Course code	Course Name	L-T-P - Credits	Year of Introduction
IT403	Mobile Computing	3-0-0-3	2016

Prerequisite :Nil

Course Objectives

- Learn the basics of Mobile computing.
- Learn networking concepts relevant to modern wireless systems.
- Learn emerging mobile computing ideas and best practices.
- Get hands-on knowledge practice with mobile computing

Syllabus

Introduction - issues in mobile computing, Wireless Communication Technologies, Third Generation (3G) Mobile Services, GSM, GPRS-Mobile Network Layer, Mobile Transport Layer, Mobile Ad hoc Networks (MANETs),Routing algorithms, security in MANETs. Security in MANETs, Protocols and Tools : Wireless Application Protocol-WAP, Mobile Application Development (Android) M-commerce

Expected outcome .

The students will be able to

i. gain a sound understanding of the key components and technologies involved
ii. get hands-on experiences in setting up wired as well as wireless networks.
iii. describe the major techniques involved in mobile communication.
iv. Design and implement mobile network systems

References:

1. C.K.Toh, AdHoc Mobile Wireless Networks-, First Edition Pearson Education.
2. Jochen Schiller, Mobile Communications, Second Edition, Pearson Education
3. Kaveh Pahlavan, Prasanth Krishnamoorthy, Principles of Wireless Networks,Pearson Education
4. Shu Lin, Daniel J Costello, Error Control Coding Fundamentals and Applications: Prentice Hall Inc, 1983
5. William Stallings, Wireless Communications and Networks, Pearson Education.

Course Plan

Module	Contents	Hours	Sem. Exam Marks
I	Introduction - issues in mobile computing, Wireless Communication Technologies- Celluar Wireless networks ,Wireless(802.11), TCP/IP in the mobile setting , Geolocation and Global Positioning System (GPS) Third Generation (3G) Mobile Services: Introduction to International Mobile Telecommunications 2000 (IMT 2000) vision, Wideband Code Division Multiple Access (W-CDMA), and CDMA 2000, Quality of services in 3G.	7	15%
II	GSM- System Architecture-Protocols-Connection Establishment-Frequency Allocation-Routing-Handover-Security, GPRS	7	15%
	FIRST INTERNAL EXAMINATION		
III	Mobile Network Layer : Mobile IP (Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations), Dynamic Host Configuration Protocol (DHCP).	7	15%

IV	Mobile Transport Layer : Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission /time-out freezing, Selective retransmission, Transaction oriented TCP.	7	15%
SECOND INTERNAL EXAMINATION			
V	Mobile Ad hoc Networks (MANETs): Overview, Properties of a MANET, spectrum of MANET applications, routing and various routing algorithms, security in MANETs.	7	20%
VI	Protocols and Tools : Wireless Application Protocol-WAP. (Introduction, protocol architecture, and treatment of protocols of all layers) Mobile Application Development(Android) M-commerce	7	20%
END SEMESTER EXAM			

QUESTION PAPER PATTERN

Maximum Marks: 100 Exam Duration: 3 hours

The question paper shall consist of Part A, Part B and Part C.

Part A shall consist of three questions of 15 marks each uniformly covering Modules I and II. The student has to answer any two questions (15×2=30 marks).

Part B shall consist of three questions of 15 marks each uniformly covering Modules III and IV. The student has to answer any two questions (15×2=30 marks).

Part C shall consist of three questions of 20 marks each uniformly covering Modules V and VI. The student has to answer any two questions (20×2=40 marks).

Note : Each question can have a maximum of 4 subparts, if needed