

## 3EC09: ANTENNAS AND WAVE PROPAGATION LABORATORY

### CREDITS - 1 (LTP: 0,0,2)

#### Course Objective:

Knowledge of Electromagnetics wave propagation in different medium is essential for the Communication Engineers. As antenna is vital part of any communication system and its knowledge is equally important as well.

#### Teaching and Assessment Scheme :

Teaching Scheme (Hours per Week)			Credits	Assessment Scheme				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE	CE	ESE	CE	100	
0	0	2	1	00	00	40		60

#### List of Experiments:

This shall consist of at least 10 Practical's based on trainer kits & software.

Sr No	Name of Experiment
1.	To study various antennas, its application and tentative radiation pattern. (study experiment)
2.	To study and observe the radiation patter of strait dipole antenna.
3.	To study and compare the radiation patter of folded dipole with straight dipole antenna and comment on the radiation resistance and it's matching with free space.
4.	To study and compare the radiation pattern of 3-element and 5-element Yagi and give your comment on effect of addition of parasitic elements to the given antenna.
5.	To study the variation of radiated field with distance from transmitting antenna.
6.	To study and plot the radiation pattern of the Log-Periodic antenna and observe its frequency independency.
7.	To study and observe the radiation pattern of the horn antenna.
8.	Introduction to HFSS (High Frequency Simulation Software).
9.	Micro Strip antenna design and simulation using HFSS.
10.	Study of Antenna Measurement setup in Anechoic chamber.

#### List of References:

1. J.D. Krauss, "Antennas for all applications", Fourth Edition, MH publication, 2010
2. C. Balanis, "Antenna Theory: Analysis and design", Third Edition, Wiley India, 2005.
3. Jordan & Balmain, "Electromagnetic wave & radiating systems", Second edition, Prentice-Hall, 1968.

#### Course Outcomes (COs):

By learning this course students will be able to ...

1. Understand the importance of EM waves in Antenna.
2. Identify and measure the basic antenna parameters
3. Identify and understand different types of antennas, radiation pattern.
4. Analyze matching and feeding networks for antennas.
5. Analyze simple antenna arrays, dipole, loop, slot and horn antennas
6. Identify the characteristics of radio wave propagation.