problems	Chalk Board			
Lecture :48			WEEK-13	Wave equation for EM waves in free space	Chalk Board		
Lecture :49				Wave equation for EM waves in conducting medium	Chalk Board		
Lecture :50				General solution of uniform plane wave	Chalk Board		
Lecture :51			Numerical problems	Chalk Board			
Lecture :52			WEEK-14	Transverse nature of EM wave	Chalk Board		Engineering physics by Dr. Rakesh Dogra
Lecture :53				Polarization and its types	Chalk Board		
Lecture :54				Reflection of EM waves in non conducting medium	Chalk Board		
Lecture :55			Numerical problems	Chalk Board			
Lecture :56			WEEK-15	Transmission coefficient of EM waves in non conducting medium	Chalk Board		Engineering physics by Dr. Rakesh Dogra
Lecture :57				Average energy density of EM wave	Chalk Board		
Lecture :58				Problem Discussion	Chalk Board		
Lecture: 59		Previous year question paper discussion		Chalk Board			