SEMESTER	***DEPARTMENT***	***COURSE TITLE***
Sixth	*Telecommunications Engineering*	*Antennas*
COURSE CODE	***HOURS:*** 3	***COURSE SPECIFICATIONS***
ET601	***UNITS:*** 3	*Theoretical Content*

1. ***Fundamentals of Antenna Theory:***

- Polarization.
- Polar diagram.
- Antenna gain.
- Radiation resistance.
- Effective length.
- Effective aperture.
- Power transfer.
- Reciprocity.

2. ***Elementary Antennas:***

- The isotropic radiator.
- Hertzian dipole.
- Short antenna.
- Loop antenna.

3. ***Vertical and Horizontal Antennas:***

- Vertical monopole.
- Horizontal wire (in free space).
- Rhombic antenna.
- Horizontal wire (near ground).
- Half-wave dipole.

4. ***Antenna Arrays:***

- Two point sources.
- N radiators.
- Pattern multiplication.
- Typical arrays.

5. ***Microwave Antennas:***

- Horn antennas.
- Parabolic reflectors.
- Slot antennas.
- Lenses.
- Antenna measurements.

6. ***Electromagnetic Waves:***

- Propagation paths.
- The ionosphere.
- Refractive index.
- Characteristics of radio waves.
- VHF propagation.
- Scatter propagation.
- Satellite communications.

7. ***The Functions of an Antenna, the Components of the Radiation Field, and Antenna Polarization.***

References:

1. ***Antenna Theory and Design*** by W. Stutzman, G. Thiele.
2. ***Antennas and Radio Wave Propagation*** by Robert E. Collin, 1985.
3. ***Antenna Construction and Propagation of Radio Waves*** by G. E. GEARHARD, 2001.