

Course Number and Name												
BEC002 - Wireless Networks												
Credits and Contact Hours												
3 and 45												
Course Coordinator's Name												
Mr V.Srinivasan												
Text Books and References												
TEXT BOOKS:												
1. Jochen Schiller, Mobile Communications , Second Edition, Pearson Education 2012.(Unit I,II,III)												
2. Vijay Garg , —Wireless Communications and networking , First Edition, Elsevier 2007.(Unit IV,V)												
REFERENCES:												
1. Erik Dahlman, Stefan Parkvall, Johan Skold and Per Beming, "3G Evolution HSPA and LTE for Mobile Broadband , Second Edition, Academic Press, 2008.												
2. Anurag Kumar, D.Manjunath, Joy kuri, —Wireless Networking , First Edition, Elsevier 2011.												
3. Simon Haykin , Michael Moher, David Koilpillai, —Modern Wireless Communications , First Edition, Pearson Education 2013												
Course Description												
<ul style="list-style-type: none"> To study about Wireless networks, protocol stack and standards. To study about fundamentals of 3G Services, its protocols and applications. To study about evolution of 4G Networks, its architecture and applications 												
Prerequisites						Co-requisites						
Communication Engineering-I, Random process						Computer Communication and networks						
required, elective, or selected elective (as per Table 5-1)												
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Course Outcomes (COs)												
CO1: Conversant with the latest 3G/4G and Wi-MAX networks and its architecture.												
CO2: Design and implement wireless network environment for any application using latest wireless protocols and standards.												
CO3: Implement different type of applications for smart phones and mobile devices with latest network strategies												
CO4: Compare and contrast multiple division techniques, mobile communication systems, and existing wireless networks.												
CO5: Classify network protocols, ad hoc and sensor networks, wireless MANs, LANs and PANs												
CO6: Apply wireless ID technologies, in particular RFID work.												
Student Outcomes (SOs) from Criterion 3 covered by this Course												
	COs/SOs	a	b	c	d	e	f	g	h	i	j	k
	CO1	H					M				M	
	CO2	M	L	H					L			
	CO3	M			M					H		
	CO4	L				H		M				M
	CO5		M									
	CO6						H					

List of Topics Covered

UNIT- I

WIRELESS LAN

9

Introduction-WLAN technologies: Infrared, UHF narrowband, spread spectrum -IEEE802.11: System architecture, protocol architecture, physical layer, MAC layer, 802.11b, 802.11a – Hiper LAN: WATM, BRAN, HiperLAN2 – Bluetooth: Architecture, Radio Layer, Baseband layer Link manager Protocol, security - IEEE802.16-WIMAX: Physical layer, MAC, Spectrum allocation for WIMAX

UNIT- II

MOBILE NETWORK LAYER

9

Introduction - Mobile IP: IP packet delivery, Agent discovery, tunneling and encapsulation, IPV6- Network layer in the internet- Mobile IP session initiation protocol - mobile ad-hoc network: Routing, Destination Sequence distance vector, Dynamic source routing

UNIT- III

MOBILE TRANSPORT LAYER

9

TCP enhancements for wireless protocols - Traditional TCP: Congestion control, fast retransmit/fast recovery, Implications of mobility - Classical TCP improvements: Indirect TCP, Snooping TCP, Mobile TCP, Time out freezing, Selective retransmission, Transaction oriented TCP - TCP over 3G wireless networks.

UNIT- IV

WIRELESS WIDE AREA NETWORK

9

Overview of UTM Terrestrial Radio access network-UMTS Core network Architecture: 3G-MSC, 3G-SGSN, 3G-GGSN, SMS-GMSC/SMS-IW MSC, Firewall, DNS/DHCP-High speed Downlink packet access (HSDPA)- LTE network architecture and protocol.

UNIT- V

4G NETWORKS

9

Introduction – 4G vision – 4G features and challenges - Applications of 4G – 4G Technologies: Multicarrier Modulation, Smart antenna techniques, OFDM-MIMO systems, Adaptive Modulation and coding with time slot scheduler, Cognitive Radio.