**MCET**

**Electronics and communication engineering Department**

PC602EC - Antennas and wave propagation

2018-2019

**Assignment-1**

1. Write a brief history of Antennas.( choose any one scientist in this field)
2. Discuss the radiation characteristics of an ac element and define its near and far-field. Also obtain the distance at which both fields become equal.
3. Define the following:
4. Retarded Potential b. Radiation pattern
5. Radiation intensity d. Far field and Near field
6. Directivity f. Antenna polarization
7. Effective aperture h. Point source

**Assignment-2**

1. Distinguish between antennas used in present day applications like, Mobile phones , TVs, Aircraft communications, Radio, Wireless Biomedical monitoring systems, satellite Communications, Radar and etc.
2. Obtain the maximum effective aperture area of
3. Half-wave Dipole
4. Short Dipole.
5. What is the principle of helical antenna and design it for axial and normal mode of operation.

**Assignment-3**

1. What are end-fire and broad side arrays? Obtain BWFN and HPBW of these two types.
2. Define pattern multiplication for antenna arrays and using this concept, obtain the pattern of a binomial array of four point sources.
3. Discuss briefly about anyone antenna designing software.

**Assignment-4**

1. Describe operation the advantages and disadvantages of Microstrip antennas.
2. Describe measurement of antenna gain and temperature in any one method.
3. Mention the applications of all the antennas that you have learned so far.

**Assignment-5**

1. Write a short note on:
2. Duct propagation b. Sky wave propagation
3. Briefly discuss about
4. Effect of earth on vertical plane patterns.
5. Horn antenna
6. Define critical frequency with neat sketch and distinguish between phase and group velocities of an e.m. wave.