

Outline:

- Chapter 1: Introduction to antenna (definition + applications), review of EM theories (i.e., Maxwell equations, spherical and cartesian co-ordinates, reflection and transmission, boundary conditions, auxiliary potential, green function, TEM wave, transmission lines, etc.)
- Chapter 2: Antenna's fundamental, Gain, HPBW (3dB BW), EIRP, SLL, grating lobes, effective aperture area, polarization, FRIS equation and noise.
- Chapter 3: Wire antennas: monopole, dipole, loop, helical
- Chapter 4: Microstrip antennas
- Chapter 5: Waveguide-, SIW-, and gap waveguide-based antennas
- Chapter 6: Aperture antenna, horn antennas
- Chapter 7: Array Antenna: linear, broadside, endfire, Chebyshev, binomial, planar, Mutual coupling
- Chapter 8: Reflectors, reflect-array
- Chapter 9: LWA, traveling wave antennas
- Chapter 10: DRAs, Metamaterial, MOM, FEM, FDTD

References:

- "Antenna Theory: Analysis and Design", 4th edition, C. Balanis
- "Antenna theory and design", R. Elliott
- "Antennas for all applications", J. Kraus
- "Antenna theory and design", W. Stutzman
- "Phased array antennas", R. Hansen
- "Advanced Electromagnetic", C. Balanis
- "Antenna Engineering Handbook", Volakis

Marking Scheme (out of 110):

- 20% quizzes (4-5 quizzes)
- 40% mid-term exam (February 27)
- 50% final exam (April 10)