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:
By the end of the course :
CO1 : Understand different issues involved in setting up different types of networks of computers.
CO1 : Understand the knowledge on various wireless protocols and wifi technologies.
CO1 : To give exposure on issues involved in MANETS.
CO1 : To give an understanding of GPS mechanisms and issues.
CO1 : 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