

## MOBILE COMPUTING

**Paper Code: ETIT-402**  
**Paper: Mobile Computing**

<b>L</b>	<b>T/P</b>	<b>C</b>
<b>3</b>	<b>1</b>	<b>4</b>

### **INSTRUCTIONS TO PAPER SETTERS:**

**MAXIMUM MARKS: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

*Objectives: Should have studied papers such as Communication systems, Data communications and networking and wireless networks. To learn the basic concepts, aware of the GSM, SMS, GPRS Architecture. To have an exposure about wireless protocols –Wireless LAN, Bluetooth, WAP, Zig Bee issues. To Know the Network, Transport Functionalities of Mobile communication. To understand the concepts of Adhoc and wireless sensor networks. Introduce Mobile Application Development environment.*

### **UNIT-I**

**Mobile Physical Layer:** Review of generation of mobile services, overview of wireless telephony, cellular concept, GSM: air-interface, channel structure, location management: HLR-VLR, hierarchical, handoffs, channel allocation in cellular systems, CDMA, GPRS.

**Mobile Computing Architecture:** Issues in mobile computing, three tier architecture for mobile computing, design considerations, Mobile file systems, Mobile databases. WAP: Architecture, protocol stack, Data gram protocol, Wireless transport layer security, Wireless transaction protocol, wireless session protocol, application environment, and applications.

[T1] [T2][T3] [No. of Hrs. 12]

### **UNIT-II**

**Mobile Data Link Layer:** Wireless LAN over view, IEEE 802.11, Motivation for a specialized MAC, Near & far terminals, Multiple access techniques for wireless LANs such as collision avoidance, polling, Inhibit sense, spread spectrum, CDMA, LAN system architecture, protocol architecture, physical layer MAC layer and management, Hiper LAN.

**Blue Tooth:** IEEE 802.15 Blue tooth User scenarios, physical, MAC layer and link management.  
Local Area Wireless systems: WPABX, IrDA, ZigBee, RFID, WiMax.

[T1] [T2][T3] [No. of Hrs. 11]

### **UNIT-III**

**MOBILE IP Network Layer:** IP and Mobile IP Network Layer- Packet delivery and Handover Management- Location Management- Registration- Tunnelling and Encapsulation-Route Optimization- Dynamic Host Configuration Protocol, Ad Hoc networks, localization, MAC issues, Routing protocols, global state routing (GSR), Destination sequenced distance vector routing (DSDV), Dynamic source routing (DSR), Ad Hoc on demand distance vector routing (AODV), VoIP –IPSec.

**Mobile Transport Layer:** Traditional TCP/IP, Transport Layer Protocols-Indirect, Snooping, Mobile TCP.

[T1] [T2][T3] [No. of Hrs. 11]

### **UNIT-IV**

**Support for Mobility:** Data bases, data hoarding, Data dissemination, UA Prof and Caching, Service discovery, Data management issues, data replication for mobile computers, adaptive clustering for mobile wireless networks, Mobile devices and File systems, Data Synchronization, Sync ML.

Introduction to Wireless Devices and Operating systems: Palm OS, Windows CE, Symbian OS, Android, Mobile Agents. Introduction to Mobile application languages and tool kits.

[T1] [T2][T3] [No. of Hrs. 11]

### **Course Outcomes:**

1. Gain the knowledge about various types of Wireless Data Networks and Wireless Voice Networks. 2. Understand the architectures, the challenges and the Solutions of Wireless Communication.
3. Realize the role of Wireless Protocols in shaping the future Internet.
4. Able to develop simple Mobile Applications Using Tool kit.