GVP COLLEGE OF ENGINEERING FOR WOMEN

MADHURAWADA::VISAKHAPATNAM

Department of Electronics and Communication

LECTURE SCHEDULE

Subject: Cellular & Mobile Communications (CMC) Branch: E.C.E

Year: IV B.Tech (II Semester) Academic Year: 2017-18

Faculty: Dr. D N Madhusudhana Rao & Mr. R Sunil Kumar

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| Unit | Topic | No. of  Classes | Schedule |
| I. Cellular & Mobile  Systems &  Elements of Cellular  Radio System Design | Introduction, Performance Criteria & Uniqueness of mobile radio environment. | 2 | 3 weeks  27-11-17  to  16-12-17 |
| Hexagonal shaped cells. Analog & digital cellular systems. | 2 |
| Description of the problem, concept of frequency channels. | 2 |
| Co-channel interference & interference reduction factor. | 3 |
| Desired C/I from a normal case in Omni directional antenna system. Cell splitting, & components of the cellular system. | 3 |
| II. Interference &  Cellular coverage  for signal and  traffic | Co channel interference-intro., real time co-channel interference. | 2 | 3 weeks  17-12-17  To  6-01-18 |
| Co-channel measurement, design of antenna system, antenna parameters and their effects. Diversity receiver, non-channel interference-different types. | 3 |
| Signal reflection in flat & hilly terrain. Effect of man made structures. Phase difference between direct and reflected paths. | 3 |
| Constant standard deviation, straight line path loss slope, general formula for mobile propagation over water and flat open area, near & long distance propagation, antenna height gain. Form of a point to point model. | 4 |

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| III. Cell site & mobile  antennas | Sum & difference patterns and their synthesis. Omni directional antennas. | 2 | 2 weeks  8-1-18  to  20-0l-18 |
| Directional antennas for interference reduction. | 2 |
| Space diversity antennas, umbrella pattern antennas. | 2 |
| Minimum separation of cell site antennas, high gain antennas | 2 |
| I Mid Examinations from 22-1-2018 to 27-1-18 1 week | | | |
| IV. Frequency  management &  channel  assignment | Numbering & grouping set up access and paging channels | 2 | 2 weeks  29-01-18  to  10-02-18 |
| Channel assignment to cell sites & mobile units. | 2 |
| Channel sharing & borrowing, sectorization. Overlaid cells, non-fixed channel assignment. | 4 |
| V. Handoff | Handoff, dropped calls & cell splitting. | 3 | 3 weeks  12-2-18  to  03-3-18 |
| Types of handoff- handoff invitation, delaying handoff, forced handoff & mobile assigned handoff. | 4 |
| Intersystem handoff, cell splitting & micro cells. | 2 |
| Vehicle locating methods, dropped call rates and their evaluation | 3 |
| VI. Digital cellular  networks | GSM Architecture | 3 | 3 weeks  5-3-18  to  24-3-18 |
| GSM Channels | 3 |
| Multiple access: TDMA & CDMA | 6 |
| II Mid Examinations from 26-3-2018 to 31-3-18 (1 week) | | | |

TEXT BOOKS:

1. Mobile Cellular Telecommunications — WCY Lee, Tata McGraw Hill, 2nd Edn., 2006

2. Principles of Mobile Communication Gordon L Stuber, Springer, 2nd Edn. 2007.

REFERENCES:

1. Wireless Communication T S Rappaport, Pearson, 2nd En. 2002.
2. Wireless & mobile Communication, Lee, McGraw Hill, 2nd Edn. 2006
3. Mobile Cellular Communications — G. Sasibhushana Rao, Pearson