

PET7J001

WIRELESS COMMUNICATION SYSTEMS

3-0-0

MODULE-I

History of wireless communication: Concept of mobile and personal communication, wireless cellular platform, the design fundamentals of cellular networks, frequency reuse, spectrum capacity enhancement techniques, co-channel and adjacent channel interference, location management, handoff management; Concept of mobile IP for mobility management issues.

MODULE-II

Propagation Models for Wireless Networks: Two-ray ground reflection model, a micro-cell propagation model, a macro-cell propagation model, shadowing model, large scale path loss and shadowing, multi path effects in mobile communication, linear time variant channel model; Concept of coherent bandwidth, Coherent time, Doppler Shift - Effect of velocity of the mobile, models for multi path reception, mobile communication antennas.

MODULE-III

Multiple access techniques in wireless communications: frequency division multiple access technology (FDMA), time division multiple access (TDMA), space division multiple access (SDMA), code division multiple access (CDMA); spectral efficiency of different wireless access technologies, spectral efficiency in FDMA system, spectral efficiency in TDMA system, spectral efficiency for DS-SS-SSMA system.

MODULE-IV

Second Generation Mobile Networks-GSM: Architecture and protocols, access technology, call set up procedure, 2.5 G networks; evolution to GPRS, concept of data communication on GPRS, session management and PDP Context, data transfer through GPRS network and routing.

ADDITIONAL MODULE (Terminal Examination-Internal)

Evolution of modern mobile wireless communication systems: Personal area networks (PAN), Public wide-area wireless networks, wireless Local Area Networks; Brief introduction to 3G – The universal mobile telecommunication system (UMTS) Basic idea of satellite mobile communication systems.

Text Books

1. Wireless Communications- Principles and Practice, T S Rappaport, Pearson Education India, Second Edition 2003
2. Wireless Communication and Networks, Upen Dalal, Oxford university Press, First Edition, 2015.
3. Wireless Communication and Networks 3G and Beyond, Iti Saha Misra, Tata McGraw Hill Education Pvt. Ltd, Second Edition, 2009.
4. Mobile Communication Engineering – Theory and Applications W C Y Lee, TMH Publication, Second Edition, 2008.

Reference Books

1. Fundamentals of Wireless communication , David Tse and Pramod Viswanath, Cambridge University Press, 2005
2. Wireless Communication, Andrea Goldsmith, Cambridge University Press, 2005