# **Antenna Theory Course Contents**

The sections of the book, which are included in the course, are listed on the home page of the course. Most important are the following:

#### **Chapter 1. Antennas**

Definition of an antenna and the radiation mechanism.

## **Chapter 2. Fundamental Paramenters of Antennas**

Fundamental parameters (radiation pattern, radiation power density, radiation intensity, directivity, numerical techniques, gain, antenna efficiency, half-power beamwidth, bandwidth, polarization, input impedance, radiation efficiency, vector effective length and equivalent areas), Friis transmission equation, radar range equation.

#### **Chapter 3. Radiation Integrals and Auxiliary Potential Functions**

Radiation integrals and potential functions, duality theorem, reciprocity and reaction theorems.

#### **Chapter 4. Linear Wire Antennas**

Linear wire antennas, infinitesimal dipole, small dipole and half-wavelength dipole. Linear elements near or on infinite conduction planes.

#### **Chapter 5. Loop Antennas**

Circular loop antenna.

## Chapter 6. Arrays: Linear, Planar, and Circular

Linear, planar and circular arrays.

## **Chapter 7. Antenna Synthesis and Continous Sources**

Antenna Synthesis

# Chapter 8. Integral Equations, Moment Method, and Self and Mutual Impedances

Integral equations, self and mutal impedance between linear elements.

#### **Chapter 10. Travelling Wave and Broadband Antennas**

Travelling wave antennas and broadband antennas.

#### **Chapter 12. Aperture Antennas**

Field equaivalence technique and rectangular and circular aperture antennas.

## Chapter 14. Microstrip Antennas.

**Chapter 15. Reflector Antennas** 

**Chapter 16. Smart Antennas** 

**Chapter 17. Antenna Measurements**