Electro magmetism:

CHAPTER (1) CHARGES, FORCES, FIELDS, & ENERGIES

Static electricity,Inverse square law,Super position of forces,Electric field strength

Potential energy,Electric potential difference,Applicable example "Xerography"

CHAPTER (2) GAUSS LAW

The Gauss law,Electric field about along, straight, charged cylinder.

Electric field strength in terms of potential difference.,Applied examples "Motors"

CHAPTER (3) EFECT OF DIELECTRIC MATERIALSON ELECTROSTATIC FIELD

Polarization of dielectrics in electric field.,Relativ permilitivity,Electric flux,

Flux density in a cylindrical system

CHAPTER (4) CHARGE-COUPLED DEVICES

The potential well,Charge transfer,Input & Output,Imaging application

CHAPTER (5) ENERGY IN ELECTROSTATIC SYSTEMS

Energy stored in terms of capacitance & potential

Energy stored in terms of field quantities E&D

Determination of forces in the electrostatic field

System maintained at constant charge & system maintained

at constant potential

CHAPTER (6) THE MAGNETIC FIELD & FLUX DENSITY

Basic magnetism,A sign convention,

Force on a current – carrying conductor lying in a plane which is perpendicular to the line of action of uniform magnetic field.

Force on a current carrying conductor which is not at right angles to the magnetic field

Magnetic force between two long parallel current conductors

Moving charge & the magnetic field

Magnetic field strength, Domain theory of magnetism .

CHAPTER (7) AMPERES CIRCUITAL LAW &MAGNETIC CIRCUITS

The circuital law & some examples,Boundary conditions,

Displacement current,Incompleteness of the circuital law ,

Magnetic circuits ,Effect of a non-linear magnetizing characteristic ,

Electrical circuit analogue,Examples.

CHAPTER (8) ELECTROMAGNETIC INDUCTION

Electromagnetic induction,The flux cutting rule,Mutual inductance,Self inductance

CHAPTER(9) ENERGY STORAGE IN MAGNETIC FIELD &HYSTERESIS

Energy storage by current flow in an inductive circuit

Energy storage in a linear magnetic circuit

Determination of force from energy considerations

Force of attraction between magnetized iron surfaces

Hysteriesis loss,Eddy-current loss

CHAPTER (10) MAXWELL

Mathematical terminology,Sign conventions,Wave propagation in free space,

Maxwell’s equations