



# C. U. SHAH UNIVERSITY

## Wadhwan City

**FACULTY OF:** - Technology and Engineering

**DEPARTMENT OF:** - Computer Engineering

**SEMESTER:** - VII

**CODE:** - 4TE07MCA1

**NAME:** – Mobile Computing and Application Development

**Teaching & Evaluation Scheme:-**

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme								
		Th	Tu	Pr	Total		Theory				Practical (Marks)				Total
							Sessional Exam		University Exam		Internal		University		
							Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr/Viva		
4TE07MCA1	Mobile Computing and Application Development	4	0	2	6	5	30	1.5	70	3.0	-	20	30	150	

**Objectives:**

The learning objectives of this course are to:

- To introduce the basic concepts and principles in mobile computing.
- To explore both theoretical and practical issues of mobile computing.
- To understand the key components and technologies involved.
- To gain hands-on experiences in building mobile applications.

**Prerequisites:**

- Basic knowledge of Network Technology and Wireless Network.

**Course outline:**

Sr. No.	Course Contents	Total Hrs.
<b>1</b>	<b>Mobile Computing Introduction:</b> History of Wireless Communications, Evolution of mobile computing, Architecture for mobile computing, Three tier architecture, design considerations for mobile computing, What mobile users need, SOC and AOC client, Mobile computing OS, making existing applications Mobile-Enabled.	<b>6</b>
<b>2</b>	<b>Mobile Technologies:</b> Bluetooth, Radio frequency Identification (RFID), Wireless Broadband, Mobile IP: 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 TCP.	<b>12</b>
<b>3</b>	<b>GSM/CDMA and GPRS:</b> Global system for mobile communication, Global system for mobile communication, GSM architecture, GSM entities, call routing in GSM, PLMN interface, GSM addresses and identifiers, network	<b>14</b>

	aspects in GSM,GSM frequency allocation, authentication and security, Short message services, Mobile computing over SMS,SMS, value added services through SMS, accessing the SMS bearer , Spread-spectrum Technology, CDMA versus GSM, IS-95, Forward and Reverse channels, GPRS and packet data network, GPRS network architecture, 3G networks, applications, Wireless LAN, WiFi v/s 3G, 3G v/s 4G, Introduction to 5G.	
<b>4</b>	<b>Introduction to Android:</b> Introduction to Java And Android, Introducing Development Framework, Android Virtual Device and SDK Manager, Android Architecture and, Android Development Tools, Android Asset Packaging Tool (AAPT), Android Debug Bridge, Types of Android Applications, Activity Lifecycle, Activity Classes, Introduction to Application Manifest, Installing Android, Component Lifecycle	<b>10</b>
<b>5</b>	<b>Building mobile applications with Android:</b> Android Layouts, Android UI and Advance Java, Android GUI Architecture, Layouts, Android Widget Toolbox, Web View, Grid View, Understanding Android Menus, Intents and Processes, Graphics Animation and Multimedia, Bitmaps, Introduction to Audio on Android, Introduction to Video, Android Persistence, Android Preferences, Using File system, Accessing SD cards,	<b>14</b>
	<b>Total</b>	<b>56</b>

### Learning Outcomes:

After completing this course, students will be able to:

- Identify and uses of Wireless Mobile Network.
- Make Mobile Application.

### Books Recommended:

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

### 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