7th Semester	REC7D007	Mobile Communication	L-T-P 3-0-0	3 Credits

Module-I: **(9hours)**

An Overview of Wireless Systems: Introduction, First- and Second-Generation Cellular Systems, Cellular Communications from 1G to 3G, Wireless 4G Systems, Future Wireless Networks Radio Propagation and Propagation Path-Loss Models: Introduction, Free-space Attenuation, Attenuation over Reflecting Surfaces, Radio wave Propagation, Characteristics of Wireless Channel, Signal Fading Statistics, Propagation Path-loss Models, Cost 231 ModelIP.

Module-II: **(9 hours)**

Fundamentals of Cellular Communications: Introduction, Cellular Systems, Hexagonal Cell Geometry, Co-channel Interference Ratio, Cellular System Design in Worst-Case Scenario with an Omni directional Antenna, Co-channel Interference Reduction, Directional Antennas in Seven-Cell Reuse Pattern, Cell Splitting, Adjacent Channel Interference (ACI), Segmentation,

Module-III:(9 hours)

Multiple Access Techniques: Introduction, Narrowband Channelized Systems,Comparisons of FDMA,TDMA and DS-CDMA, Comparison of DS-CDMA vs. TDMA System Capacity, Multicarrier DS-CDMA (MC-DS-CDMA) Modulation schemes: Introduction, Introduction to modulation, Phase Shift Keying, Quadrature Amplitude Modulation, M-ary Frequency Shift Keying, Synchronization,

Module-IV:(9 hours)

Equalization Spread Spectrum (SS) and CDMA Systems: Introduction, Concept of Spread Spectrum, System Processing Gain, Requirements of Direct-Sequence Spread Spectrum, Frequency-Hopping Spread Spectrum Systems

Books:

1. Selected portions from V K Garg, Wireless Communication and Networking; Morgan Kaufman Publishers India; 2008
2. T S Rappaport, Wireless Communications, Pearson Education, India.
3. W C Y Lee, Mobile Communication Engineering – Theory and Applications; TMH
4. T L Singhal, Wireless Communications, Tata McGraw Hill 2010