WIRELESS NETWORKS

Course Code: 13CS2211 **L P C**
4 0 3

Pre requisites : Computer Networks.

Course Educational Objectives: The main objective of this course is that to teach the fundamentals of connectivity and communication of computers.

Course Outcomes:

1. To give exposure on different issues involved in setting up different types of networks of computers.
2. Students will gain knowledge on various wireless protocols and wifi technologies.
3. To give exposure on issues involved in MANETS.
4. To give an understanding of GPS mechanisms and issues.
5. To give exposure on various wireless and mobile protocols and their design issues

UNIT-I

WIRELESS COMMUNICATIONS STANDARD: Wireless Communication Standard-First, Second and Third Generation Wireless Communication Network, Coverage Extension, Types; Characterization of Wireless Channels-multipath Propagation, Linear Time Variant, Channel Model, Channel Correlation Function, Large Scale Path Loss and Shadowing, Fading.

UNIT-II

BAND PASS TRANSMISSION TECHNIQUE FOR MOBILE RADIO: Band pass Transmission Technique for Mobile Radio- Signal Space and Decision Region, Digital Modulation-MPSK, MSK, GMSK,OFDA, Power Spectral Density, Probability of Transmission Error; Receiver Technique for Fading Dispersive Channels

UNIT-III

FREQUENCY REUSE AND MOBILITY MANAGEMENT: Frequency reuse and mobility Management, Cell Cluster Concept, Co Channel and Adjacent Channel Interference, Call Blocking and Delay at Cell Site, Cell Splitting, Sectoring.

UNIT-IV

MULTIPLE ACCESS TECHNIQUE: Multiple Access Technique, Random Access, Carrier Sense Multiple Access (CSMA), Conflict Free Multiple Access Technology and Spectral Efficiency-FDMA, TDMA, CDMA,Mobility management and In wireless network-CAC, Handoff Management, Location Management for Cellular Network and PCS network, Traffic calculation.

UNIT-V

WIRELESS INTERNETWORKING: Wireless Internetworking-Mobile IP, Internet Protocol (IP), Transmission Control Protocol (TCP), Network Performance, Wireless Application Protocol(WAP) , Mobile AD HOC Network Characteristics of MANETs, Table-driven and Source-initiated On Demand routing protocols, Hybrid protocols, Wireless Sensor networks- Classification, MAC and Routing protocols.

TEXT BOOKS:

1. William Stallings: "Wireless Communications and networks" Pearson / Prentice Hall of India, 2nd Edition, 2007.

2. Mark & Zuang : “Wireless communication & networking”, Prentice Hall , 1st Edition, PHI , 2006.

REFERENCES:

1. Jim Geier: “Wireless Networks first-step”,2nd Edition Pearson, 2005.
2. Sumit Kasera et al: “2.5G Mobile Networks: GPRS and EDGE”, 3rd Edition TMH, 2008.
3. Matthew S.Gast: “802.11 Wireless Networks”, O’Reilly, 2nd Edition, 2006.
4. Theodore s. Rappaport: “Wireless Communications –principles and practice”, 2nd Edition, PHI, 200