

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: IV B Tech

Branch-Section: ECE-B

Semester: I

Subject: Cellular and Mobile Communications

Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
UNIT – I: Introduction Cellular Mobile Radio Systems & Fundamentals of cellular Radio System Design		
1	Limitations of Conventional Mobile Telephone Systems	13 June 2016
2	Basic Cellular Mobile System	15 June 2016
3	First, Second Generation Cellular wireless Systems	17 June 2016
4	Third and Fourth Generation Cellular wireless Systems	18 June 2016
5	Tutorial (G3, G1, G2) – History of mobile communication systems	14, 15, 16 June 2016
6	Uniqueness of Mobile Radio Environment – Fading	20 June 2016
7	Uniqueness of Mobile Radio Environment – Fading	22 June 2016
8	Time Dispersion Parameters, Coherence Bandwidth, Doppler Spread and Coherence Time.	24 June 2016
9	Concept of frequency reuse,	25 June 2016
10	Tutorial (G3, G1, G2) – Problems on Cellular concepts	21, 22, 23 June 2016
11	Co-channel interference, co-channel interference reduction factor	27 June 2016
12	Desired C/I from a normal case in an Omni directional antenna system	29 June 2016
13	System Capacity, Trunking and Grade of Service	1 July 2016
14	Improving Coverage and Capacity in Cellular Systems - cell splitting	2 July 2016
15	Tutorial (G3, G1, G2) – Problems on frequency reuse	28, 29, 30 June 2016
16	Sectoring, Microcell zone concept	4 July 2016
UNIT-II: Co-Channel Interference & Non- Co-Channel Interference		
17	Measurement of real time co-channel interference	8 July 2016
18	Design of antenna system, antenna parameters and their effects	9 July 2016
19	Tutorial (G3) - Problems on co-channel interference	5 July 2016
20	Design of antenna system, antenna parameters and their effects	11 July 2016
21	Diversity Techniques- Space Diversity, Polarization Diversity	13 July 2016
22	Frequency Diversity, Time Diversity	15 July 2016
23	Adjacent channel interference	16 July 2016
24	Tutorial (G3, G1, G2) - Problems on adjacent channel interference	12, 13, 14 July 2016
25	Near-end Far-end Interference, Cross Talk	18 July 2016
26	Effects on Coverage and Interference by power decrease	20 July 2016
27	Effects on Coverage and Interference by power decrease	22 July 2016
28	Antenna Height decrease	23 July 2016
29	Tutorial (G3, G1, G2) - Problems on adjacent channel interference	19, 20, 21 July 2016
30	Effects of cell site components	25 July 2016
UNIT-III: Cell Coverage for Signal and Traffic & Cell Site and Mobile Antennas		
31	Signal Reflections in Flat and hilly Terrain,	27 July 2016
32	Effect of human made structures	29 July 2016
33	Phase difference between direct & reflected paths	30 July 2016
34	Tutorial (G3, G1, G2) – Problems on multipath	26, 27, 28 July 2016
35	Constant Standard Deviation, Straight line path loss slope	3 August 2016
36	General formula for mobile propagation over water & Flat open area	5 August 2016
37	General formula for mobile propagation over water & Flat open area	6 August 2016
38	Tutorial (G3, G1, G2) - Problems on multipath	2, 3, 4 August 2016
39	Near & long distance propagation, Antenna height Gain	17 August 2016
40	Near & long distance propagation, Antenna height Gain	19 August 2016
41	Path loss from a point-to-point prediction model in different	20 August 2016

	conditions	
42	Tutorial (G3, G1, G2) - problems antennas	16, 17, 18 August 2016
43	Path loss from a point-to-point prediction model in different conditions	22 August 2016
44	Merits of Lee Model	24 August 2016
45	Space Diversity Antennas	26 August 2016
46	Umbrella pattern Antennas, minimum separation of at cell site Antennas	27 August 2016
47	Tutorial (G3, G1) - problems on pathloss	23, 24 August 2016
48	Mobile Antennas	29 August 2016
49	Mobile Antennas	31 August 2016
UNIT-IV: Frequency Management and Channel Assignment		
50	Numbering and grouping	2 September 2016
51	Setup access and paging channels	3 September 2016
52	Tutorial (G3, G1, G2) - problems on antennas	30, 31 August, 1 September 2016
53	Channel assignments to cell sites	7 September 2016
54	Channel assignments to mobile units	9 September 2016
55	Channel sharing and borrowing	10 September 2016
56	Tutorial (G3, G1, G2) – Channel assignments	6, 7, 8 September 2016
57	Sectorization	14 September 2016
58	Overlaid cells	16 September 2016
59	Non-fixed channel assignment	17 September 2016
60	Tutorial (G3, G1, G2) – Channel Assignments	13,14,15 September 2016
UNIT-V: Handoff and Dropped Calls		
61	Handoff initiation, Types of Handoff	19 September 2016
62	Delaying handoff	21 September 2016
63	advantages of Handoff	23 September 2016
64	Forced handoff	24 September 2016
65	Tutorial (G3, G1, G2) – Handoff mechanism	20,21,22 September 2016
66	Mobile assigned and Soft Handoff	26 September 2016
67	Intersystem Handoff	28 September 2016
68	Dropped call rates and their evaluation	1 October 2016
69	Tutorial (G3, G1, G2) - Problems on dropped call rates	27,28,29 September 2016
70	Dropped call rates and their evaluation	3 October 2016
71	Tutorial (G3) - Problems on dropped call rates	4 October 2016
72	Discussion of Previous Question papers	28 October 2016
73	Discussion of Previous Question papers	29 October 2016
74	Tutorial (G2) - Revision	27 October 2016
75	Revision	31 October 2016
76	Revision	2 November 2016
77	Tutorial (G3, G1, G2) - Revision	1, 2, 3 November 2016

Text books:

1. Mobile Cellular Telecommunications - W. C. Y Lee, Mc Graw Hill, 2nd Edn., 1989.
2. Wireless Communications - Theodore. S. Rapport, Pearson Education, 2nd Edn., 2002.
3. Mobile Cellular Communication – Gottapu Sashibhushana Rao, Pearson, 2012.

Name and signature of the faculty: K Madhu Krishna ----

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