

**Bhoj Reddy Engineering College for Women: Hyderabad**

Department of Electronics and Communication Engineering

Lesson plan of faculty member for the academic year 2017–18

Class: IV B Tech

Branch-Section: ECE-A

Semester: I

Subject: Cellular and Mobile Communications

Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
<b>UNIT – I: Introduction Cellular Mobile Radio Systems &amp; Fundamentals of cellular Radio System Design</b>		
1	Limitations of Conventional Mobile Telephone Systems	12 July 2017
2	Basic Cellular Mobile System	14 July 2017
3	First, Second Generation Cellular Wireless Systems	15 July 2017
4	Tutorial (G1, G2) – History of mobile communication systems	14, 15 July 2017
5	Third and Fourth Generation Cellular Wireless Systems	17 July 2017
6	Uniqueness of Mobile Radio Environment – Fading	19 July 2017
7	Uniqueness of Mobile Radio Environment – Fading	21 July 2017
8	Time Dispersion Parameters, Coherence Bandwidth, Doppler Spread and Coherence Time.	22 July 2017
9	Tutorial (G3, G1, G2) – Problems on Cellular concepts	17, 21, 22 July 2017
10	Concept of frequency reuse,	24 July 2017
11	Co-channel interference, co-channel interference reduction factor	26 July 2017
12	Desired C/I from a normal case in an Omni directional antenna system	28 July 2017
13	System Capacity, Trunking and Grade of Service	29 July 2017
14	Tutorial (G3, G1, G2) - Problems on frequency reuse	24, 28, 29 July 2017
15	Improving Coverage and Capacity in Cellular Systems - cell splitting	31 July 2017
16	Sectoring, Microcell zone concept	2 August 2017
<b>UNIT-II: Co-Channel Interference &amp; Non- Co-Channel Interference</b>		
17	Measurement of real time co-channel interference	4 August 2017
18	Design of antenna system, antenna parameters and their effects	5 August 2017
19	Tutorial (G3, G1, G2) - Problems on co-channel interference	31 July, 4, 5 August 2017
20	Design of antenna system, antenna parameters and their effects	7 August 2017
21	Diversity Techniques- Space Diversity, Polarization Diversity	9 August 2017
22	Frequency Diversity, Time Diversity	11 August 2017
23	Adjacent channel interference	12 August 2017
24	Tutorial (G3, G1, G2) - Problems on adjacent channel interference	7, 11, 12 August 2017
25	Near-end Far-end Interference, Cross Talk	16 August 2017
26	Effects on Coverage and Interference by power decrease	18 August 2017
27	Antenna Height decrease	19 August 2017
28	Tutorial (G1, G2) - Problems on adjacent channel interference	18, 19 August 2017
29	Effects of cell site components	21 August 2017
<b>UNIT-III: Cell Coverage for Signal and Traffic &amp; Cell Site and Mobile Antennas</b>		
30	Signal Reflections in Flat and hilly Terrain	23 August 2017
31	Effect of human made structures	26 August 2017
32	Tutorial (G3, G2) - Problems on multipath	21, 26 August 2017
33	Phase difference between direct & reflected paths	28 August 2017
34	Constant Standard Deviation, Straight line path loss slope	30 August 2017
35	General formula for mobile propagation over water & Flat open area	1 September 2017
36	Tutorial (G3, G1) - Problems on multipath	28 August, 1 September 2017
37	Near & long distance propagation, Antenna height Gain	4 September 2017
38	Path loss from a point-to-point prediction model in different conditions	9 September 2017
39	Tutorial (G3, G2) – Problems on antennas	4, 9 September 2017

40	Path loss from a point-to-point prediction model in different conditions	11 September 2017
41	Merits of Lee Model	13 September 2017
42	Space Diversity Antennas	15 September 2017
43	Umbrella pattern Antennas	16 September 2017
44	Tutorial (G3, G1, G2) - Problems on path loss	11, 15, 16 September 2017
45	Minimum separation at cell site Antennas	18 September 2017
46	Mobile Antennas	22 September 2017
<b>UNIT-IV: Frequency Management and Channel Assignment</b>		
47	Numbering and grouping	23 September 2017
48	Tutorial (G3, G1, G2) - Setup access and paging channels	18, 22, 23 September 2017
49	Channel assignments to cell sites	4 October 2017
50	Channel assignments to mobile units	6 October 2017
51	Channel sharing and borrowing	7 October 2017
52	Tutorial (G1, G2)- Channel assignments	6, 7 October 2017
53	Sectorization	9 October 2017
54	Overlaid cells	11 October 2017
55	Non-fixed channel assignment	13 October 2017
<b>UNIT-V: Handoff and Dropped Calls</b>		
56	Handoff initiation, Types of Handoff	14 October 2017
57	Tutorial (G3, G1, G2) - Handoff mechanism	9, 13, 14 October 2017
58	Delaying handoff	16 October 2017
59	Advantages of Handoff	20 October 2017
60	Forced handoff	21 October 2017
61	Tutorial (G3, G1, G2) - Mobile assigned and Soft Handoff	16, 20, 21 October 2017
62	Intersystem Handoff	23 October 2017
63	Dropped call rates and their evaluation	25 October 2017
64	Dropped call rates and their evaluation	27 October 2017
65	Discussion of Previous Question papers	28 October 2017
66	Tutorial (G3, G1, G2) - Revision	23, 27, 28 October 2017
67	Discussion of Previous Question papers	30 October 2017
68	Discussion of Previous Question papers	1 November 2017
69	Discussion of Previous Question papers	3 November 2017
70	Tutorial (G3, G1) - Revision	30 October, 3 November 2017
71	Discussion of Previous Question papers	6 November 2017
72	Tutorial (G3) - Revision	6 November 2017

**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: Ms N Shribala ----

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