AMTC09 ANTENNA ENGINEERING

UNIT-1 ANTENNA PRINCIPLES

1.1 The Alternating Current Element,
1.2 Electric and Magnetic Fields due to Alternating current element,
1.3 Application to short antennas,
1.4 Radiation from Monopole and Half-wave Dipole,
1.5 Assumed current distribution.

UNIT-2 ANTENNA FUNDAMENTALS

2.1 Application of Network Theorems to antennas,
2.2 Equivalence of Directional Patterns,
2.3 Equivalence of Transmitting and Receiving antenna impedances,
2.4 Equality of effective lengths using Reciprocity Theorem,
2.5 Directional properties of Dipole Antennas, Antenna Gain,
2.6 Directivity, Effective Area,
2.7 Antenna Terminal Impedance, Antenna as an Opened Out Transmission Line,
2.8 Practical Antennas and Methods of Excitation,
2.9 Transmission loss between antennas,
2.10 Antenna Temperature and Signal to Noise Ratio.

UNIT-3 ANTENNA ARRAYS

3.1 Two-Element Array, Horizontal Patterns in Broadcast Arrays,
3.2 Linear Arrays, Broad-side and End-fire,
3.3 Multiplication of Patterns,
3.4 Effect of Earth on Vertical Patterns, Binomial array,
3.5 Tchebycheyff Distribution Array.

Reference Books:

1. J.D.Krauss,'Antennas',TMH.
2. Collin, "Foundation of Microwave Engineering", 2nd cd. McGraw Hill, 1992.
3. Watson, "Microwave Semiconductor Devices and Their Circuit Applications", McGraw Hill.