



# GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Master of Computer Applications, 5<sup>th</sup> Semester  
Subject Name: **Wireless Communication & Mobile Computing (WCMC)**  
Subject Code: 4659312

With effective  
from academic  
year 2018-19

## 1. Learning Objectives:

- To acquire conceptual knowledge of Mobile Computing, OS and its Architecture.
- To familiarize with the RFID, GSM, GPRS Technology.
- To familiarize with the WAP Protocol.

## 2. Prerequisites:

- Overview of Basic Networking, its protocol suite, Data Communications, Overview of Database and Distributed Systems.

## 3. Course Contents:

Unit	Course Content	Weightage Percentage
<b>Unit I</b>	<b>Mobile Computing Introduction</b> History of Wireless Communications, Types, propagation modes Wireless network architecture, Applications, Security, Concerns and Standards, Benefits, Future. Evolution of mobile computing, Needs of mobile users, SOC and AOC client, Mobile computing OS, Architecture for mobile computing, Three tier architecture, design considerations for mobile computing, mobile computing Through internet, making existing applications Mobile-Enabled.	20 %
<b>Unit II</b>	<b>Mobile Technologies</b> Bluetooth, Radio frequency identification (RFID), Wireless Broadband, MobileIP: Introduction, Advertisement, Registration, TCP connections, two level addressing, abstract mobility management model, performance issue, routing in mobile host, Adhoc networks, Mobile transport layer: Indirect TCP, Snooping TCP, Mobile TCP, Time out freezing, Selective retransmission, transaction Oriented TCPIpv6, Global system for mobile communication, GSM architecture, GSM entities, call routing in GSM, PLMN interface, GSM addresses and identifiers, network aspects in GSM, GSM frequency allocation, authentication and security, Short message services, Mobile computing over SMS, SMS, value added services accessing the SMS bearer.	30%
<b>Unit III</b>	<b>General packet radio service(GPRS):</b> GPRS and packet data network, GPRS network architecture, GPRS network operation, data services in GPRS, Applications of GPRS, Billing and charging in GPRS.	20 %
<b>Unit IV</b>	<b>Wireless Application Protocol(WAP):</b> Introduction to WebSocket, WebSocket API, WAP, MMS, GPRS application CDMA and 3G Spread-spectrum Technology, CDMA versus GSM, Wireless data, third generation networks, applications in 3G Wireless LAN, Wireless LAN advantages, IEEE802.11 standard Wireless LAN architecture, Mobility in Wireless LAN, Deploying Wireless LAN, Mobile adhoc networks and sensor networks, wireless LAN security, W iFi v/s 3G Voice over Internet protocol and convergence, Voice over IP, H.323 framework for	30%



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	voice over IP,SIP, comparison between H.323 ad SIP, Real time protocols, convergence technologies, call routing, call routing, voice over IP applications, IMS, Mobile VoIP, Security issues in mobile Information security, security techniques and algorithms, security framework for mobile environment.	
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#### 4. Text Book:

- 1) Mobile Computing , Asoke K Telukder, Roopa R Yavagal, TMH
- 2) The complete reference J2ME, TMH
- 3) Programming for Mobile and Remote Computers, G. T. Thampi, dreamtech
- 4) Handbook of Wireless Networks and Mobile Computing, Ivan Stojmenovic ,Wiley

#### 5. Reference Books:

- 1) Principles of Mobile Computing, - Hansmann, Merk, Nicklous and Stober, Springer
- 2) Mobile Communications, Jochen Schiller, Pearson
- 3) Mobile Computing, Raj Kamal, Oxford
- 4) Mobile Computing, Wandra & Wandra, Akshat Pub.
- 5) Android Wireless Application Development, Shane Conder, Lauren Darcey, Pearson
- 6) Professional Android 2 Application development, Reto Meier, Wrox, Wiley India

#### 6. Accomplishment of the student after completing the course:

- 1) Have thorough understanding about state of the art in Mobile Technologies, General packet radio service and Wireless Application Protocol.