C. U. SHAH UNIVERSITYWadhwan City

FACULTY OF:- Computer Science
DEPARTMENT OF: -Master of Computer Application
SEMESTER: -V
CODE: - 5CS05MWN1
NAME: – Wireless Networks and Security (WNS)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
							Theory				Practical (Marks)			
							Sessional Exam		University Exam		Internal		University	Total
		Th	Tu	Pr	Total		Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05MWN1	Wireless Networks and Security(WNS)	4	0	0	4	4	30	1.5	70	3	--	--	--	**100**

Objectives

- Help students become familiar with the fundamental Basics of wireless communication
- Help students to work with any infrastructure or cellular system of current and future wireless base networks.
- Student also builds their career in Research issues in emerging wireless networks.

Prerequisites

- Data Communication and Networks

Course Outline:

SNo.	Course Contents	Number of Hours
1	**Evolution of wireless communication systems** 1G wireless cellular networks: NMT, AMPS , TACS 2G cellular systems: GSM, IS-136, PDC ,IS-95 2.5G: HSCSD, GPRS, EDGE, IS-95B 3G: UMTS/W-CDMA,CDMA2000, Limitation of 3G 4G: Objectives ,Issues, QoS, Security , Multimedia Service, Applications, Convergence of Cellular and WLAN, Billing Issue, Wireless Networks, Cellular Technique	03
2	**Wireless Network** Wireless LAN, Mobile Ad hoc network, QoS, Mobile IP, Wireless Mesh Network, TCP over Wireless network.	05
3	**Emerging Networks** Wireless Sensor Network, Bluetooth Wireless PAN,	04

	High data rate wireless PAN, ZigBee (802.15.4), WiMAX(802.16)	
4	**Network Security and Symmetric Encryption** Security Trends, The OSI Security Architecture, Security Attacks, Security Services, SecurityMechanism, A Model for Internetwork Security, Internet Standards the Internet Society. Symmetric Encryption Principles, Symmetric Block Encryption Algorithms, Stream Ciphers and RC4, Cipher Block Modes of Operation, Location of Encryption Devices, Key Distribution.	18
5	**Public Key Cryptography and Authentication** Approaches to Message Authentication, Secure Hash Functions and HMAC, Public Key Cryptography Principles, Public Key Cryptography Algorithms, Digital Signatures	18
	Total	**45**

Learning Outcomes:

- Adequate knowledge of wireless networks.
- Able to carry research in different domains of wireless networks.
- Understand the network security and appreciate the importance of network in today's world.
- Apply security services and mechanisms in evaluating networked systems
- Analyze and use to apply best suited Network Security mechanisms and standards in various applications.

Teaching & Learning Methodology:

The module will be delivered via lectures (by teaching aids i.e. Projectors PPT and PDF's) and assignments. Students are also expected to undertake self-study during this course.

Books Recommended:

- Wireless Communication and Networks, **W. Stalling**, 2nd edition Pearson Education,
- Wireless Communications: Principles and Practices, **T S. Rappaport**, 2nd editionPearson Education,
- The Mobile Communications Handbook, **Jerry D. Gibson** ,3rd edition CRC Press.
- Computer Networking, Andrew S. Tanenbaum , Prentice Hall, Fourth Edition
- Cryptography and Network Security, **William Stallings,** Pearson Education.