COURSE CODE	COURSE TITLE	L	T	P	C
1154EC105	WIRELESS TECHNOLOGIES	3	0	0	3

Course Category:

University Elective (4)

Preamble:

To provide guidelines to further accelerate research and development in Wireless Technologies. Significant advances in Adhoc sensing and communication technologies like 3G, 4G have led to the development of mobile and satellite communication.

a. Prerequisite Courses:

- Communication Systems
- Data communication and networks

b. Related Courses:

- Wireless Adhoc and Sensor Networks
- Mobile Communication
- Satellite Communication
- Wireless Communication Networks.

c. Course Educational Objectives:

- To learn the different types of MAC protocol
- To be expose the 3G wireless techniques and evaluation
- To understand the need of Adhoc and routing techniques of Wireless Sensor Network for better data processing transmissions.
- To understand the 4G features and Challenges

d. Course Outcomes:

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Describe the wireless LAN standards and MAC Sub layer	K2
CO2	Illustrate the 3G Network and evaluation	K3
CO3	Explain the concepts of Adhoc protocol and fundamental concepts of Sensor Networks	K2
CO4	Analyze the internetworking between WLANs and 3GWWANs	K4
CO5	Describe the features and challenges of 4G technology	K2

e. Correlation of COs with POs :

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H											
CO2		L										
CO3					**L**							
CO4	M		**L**		L	**L**						
CO5	M											L

H- High; M-Medium; L-Low

f. Course Content :

UNIT I WIRELESS LOCAL AREA NETWORKS 9

Introduction to wireless LANs - IEEE 802.11 WLANs - Physical Layer- MAC sub layer-MAC Management Sub layer- Wireless ATM - HIPERLAN- HIPERLAN-2, WiMax

UNIT II 3G OVERVIEW & 2.5G EVOLUTION 9

Migration path to UMTS, UMTS Basics, Air Interface, 3GPP Network Architecture,CDMA2000 overview- Radio and Network components, Network structure, Radio network, TD-CDMA, TDSCDMA.

UNIT III ADHOC & SENSOR NETWORKS 9

Characteristics of MANETs, Table-driven and Source-initiated On Demand routing protocols, Hybrid protocols, Wireless Sensor networks- Classification, MAC and Routing protocols.

UNIT IV INTERNETWORKING BETWEEN WLANS AND 3G WWANS 9

Interworking objectives and requirements, Schemes to connect WLANs and 3G Networks, Session Mobility, Interworking Architectures for WLAN and GPRS, System Description, Local Multipoint Distribution Service, Multichannel Multipoint Distribution system.

UNIT V 4G & BEYOND 9

4G features and challenges, Technology path, IMS Architecture, Convergent Devices,4G technologies, Advanced Broadband Wireless Access and Services, Multimedia, MVNO

Total: 45 Hours

a. Learning Resources

i.Text Books :

1. KavethPahlavan,. K. PrashanthKrishnamuorthy, "Principles of Wireless Networks", Prentice Hall of India, 2006.
2. Vijay. K. Garg, “Wireless Communication and Networking”, Morgan Kaufmann Publishers,http://books.elsevier.com/9780123735805:, 2007.
3. Clint Smith. P.E., and Daniel Collins, “3G Wireless Networks”, 2nd Edition, Tata McGraw Hill, 2007.

iii. Online resources

- www.wirelessnetworksonline.com