

2.14 30305 ELECTROMAGNETIC FIELD THEORY

UNIT 1 VECTOR ANALYSIS

Introduction, coordinate system-Cartesian, cylindrical and spherical, vector calculus-del operator, gradient of a scalar, divergence of a vector and divergence theorem, curl of a vector and stokes's theorem

UNIT 2 ELECTROSTATIC FIELDS

Introduction, coulomb's law and field intensity, electric flux density, gauss's law, electric potential relationship between E and V- Maxwell's equation, electric field due to continuous charge distributions, convection and conduction current

UNIT 3 MAGNETO STATIC FIELDS

Introduction, biot-savart's law-Maxwell equation, magnetic field density, Maxwell equation for static fields, force due to magnetic field, magnetic energy, magnetic circuits, inductors and inductors

UNIT 4 TRANSMISSION LINES

Introduction, transmission line parameters, transmission line equation, input impedance, standing wave ratio and power

UNIT 5 ANTENNAS

Introduction, hertzian dipole, small loop antenna, half wave dipole antenna, effective area, radar equation

Reference Books:

1. Electromagnetic Field Theory by A.V.Bakshi, U.A.Bakshi

