

PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY
Department of Electronics & Communication Engineering

LESSON PLAN

Subject Name: - Electromagnetic Field Theory
Year: - 2nd

Subject Code: - EC-214A
Semester: - 4th

Lecture No	Unit No	Topic	References
L 1	UNIT-I	Introduction to subject and syllabus	
L 2		Introduction to vector: addition, subtract, multiplication, differentiation	Principles of Electromagnetics by Sadiku
L 3		Coordinate System: Rectangular, Cylindrical, Spherical	Principles of Electromagnetics by Sadiku
L 4		line, surface & volume integrals, gradient, divergence & curl of a vector & their physical significance	Principles of Electromagnetics by Sadiku
L 5		Gauss Divergence theorem, Stokes theorem.	Principles of Electromagnetics by Sadiku
L 6		Coloumb's Law, Electric Field	Electromagnetic Field Theory by K D Parsad
L 7		Electric Potential, Field of a line charge	Electromagnetic Field Theory by K D Parsad
L 8		electric field & potential due to a linear dipole	Electromagnetic Field Theory by K D Parsad
L 9		Electric Flux Density ,Gauss law and Proof	Electromagnetic Field Theory by K D Parsad
L 10		Application of Gauss Law	Electromagnetic Field Theory by K D Parsad
L 11		Method of Images	Electromagnetic Field Theory by K D Parsad
L 12		UNIT - II	Laplace, Poisson's equation & continuity equation

L 13	UNIT-II	Biot Severt law, Ampere's Law	Electromagnetic Field Theory by K D Parsad
L 14		Application of Ampere's Law	Electromagnetic Field Theory by K D Parsad
L 15		Boundary Condition of Electric Field	Principles of Electromagnetics by Sadiku
L16		Magnetic Field Boundary Condition	Principles of Electromagnetics by Sadiku
L17		Faraday's & Lenz's laws	Electromagnetic Field Theory by K D Parsad
L 18		Modified Ampere's Law	Electromagnetic Field Theory by K D Parsad
L 19		Maxwell's equations in differential & integral forms	Electromagnetic Field Theory by K D Parsad
L 20		physical significance of Maxwell Equation in circuit theory, retarded potentials	Electromagnetic Field Theory by K D Parsad
L 21		retarded potentials	Electromagnetic Field Theory by K D Parsad
L 22	UNIT-III	Plane Wave & its Properties	Electromagnetic Field Theory by K D Parsad
L 23		Wave Equation for free space and conducting medium	Electromagnetic Field Theory by K D Parsad
L 24		Propagation of wave in lossy dielectric, good dielectric & good conductors	Electromagnetic Field Theory by K D Parsad
L 25		Polarization & its types	Electromagnetic Field Theory by K D Parsad
L 26		skin effect, skin depth & surface impedance	Electromagnetic Field Theory by K D Parsad
L 27		Poynting vector theorem & its physical significance	Electromagnetic Field Theory by K D Parsad
L 28		Reflection of Plane Wave-Normal Incidence	Electromagnetic Field Theory by K D Parsad
L 29		Reflection of Plane Wave-Oblique Incidence	Electromagnetic Field Theory by K D Parsad
L 30		Reflection of Plane Wave-Oblique Incidence-Continue	Electromagnetic Field Theory by K D Parsad
L 31	UNIT-IV	Introduction to Transmission Line, Basic Transmission Line Equation	Electromagnetic Field Theory by K D Parsad

L 32		Solution of basic Transmission Line Equation, Character Impedance	Electromagnetic Field Theory by K D Parsad
L 33		Input Impedance	Electromagnetic Field Theory by K D Parsad
L 34		Infinite Transmission Line	Electromagnetic Field Theory by K D Parsad
L 35		Reflection Coefficient, VSWR	Electromagnetic Field Theory by K D Parsad
L 36		Smith Chart	Principles of Electromagnetics by Sadiku
L37		Smith Chart- Continue	Principles of Electromagnetics by Sadiku
L38		Introduction to Waveguide, Rectangular Waveguide	Electromagnetic Field Theory by K D Parsad
L39		TE, TM mode in Rectangular Waveguide	Electromagnetic Field Theory by K D Parsad
L40		TE, TM mode in Circular Waveguide	Electromagnetic Field Theory by K D Parsad
L41		Wave Impedance and Characteristic Impedance, Power flow in Waveguide	Electromagnetic Field Theory by K D Parsad

Text Books:

1. Engineering Electromagnetics by W H Hayt (TMGH)

Reference Books:

1. Fields and Waves by D.K. Cheng. (Pearson Education)
2. Electromagnetics by J.D. Krauss(TMGH)
3. Principles of Electromagnetics by Sadiku (Oxford Univ. Press)