SCHEME OF COURSEWORK

Course Details:

COURSE TITLE	Mobile Communications	
COURSE CODE	15CT1130 **L T P C**	**3 0 0 3**
PROGRAM	B.TECH	
SPECIALIZATION	CSE	
SEMESTER	VII	
PRE REQUISITES	COMPUTER NETWORKS	
COURSES TO WHICH IT IS A PRE REQUISITE	N/A	

Course Outcomes (COs):

CO - 1	Explain system architecture of GSM.
CO - 2	Explain concepts of mobile IP
CO - 3	Explain concepts of transport layer
CO - 4	Differentiate routing algorithms used in MANET's.
CO - 5	Discuss wireless application protocol architecture.

Program Outcomes (POs):

PO-1	Graduates will be able to apply the knowledge of mathematics, science, engineering fundamentals and principles of Computer Science & Engineering to solve complex problems in different domains
PO-2	Graduates can identify, formulate, study contemporary domain literature and analyze real life problems and make effective conclusions using the basic principles of science and engineering
PO-3	Graduates will be in a position to design solutions for Engineering problems requiring in depth knowledge of Computer Science and design system components and processes as per standards with emphasis on privacy, security, public health and safety.
PO-4	Graduates will be able to conduct experiments, perform analysis and interpret data as per the prevailing research methods and to provide valid conclusions.
PO-5	Graduates will be able to select and apply appropriate techniques and use modern software design and development tools. They will be able to predict and model complex engineering activities with the awareness of the practical limitations.
PO-6	Graduates will be able to carry out their professional practice in Computer Science & Engineering by appropriately considering and weighing the issues related to society and culture and the consequent responsibilities.
PO-7	Graduates would understand the impact of the professional engineering solutions on environmental safety and legal
PO-8	Graduates will transform into responsible citizens by adhering to professional ethics.
PO-9	Graduates will be able to function effectively in a large team of multidisciplinary streams consisting of persons of diverse cultures without forgetting the significance of each individual's contribution.
PO-10	Graduates will be able to communicate effectively about complex engineering activities with the engineering community as well as the general society, and will be able to prepare reports.
PO-11	Graduates will be able to demonstrate knowledge and understanding of the engineering and management principles and apply the same while managing projects in multidisciplinary environments.
PO-12	Graduates will engage themselves in self and life-long learning in the context of rapid technological changes happening in Computer Science and other domains.

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Course Outcome versus **Program Outcomes:**

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

S - Strongly correlated, *M - Moderately* correlated, *Blank - No Correlation*

Assessment Methods	Assignment / Quiz / Mid-Test

Teaching-Learning and Evaluation

Week	Topic/Contents	Course Outcome	Sample Questions	Teaching Learning Strategy	Assessment Method & Schedule
1	INTRODUCTION TO MOBILE COMMUNICATIONS AND COMPUTING: Novel applications, Limitations, and Architecture. Medium Access Control: Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA.	CO-1	1. What is mobile computing? Differences between Mobile computing and communication? 2. Explain near and far terminal in MAC. 3. What are the multiple access schemes and explain with neat diagrams?	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1
2	Wireless LAN(IEEE802.11): System architecture, Protocol architecture, Basic DFW MAC-DCF using CSMA/CA, DFWMAC with RTS/CTS extensions, DFWMACPCF with polling.	CO-1	1. Describe the main specifications of Physical Layer in the IEEE802.11a,11b and 11g, respectively. 2. Explain the principles of FDMA, TDMA and CDMA, respectively.	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1

SCHEME OF COURSEWORK

3	GSM : Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover security	CO-1	1. Define GSM Architecture. 2. Name the main elements of GSM system architecture and describe their functions.	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1
4	MOBILE NETWORK LAYER : Mobile IP (Goals, assumptions, Entities and Terminology, IP packet delivery.	CO-2	1. What is mobile IP? Explain various entities and terminologies used in Mobile Systems. 2. Explain tunneling and encapsulation in a mobile system.	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1
5	Agent advertisement and Discovery, Registration, Tunneling and Encapsulation, Optimizations). Dynamic Host Configuration Protocol (DHCP).	CO-2	1. Explain tunneling and encapsulation in a mobile system. 2. Explain in brief about DHCP.	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1
6	MOBILE TRANSPORT LAYER: Traditional TCP, Indirect TCP Snooping TCP, Mobile TCP.	CO-3	1. Difference between indirect TCP and Snooping TCP. 2. List out the disadvantages of snooping TCP .	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1
7	Fast retransmit/fast recovery, Transmission/time-out freezing ,Selective retransmission, Transaction oriented TCP.	CO-3	1. Explain Fast retransmit and Fast recovery in mobile TCP. 2. Explain transaction-oriented TCP with example. 3. Explain about the selective Retransmission.	Lecture USING BOARD	Assignment-2, Test- 2 Quiz-2
8	MOBILE AD HOC NETWORKS (MANETS): Overview, Properties of a MANET, Spectrum of MANET applications.	CO-4	1. Explain Wired and wireless Networks. 2. Explain Cellular Mobile Ad Hoc Networks	Lecture USING BOARD	Assignment-2, Test- 2 Quiz-2
9	Routing and various routing algorithms (DSR, DV/ DSDV, AODV, LSR/OLSR, FSR, CGSR, ZRP), Security issues in MANETs.	C0-4	1. Discuss and detail the differences in topology reorganization in DSDV and DSR routing protocols.	Lecture USING BOARD	Assignment-2 Test- 2 Quiz-2

SCHEME OF COURSEWORK

10	WAP:Introduction, Protocol Architecture, Treatment of protocols of all layers.	CO-5	features of WAP. 2.What are the major difference between WAP 2.0 and WAP 1.x? What influenced the WAP 2.0 development 3.Mention the role of transaction layer in WAP	Lecture USING BOARD	Assignment- 2, Test- 2 Quiz-2
11	Bluetooth: User scenarios, Physical layer, MAC layer, Networking, Security,Link Management.	CO-5	1.Describe architecture of BLUE TOOTH 2.Explain the security which is implemented in Bluetooth.	Lecture USING BOARD	Assignment-2 Test- 2 Quiz-2
12	J2ME: Configurations, Profiles, Packages, Midlet life cycle, Display and Displayable Classes, Command Listener and ItemState Listener interfaces.	CO-5	1. Implementing various properties of WAP using Command listener and ItemState listener interfaces. 2. With a neat sketch explain the architecture of J2ME.	Lecture USING BOARD	Assignment-2 Test- 2 Quiz-2