The LNMIIT, Jaipur
Department of Electronics and Communication Engineering
Wireless Mobile Networks (MTech 1ˢᵗ SEM)

Subject Code: XXX	Course Title: **Wireless and Mobile Networks**	Total Contact Hours: **40**	**L: 3**	**T: 0**	**P: 0**	**C: 3**
Pre-requisite: **Data communications**		Year: **1**	Semester: **Odd**			
Type of Course: **Institute Core**						

*** L Lectures, T Tutorials, P Practical C Credit*

Learning Objective:

The course is designed to provide wireless network concepts, protocols, mobility issues, wireless standards and applications such as WLAN, WPAN, WRAN, etc. It also highlights current wireless network challenges and will introduce new wireless network management paradigms such as SDN, NFV, edge computing, CRAN that are vital to the next generation programmable software-oriented wireless network.

Course outcomes (COs):

On completion of this course, the students will have the ability to:	Bloom's Level
CO-1 Learn and Identify the issues of wireless and mobile networks	2, 2
CO-2 Understand the wireless data networks architecture and **Identify** various cellular standards	2,1
CO-3 Explain and categorize various wireless local access technologies	2, 4
CO-4 Learn and **compare** various wireless access protocols.	2, 6
CO-5 Discuss and **analyze** different mobile computing paradigms.	6,6
CO-6 **Apply** concepts and application of SDN/NFV and cognitive radio in wireless mobile networks.	3

Course Topics	Lecture Hours	
UNIT – I Introduction to Wireless and Mobile Networks		
Wireless network architecture, physical layer issues, media access, RF interface design,	**3**	
Overview of network operation issues: planning, mobility management, radio resource and power management	**3**	**8**
Overview of wireless network applications: current practices and future trends	**2**	

UNIT – II Wireless Data Network Architectures and Standards	**8**	
Wireless data network architectures and functionalities	**4**	**8**
Cellular networks, 2G, 3G, LTE, LTE-advanced, cognitive radio, WRAN 802.22 wireless standard	**4**	
UNIT – III Wireless Local Access Technologies	**8**	
IEEE 802.11 WLANs, HIPERLAN, ad-hoc networks, Bluetooth and WPAN, Wi-max, Wi-gig	**8**	**8**
UNIT-IV Wireless Network Protocols	**8**	
Mobile IP, routing protocols, mobile transport layer protocol, wireless access protocols, networks mobility protocols	**8**	**8**
UNIT-V Mobile Computing Paradigms	**8**	
Concepts and applications of software defined networks (SDN)/ network functions virtualization (NFV) , edge computing, CRAN, network softwarization, resource management, traffic handling, QoS and security issues in wireless mobile networks, next-generation programmable wireless networks.	**5**	**8**
Cognitive Radio: Definitions, cognitive theories, architectures	**3**	

Textbook References:

- Wireless Communications and Networks, 2nd Edition by William Stallings Prentice Hall
- Introduction to Wireless and Mobile Systems, 3rd Edition by Dharma Prakash Agarwal and Qing Zheng, Cengage Learning.
- Mobile and wireless networks Vol 2, by Khaldoun Al Agha, Guy Pujolle, Tara Ali-Yahiya
- Location Management and Routing in Mobile Wireless Networks, by Khaldoun Al Agha, Guy Pujolle, Tara Ali-Yahiya

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Evaluation Method	
Item	**Weightage (%)**
Research Papers' Review and Presentation	20
Assignment	20
Midterm	20
Final Examination	40

*Please note, as per the existing institute's attendance policy the student should have a minimum of 75% attendance. Students who fail to attend a minimum of 75% lectures will be debarred from the End Term/Final/Comprehensive examination.

CO and PO Correlation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1															
CO2															
CO3															
CO4															
CO5															
CO6															

Last Updated on:

Updated By: Dr. Amit Agarwal, Dr. Vinay Bankey, and Prof. R. Gangopadhyay

Approved By: