Th-5 MOBILE COMPUTING
(Common to CSE/IT)

Theory	4 Periods per week	Internal Assessment	20 Marks
Total Periods	60 Periods	End Sem Exam	80 Marks
Examination	3hours	Total Marks	100Marks

A. Topic wise distribution of periods

Sl. No.	Topics	Periods
1	Introduction to Wireless networks & Mobile Computing	06
2	Introduction to Mobile Development Framework	06
3	Wireless Transmission	06
4	Medium Access Control	06
5	Wireless LANs	06
6	Ubiquitous Wireless Communication	06
7	Mobile IP	06
8	Mobile Computing	06
9	Wireless Telecomm Networks	06
10	Messaging Services	06
	TOTAL	**60**

B. RATIONALE: Now a days the communication technology has become very fast in development of various application areas. This subject will expose the learner to have an idea how the wireless network works along with the architecture of Mobile computing.

C. OBJECTIVE: After completion of thiscourse the student will be able to**:**

- To learn Mobile Computing Principles and Architecture
- To understand Mobility Management, GSM, and GPRS networks
- To know Short Message Service (SMS) technology, GPRS, WAP, CDMA, 3G
- Understand Wireless LAN, WiFi, and WLL (Wireless Local Loop) Architecture
- Understand the concept of Mobile IP.
- Learn Bluetooth, RFID, and Satellite Communications.
- To Know Next Generation Networks (NGN)

D. COURSE CONTENT

1. Introduction to Wireless networks & Mobile Computing 06
1.1 Networks
1.2 Wireless Networks
1.3 Mobile Computing
1.4 Mobile Computing Characteristics
1.5 Application of Mobile Computing

2. Introduction to Mobile Development Framework
2.1 C/S architecture
2.2 n-tier architecture
2.3 n-tier architecture and www
2.4 Peer-to Peer architecture
2.5 Mobile agent architecture

3. Wireless Transmission
3.1 Introduction
3.2 Signals
3.3 Period, Frequency and Bandwidth.
3.4 Antennas
3.5 Signal Propagation
3.6 Multiplexing
3.7 Modulation
3.8 Spread Spectrum
3.9 Cellular System

4. Medium Access Control
4.1 Introduction
4.2 Hidden/ Exposed Terminals
4.3 The basic Access Method
4.4 Near / Far Terminals
4.5 SDMA, FDMA,TDMA, CDMA

5. Wireless LANs
5.1 Wireless LAN and communication
5.2 Infrared
5.3 Radio Frequency
5.4 IR Advantages and Disadvantages
5.5 RF Advantages and Disadvantages
5.6 Wireless Network Architecture Logical
5.7 Types of WLAN
 5.8 IEEE 802.11
5.9 MAC layer
5.10 Security
5.11 Synchronization
5.12 Power Management
5.13 Roaming
5.14 Bluetooth Overview

6. Ubiquitous Wireless Communication
6.1 Introduction
6.2 Scenario of Mobile Communication
6.3 Mobile Communication Generations 1G to 3G
6.4 3rd Generation Mobile Communication Network
6.5 Universal Mobile telecommunication System (UMTS)

7. Mobile IP
7.1 Overview
7.2 Working with mobile IP
7.3 Mobile IP Entities
7.4 Mobility Agents
7.5 Components of Mobile IP
7.6 Mobile IPv6 Features
7.7 Mobile IPv6 Address Types
7.8 Mobile IPv6 Address Scope
7.9 Mobile IP Operation

8. Mobile Computing
8.1 WWW architecture for Mobile computing
8.2 Need of WAP
8.3 Benefits of WAP
8.4 Examples of WAP

8.5 WAP- Architecture
8.6 WAP protocols
8.7 WML
8.8 WAP Push architecture
8.9 Push-Pull based data acquisition
8.10 I-mode
8.11 WAP 2.x

9. Wireless Telecomm Networks
9.1 GSM
9.2 GPRS
9.3 IS-95
9.4 CDMA-2000
9.5 W-CDMA
9.6 Wireless Sensor Networks

10. Messaging Services
10.1 Short Message Services (SMS)
10.2 Multimedia Message Services (MMS)
10.3 Multimedia transmission over wireless

Coverage of Syllabus upto Internal Exams (I.A.)
Chapter 1,2,3,4

Books Recommanded:-

Sl.No	Name of Authors	Title of the Book	Name of the publisher
01	Dr. N.NJani, Kamaljit I. Lakhtaria, Dr. Ashish N. Jani & Nita Kanabar	Mobile Computing	S.Chand& Company Ltd