

Practical Antenna Design

Session 1: Basic Vector Theory

✓ Concept of Scalar and Vector Potential

✓ Radiation from a current element

Session 2: Basic EMFT

✓ Basics of electromagnetic field theory

✓ Maxwell's equation, wave equation

Session 3: Fundamentals of Antenna

✓ How antenna radiates

✓ Theory of antenna, How antenna works

✓ How to design practical antenna

✓ Selection of antenna for specified application

✓ Roll of Maxwell's Equation in Antenna Design

✓ Parameters of antenna, Radiation Resistance

✓ Gain, Polarization, Directivity

✓ Beam Width, Bandwidth, HPBW etc.

Session 4: Impedance Matching

✓ Concept of Impedance Matching

✓ Impedance matching in transmission line

✓ Impedance matching in Antenna BALUN

Session 5: Antenna Analysis-1

✓ Dipole Antenna: Design and Simulation

✓ Monopole Antenna: Design and Simulation

✓ Loop Antenna: Design and Simulation

Session 6: Antenna Analysis-2

✓ Horn Antenna: Design and Simulation

✓ Helical Antenna: Design and Simulation

✓ Parabolic Antenna: Design and Simulation

Session 7: Planner Antenna

✓ Micro strip patch antenna: Design and Simulation

✓ Feeding Technique

✓ Various shape and design of MAP

Session 8: Advanced Topic-1

✓ Wideband Antenna

✓ High Gain Antenna

Session 9: Advanced Topic-2

✓ Numerical Computations

✓ EFM, MOM

Session 10: Advanced Topic-3

✓ Metamaterials, Physic of MM

✓ Theory behind MM, Implementation of MM

✓ Simulation and analysis of MM

✓ Parametric extraction of MM

Session 11: Project

✓ Antenna Related Projects Discussion