Code No.: ETIT 402 **L T C**

Paper: Mobile Communication **3 1 4**

INSTRUCTIONS TO PAPER SETTERS: **MAXIMUM MARKS: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from question no. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

UNIT – I

Introduction to Cellular Mobile Systems: A basic cellular system, performance criteria, uniqueness of mobile radio environment, operation of cellular systems, planning a cellular system, overview of generations of cellular systems.

Elements of Cellular Radio Systems Design and Interference: General description of the problem, concept of frequency reuse channels, co-channel interference reduction factor, desired C/I from a normal case in an omni directional antenna system, cell splitting, consideration of the components of cellular systems, Introduction to co-channel interference, co-channel measurement design of antenna system, antenna parameter and their effects.

[No. of Hrs.: 11]

UNIT – II

Cell Coverage for Signal & Antenna Structures: General introduction, obtaining the mobile point to point mode, propagation over water or flat open area, foliage loss, propagation near in distance, long distance propagation, point to point prediction model – characteristics, cell site, antenna heights and signal coverage cells, mobile to mobile propagation, Characteristics of basic antenna structures, antenna at cell site, mobile antennas.

Frequency Management & Channel Assignment, Hand Off & Dropped Calls: Frequency Management, fixed channel assignment, non-fixed channel assignment, traffic & channel assignment, Why hand off, types of handoff and their characteristics, dropped call rates & their evaluation. **[No. of Hrs.: 11]**

UNIT – III

Modulation methods and coding for error detection and correction: Introduction to Digital modulation techniques, modulation methods in cellular wireless systems, OFDM, Block Coding, convolution coding and Turbo coding.

Multiple access techniques: FDMA, TDMA, CDMA: Time-division multiple access (TDMA), code division multiple access (CDMA), CDMA capacity, probability of bit error considerations, CDMA compared with TDMA. **[No. of Hrs.: 11]**

UNIT – IV

Second generation, digital, wireless systems: GSM, IS_136 (D-AMPS), IS-95, mobile management, voice signal processing and coding. **[No. of Hrs.: 11]**

TEXT BOOKS:

1. William, C. Y. Lee, “Mobile Cellular Telecommunications”, 2nd Edition, McGraw Hill, 1990.
2. Mischa Schwartz, “Mobile Wireless Communications”, Cambridge University Press, UK, 2005.

REFERENCE BOOKS:

1. “Mobile Communication Hand Books”, 2nd Edition, IEEE Press.
2. Theodore S Rappaport, “Wireless Communication Principles and Practice”, 2nd Edition, Pearson Education, 2002.
3. Lawrence Harte, “3G Wireless Demystified”, McGraw Hill Publications, 2001.
4. Kaveh Pahlavan and Prashant Krishnamurthy”, Principles of Wireless Networks”, PHI, 2001.