

K L University
Department of Electronics & Computer Engineering
M.Tech (Embedded Systems)

Course No. : 15-EM5104
Course Title : **Wireless Communications & Networks**
Course Structure : 3-2-0
Credits : 4

SYLLABUS:

UNIT I

Introduction to Mobile and Wireless Landscape: Definition of Mobile and Wireless, Components of Wireless Environment, Challenges, Applications, Overview of Wireless Networks, Categories of Wireless Networks, open Research topics.

Wireless LAN: Infra redVs radio transmission, Infrastructure and Ad-hoc Network,

IEEE 802.11: System architecture, Protocol architecture. **Bluetooth:** User scenarios, Architecture.

UNIT II:

Global System for Mobile Communications (GSM): Introduction, Mobile services, System architecture, Radio interface, Localization and calling, Handover, Security.

(Wireless) Medium Access Control: Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA.

UNIT III:

Mobile Network Layer:

Mobile IP: Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations, Dynamic Host Configuration Protocol (DHCP).

Mobile Ad hoc Networks (MANETs): Overview, Properties of a MANET, spectrum of MANET applications, routing and various routing algorithms.

UNIT IV

Mobile Transport Layer:Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission /time-out freezing, Selective retransmission, Transaction oriented TCP.

UNIT V

Broadcast Systems: Overview, Cyclical repetition of data, Digital audio broadcasting: Multimedia object transfer protocol, Digital video broadcasting: DVB data broadcasting, DVB for high-speed internet access, Convergence of broadcasting and mobile communications.

Text Book:

1. Jochen Schiller, "Mobile Communications", Pearson Education, Second Edition, 2009.

REFERENCE BOOKS:

1. MartynMallick, "Mobile and Wireless Design Essentials", Wiley, 2008.
2. Asoke K Talukder, et al, "Mobile Computing", Tata McGraw Hill, 2008.
3. Mobile Computing, Raj Kamal,Oxford University Press.
4. William Stallings, " Wireless Communications & Networks", Person, Second Edition, 2007.
6. JimGeier, "Wireless Networks first-step", Pearson, 2005.