VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

S.Y. BSc

Electronics

CAN Course : Electromagnetics and Radiation

ELECTROSTATICS :

Coulomb's law and Gauss's law and their applications, energy in electrostatics fields, capacitance of parallel plate and coaxial cables, fields in dielectrics, boundary conditions, Laplace and Poisson equations and their applications.

MAGNETOSTATICS :

Maxwell's equations in integral and differential forms.

UNIFORM PLANE WAVES :

Wave equations, solution for free space, solution for conducting medium surface impedance, Polynting vector, power flow, reflection and refraction of uniform waves in conductors and dielectrics with normal and oblique incidence.

TRANSMISSION LINES :

Distributed parameters, transmission line theory, line calculations, loss less lines, standing waves, transmission line measurements.

ELEMENTS OF ANTENNAS :

Hertizan dipole, radiation characteristics, antenna parameters, linear antennas, antenna arrays.

ELEMENTS OF WAVE PROPAGATION :

Propagation modes for different frequencies, description and salient features of ground wave, sky wave and space wave propagation, and their characteristics.

LIST OF RECOMMENDED BOOKS :

1. N. Narayan Rao, Elements of Engineering Electromagnetics,(1990), Prentice Hall International.
2. J D Kraus, Electromagnetic Fields and Waves (1992), Wiley Eastern Ltd.
3. V. V. Sawate, Electromagnetic fields and Waves (1999) Willey Eastern Ltd,
4. Turman
5. M. A. Wazad Miab, Fundamentals of Electromagnetics, (1998), TMH, New Delhi.
6. P. Mukhopadhyay, Electromagnetic Theory and Applications, (1989) TMH,New Delhi.