



SRI VENKATESWARA COLLEGE OF ENGINEERING

COURSE DELIVERY PLAN - THEORY

Department of Information Technology		LP: IT18502
		Rev. No: 00
B.E/B.Tech M.E/M.Tech : B.E/B.Tech (CS & IT)	Regulation: 2018	Date: 22.7.21
PG Specialisation : --		
Sub. Code / Sub. Name : IT18502 – Mobile Computing		
Unit : I		

**Unit Syllabus:**

**INTRODUCTION**

Mobility of bits and bytes, Beginning of wireless, Mobile computing, Dialogue control, Networks, Middleware and gateway, Application and services, Developing mobile computing application, Security in mobile computing, Standards, Mobile computing architecture, Mobile computing through telephony.

**Objective:**

To know about the basic concepts of wireless communication technologies, mobile computing architecture and development of mobile computing applications.

Session No *	Topics to be covered	Ref	Teaching Aids
1	Introduction to Mobile Computing, Mobility of bits and bytes, Beginning of wireless, Mobile computing	1-Ch. 1; Pg. 1-8 2-Ch. 1; Pg. 7-16	PPT/Online
2	Dialogue control, Networks, Middleware and gateway, Application and services	1-Ch. 1; Pg. 9-16	PPT/Online
3	Developing mobile computing application, Security in mobile computing	1-Ch. 1; Pg. 16-18	PPT/Online
4	Standards - why are they necessary, who makes the standards, Standard Bodies	1-Ch. 1; Pg. 18-24	PPT/Online
5	Mobile computing architecture, Three Tier Architecture, Design Considerations for mobile computing	1-Ch. 1; Pg. 28-55	PPT/Online
6	Mobile computing through telephony, Multiple access procedures, Satellite communication, Developing an IVR application	1-Ch. 1; Pg. 58-75 2-Ch. 2; Pg. 41-45, 72-90	PPT/Online
7	Voice XML, Telephony Application Programming Interface (TAPI), computer supported telecommunications applications	1-Ch.1; Pg. 75-82 2-Ch.10;Pg.419-429	PPT/Online
8	Tutorial on Mobile computing architecture, Three Tier Architecture	1-Ch. 1; Pg. 28-55	PPT/Online
9	Tutorial on Mobile computing through telephony, Developing an IVR application	1-Ch. 1; Pg. 58-75 2-Ch. 2; Pg. 41-45, 72-90	PPT/Online
10	Tutorial on Telephony Application Programming Interface (TAPI), computer supported telecommunications applications	1-Ch.1; Pg. 75-82 2-Ch.10;Pg.419-429	PPT/Online
<b>Content beyond syllabus covered (if any):</b>			

\* Session duration: 50 minutes



Sub. Code / Sub. Name: **IT18502 – Mobile Computing**

Unit : **II**

**Unit Syllabus:**

**WIRELESS TECHNOLOGIES**

Bluetooth, RFID, WIMAX, Mobile IP, GSM,GPRS,CDMA, 3G,4G and 5G networks.

**Objective:**

To learn the Wireless techniques and the evolution of various generation wireless networks.

Session No *	Topics to be covered	Ref	Teaching Aids
11	Bluetooth – Bluetooth Protocols, Stack, Security, Application Models	1-Ch 4.Pg 99-105 2-Ch 7, Pg. 269-291	PPT
12	RFID – Applications	1-Ch 4.Pg. 105-109	PPT
13	WIMAX – Physical layer, MAC, Broadband applications, Mobile cellular system	1-Ch 4.Pg. 109-113	PPT
14	Mobile IP – Working, Discovery, Registration, Tunneling, Cellular IP	1-Ch 4.Pg. 109-113 2-Ch 8, Pg. 304-324	PPT
15	GSM – Architecture, Entities, Call routing, PLMN interface, Addresses & Identifiers, Network aspects, Authentication& Security	1-Ch 5.Pg. 137-164 2-Ch 4.Pg. 96-129	PPT
16	GPRS – packet data networks, architecture, operations, data services, applications.	1-Ch 7.pg 203-221	PPT
17	CDMA – Spread spectrum technology, IS 95, CDMA vs GSM	1-Ch 9.pg 255-279	PPT
18	3G - Wireless data, 3G, Applications	1-Ch 9.pg 279-293	PPT
19	4G & 5G	Internet	PPT
20	Tutorial on Mobile IP – Working, Discovery, Registration, Tunneling, Cellular IP	1-Ch 4.Pg. 109-113 2-Ch 8, Pg. 304-324	PPT
21	Tutorial on GSM – Architecture, Entities, Call routing, PLMN interface, Addresses & Identifiers, Network aspects, Authentication& Security	1-Ch 5.Pg. 137-164 2-Ch 4.Pg. 96-129	PPT
22	Tutorial on GPRS – packet data networks, architecture, operations, data services, applications.	1-Ch 7.pg 203-221	PPT
<b>Content beyond syllabus covered (if any):</b>			

\* Session duration: 50 mins



Sub Code / Sub Name: **IT18502 – Mobile Computing**

Unit : III

**Unit Syllabus:**

**WIRELESS LAN AND INTELLIGENT NETWORKS**

Introduction-Advantages, IEEE 802.11 standards, Architecture, Mobility, Deploying wireless LAN, Mobile Ad hoc and Sensor network, Security, Wireless access in vehicular environment, Wireless local loop, Hyper LAN , Wi-Fi versus 3G, Wireless Application Protocol, Fundamentals of call Processing, Intelligence in networks, SS#7 signaling, IN conceptual model, soft switch, programmable networks, Technologies and interfaces for IN, SS7 security, MAPsec, Virtual Private Network.

**Objective:**

To learn about various concepts involved in wireless LAN and intelligent networks.

Session No *	Topics to be covered	Ref	Teaching Aids
23	Introduction-Advantages of Wireless LAN	1-Ch.10; Pg. 251-253	PPT
24	IEEE 802.11 Standards, Wireless LAN Architecture, Mobility in Wireless LAN	1-Ch.10; Pg. 254-268 2-Ch.7; Pg. 207-238	PPT
25	Deploying Wireless LAN, Mobile Adhoc networks and Sensor networks	1-Ch.10; Pg. 254-273 2-Ch.8; Pg. 330-340	PPT
26	Wireless LAN Security, Wireless access in vehicular environment	1-Ch.10; Pg. 274-280	PPT
27	Wireless Local Loop - WLL Architecture, Hyper LAN, Wi-Fi versus 3G	1-Ch.10; Pg. 280-284	PPT
28	Wireless Application Protocol	1-Ch.8; Pg. 194-215 2-Ch.10; Pg. 392-418	PPT
29	Fundamentals of call Processing, Intelligence in networks	1-Ch.8; Pg. 287-291	PPT
30	SS#7 signaling, SS#7 Protocol Stack, SS7 Signal Unit	1-Ch.8; Pg. 291-300	PPT
31	IN Conceptual Model(INCM)	1-Ch.8; Pg. 300-304	PPT
32	Softswitch, Programmable networks	1-Ch.8; Pg. 304-305	PPT
33	Technologies and interfaces for IN, SS7 security	1-Ch.8; Pg. 305-307	PPT
34	MAPsec, Virtual Private Network	1-Ch.8; Pg. 307-309	PPT
35	Tutorial on Wireless Local Loop	1-Ch.10; Pg. 280-284	PPT
36	Tutorial on Wireless Application Protocol	1-Ch.8; Pg. 194-215 2-Ch.10; Pg. 392-418	PPT
37	Tutorial on SS#7 signaling, SS#7 Protocol Stack, SS7 Signal Unit	1-Ch.8; Pg. 291-300	PPT

**Content beyond syllabus covered (if any):**

\* Session duration: 50 minutes



Sub Code / Sub Name: **IT18502 – Mobile Computing**

Unit : **IV**

**Unit Syllabus:**

**COMPUTING IN MOBILE ENVIRONMENT**

Client Programming, Programming for palm OS, Wireless device with Symbian OS, J2ME, Wireless device with Windows CE, Wireless device with Android OS.

**Objective:**

To learn about development and computing environment used in various Mobile devices

Session No *	Topics to be covered	Ref	Teaching Aids
38	Client Programming	1-Ch. 12; Pg. 312-323	PPT
39	PDA & Design Constraints	1-Ch. 12; Pg. 319-323	PPT
40	Programming for the palm OS	1- Ch. 13;Pg. 327-349	PPT
41	Multimedia and latest in palm OS	1-Ch. 13; Pg. 350-355	PPT
42	Wireless device with Symbian OS	1-Ch. 14; Pg. 358-383	PPT
43	J2ME	1-Ch. 15; Pg. 388-439	PPT
44	MIDP & JSR	1-Ch. 15; Pg. 440-459	PPT
45	Wireless device with windows CE & Android OS	1-Ch. 16; Pg. 463-476 Internet	PPT
46	Tutorial on Programming for the palm OS	1- Ch. 13;Pg. 327-349	PPT
47	Tutorial on Wireless device with windows CE	1-Ch. 16; Pg. 463-476 Internet	PPT
48	Tutorial on Android OS	1-Ch. 16; Pg. 463-476 Internet	PPT
<b>Content beyond syllabus covered (if any): IP Multimedia Subsystems</b>			

\* Session duration: 50 minutes



Sub. Code / Sub. Name: **IT18502 – Mobile Computing**

Unit : **V**

**Unit Syllabus:**

**APPLICATIONS**

Voice over Internet and Convergence, SMS, CODEC, Networked Multimedia Applications, Issues in Multimedia delivery over the internet, Multimedia Networking Protocols, Security issues in mobile computing, Next generation networks, **APP DEVELOPMENT** : Native, Hybrid, Android Application development - SDK, Features of SDK, Android Application Components, software stack structure.

**Objective:**

In this unit, various applications of mobile computing and the various mobile application development environment and SDK will be discussed in detail

Session No *	Topics to be covered	Ref	Teaching Aids
49	Voice over Internet and Convergence, Voice over IP, H.323 Framework for voice over IP, SIP	1-Ch. 17; Pg. 480-486	PPT
50	Real Time Protocols ,Convergence Technologies, Call Routing, IMS, Voice over wireless LAN	1-Ch. 17; Pg. 487-500	PPT
51	SMS, Coder and Decoder(CODEC)	1-Ch. 6; Pg. 145-170 1-Ch. 18; Pg. 509-514	PPT
52	Networked Multimedia Applications, Issues in Multimedia delivery over the internet, Multimedia Networking Protocols	1-Ch. 18; Pg. 520-525	PPT
53	Security issues in mobile computing, Information Security, Security Techniques and Algorithms, Security Protocols	1-Ch. 20; Pg. 565-579	PPT
54	Public Key Infrastructure, Security Models, Security frameworks for Mobile Environment	1-Ch. 20; Pg. 583-591	PPT
55	Next generation networks, All in one The Converged Scenario, Narrowband to Broadband, All IP and B3G Network	1-Ch. 21; Pg. 601-605	PPT
56	OFDM, FAMA / DAMA, Wireless Asynchronous Transfer mode, multiple play	1-Ch. 21; Pg. 605-612	PPT
57	APP DEVELOPMENT : Native, Hybrid, Android Application development, SDK, Features of SDK, Android Application Components, software stack structure	Internet	PPT
58	Tutorial on Security issues in mobile computing	1-Ch. 20; Pg. 565-579	PPT
59	Tutorial on Next generation networks	1-Ch. 21; Pg. 601-605	PPT
60	Tutorial on APP DEVELOPMENT : Native, Hybrid, Android Application development, SDK, Features of SDK, Android Application Components, software stack structure	Internet	PPT

**Content beyond syllabus covered (if any):**

\* Session duration: 50 mins




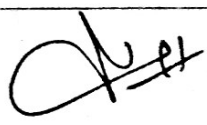
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**TEXTBOOKS:**

1. Asoke Talukder, Hasan Ahmed and Roopa R yavagal —Mobile computing Technology, Application and service creationl, Second edition, McGraw Hill, 2010.
2. Jochen Schiller, —Mobile Communicationsl, Second Edition, Pearson, 2004.

**REFERENCES:**

1. "Beginning for Android 4 Application Development", Wei Meng Lee, Wiley –India Edition, 2012.
2. Zigurd Mednieks, Laird Dornin, G, Blake Meike and Masumi Nakamura, —Programming Androidl, O'Reilly, 2011.

	Prepared by	Approved by
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Designation	Associate Prof/INT	Prof/INT
Date	22.7.21	22.7.21
Remarks*: The same Lesson Plan is used for current semester.		
Remarks* :		

\* If the same lesson plan is followed in the subsequent semester/year it should be mentioned and signed by the Faculty and the HOD