Bhoj Reddy Engineering College for Women: Hyderabad
Department of Electronics and Communication Engineering
Lesson plan of faculty member for the academic year 2016–17

Class: III B Tech Branch-Section: ECE-C Semester: I
Subject: Antenna and Wave Propagation Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
	UNIT – I: Antenna Basic	
1	Introduction, Basic Antenna Parameters	13 June 2016
2	Radiation Patterns, Beam Area	15 June 2016
3	Radiation Intensity , Beam Efficiency	16 June 2016
4	Directivity, Gain and Resolution	17 June 2016
5	Tutorial (G2,G3,G1) - Problems related to Antenna Parameters	14, 17, 18 June 2016
6	Antenna Apertures, Effective Height	20 June 2016
7	Fields from oscillating dipole	22 June 2016
8	Field zones, Antenna Temperature, Front-to-back ratio	23 June 2016
9	Antenna theorems, Radiation, Retarded potentials, Helmholtz theorem.	24 June 2016
10	Tutorial (G2,G3,G1) - Problems related to Antenna Parameters	21, 24, 25 June 2016
11	Radiation from Small Electric Dipole, Quarter wave Monopole	27 June 2016
12	Half wave Dipole – Current Distributions, Evaluation of Field Components	29 June 2016
13	Radiated power, Radiation Resistance ,Directivity, Beam Width	30 June 2016
14	Effective Area and height, Natural current distributions, field patterns of Thin Linear Center-fed antennas	1 July 2016
15	Tutorial (G2, G3, G1) - Problems related to monopole and dipole	28, 1, 2 July 2016
16	Loop Antennas : Small Loops, Field Components, Comparison of a small loop and short dipole	4 July 2016
17	Concept of short magnetic dipole, D and R_r relations for small loops and large loops	8 July 2016
18	Tutorial (G2, G3, G1) - Problems related to Loop Antennas	5, 8, 9 July 2016
	UNIT-II: VHF,UHF and Microwave antennas-I	
19	Arrays with Parasitic Elements, Yagi Uda array	11 July 2016
20	Folded dipole and their characteristics	13 July 2016
21	Helical Antennas, Significance, Geometry	14 July 2016
22	Helix modes	15 July 2016
23	Tutorial (G2, G3, G1) - Problems related to Yagiuda, Helical Antennas	12,15, 16 July 2016
24	Practical design considerations for monofilar helical in Axial mode and Normal modes	18 July 2016
25	Horn antennas-types	20 July 2016
26	Fermats principle, Optimum Horns	21 July 2016
27	Design considerations of Pyramidal Horns,	22 July 2016
28	Tutorial (G2, G3, G1) - Problems related to Horn Antennas	19, 22, 23 July 2016
	UNIT-III: VHF,UHF and Microwave antennas-II	
29	Introduction to Microstrip Antennas	25 July 2016
30	Features, advantages, limitations	27 July 2016
31	Rectangular patch antennas-features	28 July 2016
32	Impact of different parameters on characteristics	29 July 2016
33	Tutorial (G2, G3, G1) - Problems related to Microstrip Antennas	26, 29, 30 July 2016
34	Reflector Antennas : Flat Sheet and Corner Reflectors	1 August 2016
35	Paraboloidal reflectors-geometry	3 August 2016
36	Patterns, Characteristics, Feed methods	4 August 2016
37	Reflector types	5 August 2016
38	Tutorial (G2, G3, G1) - Problems related to Reflector Antennas	2 , 5, 6 August 2016

	Lens antennas, Geometry, Features	17 August 2016
40	Non metallic dielectric lenses, Zoning, Applications	19 August 2016
41	Tutorial (G2, G3, G1) - Problems related to Lens Antennas	16, 19, 20 August 2016
UNIT-IV: **Antenna Arrays**		
42	Point sources-definition, patterns	22 August 2016
43	Arrays of 2 Isotropic sources-different cases, Principles of pattern multiplication	24 August 2016
44	Broadside, Endfire arrays	26 August 2016
45	Tutorial (G2, G3, G1) - Problems related to Array Antennas	23, 26, 27 August 2016
46	Derivation of Characteristics, Comparision	29 August 2016
47	EFA with Increased Directivity	31 August 2016
48	BSA with non uniform amplitude distributions.	1 September 2016
49	General considerations and binomial arrays	2 September 2016
50	Tutorial (G2, G3, G1) - Problems related to EFA, BFA	30 August,2, 3 September 2016
51	Antenna measurements arrangements, Reciprocity, Near and far fields	7 September 2016
52	Coordinate system, Source of errors	8 September 2016
53	Patterns to be measured, Pattern measurements, Directivity and Gain Measurements	9 September 2016
54	Tutorial (G2, G3, G1) - Problems related to Antenna Measurements	6, 9,10 September 2016
UNIT-V: **Wave propagation-I,II**		
55	Definitions, Categorizations and General classifications	14 September 2016
56	Different modes of wave propagation, Ray/Mode concepts.	15 September 2016
57	Ground Wave Propagation, Wave Tilt, Curved Earth Reflections	16 September 2016
58	Tutorial (G2, G3, G1) - Problems related to Ground wave Prop.	13, 16,17 September 2016
59	Space wave propagation	19 September 2016
60	Field strength variation with distance and height	21 September 2016
61	plane earth reflections, Space and Surface waves	22 September 2016
62	Effect of earth's curvature, Absorption, Super refraction	23 September 2016
63	Tutorial (G2, G3, G1) - Problems related to Surface wave Prop.	20, 23,24 September 2016
64	Duct propagation, Scattering phenomenon, M-curves,	26 September 2016
65	Tropospheric propagation	28 September 2016
66	fading and path loss calculations	29 September 2016
67	Sky wave propagation	30 September 2016
68	Tutorial (G2, G3, G1) - Problems related to Sky wave Propagation	27, 30 September, 1 October 2016
69	structure of Ionosphere	3 October 2016
70	Tutorial (G2) - Problems related to Sky wave Propagation	4 October 2016
71	Ray path, Critical frequency	27 October 2016
72	MUF, LUF,OWF	28 October 2016
73	Tutorial (G2, G3) – Problems related to MUF,LUF,OWF	28, 29 October 2016
74	Multihop communication	31 October 2016
75	Virtual height	2 November 2016
76	Relation between MUF and skip distance	3 November 2016
77	Tutorial (G2) – Previous question papers	1 November 2016

Text books:

1. J.D.Kraus,R.J.Marhefka and Ahmad S.Khan, TMH,4/e,2010
2. E.C.Jordan and K.G.Balmain,Electromagnetic radiating systems, PHI ,2/e, 2000

Name and signature of the faculty: Ms B. Prabhavathi Devi ----

Name and signature of Head of the Department: Ms N Shribala ----