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DHANALAKSHMI SRINIVASAN
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COURSE PLAN

Subject code: CS8601	**Branch/Year/Sem/Section: B.E CSE/III/VI**
Subject Name: MOBILE COMPUTING	**Batch:2017-2021**
Staff Name: F.ANGEL IGNISHYAA	**Academic year:2019-2020(EVEN)**

COURSE OBJECTIVE

1. To understand the basic concepts of mobile computing.
2. To learn the basics of mobile telecommunication system .
3. To be familiar with the network layer protocols and Ad-Hoc networks.
4. To know the basis of transport and application layer protocols.
5. To gain knowledge about different mobile platforms and application development.

TEXT BOOK:

T1. Jochen Schiller, ―Mobile Communications‖, PHI, Second Edition, 2003.
T2. Prasant Kumar Pattnaik, Rajib Mall, ―Fundamentals of Mobile Computing‖, PHI Learning Pvt.Ltd, New Delhi – 2012.

REFERENCES:

R1. Dharma Prakash Agarval, Qing and An Zeng, "Introduction to Wireless and Mobile systems",Thomson Asia Pvt Ltd, 2005.
R2. Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, ―Principles of Mobile Computing‖, Springer, 2003.
R3. William.C.Y.Lee,―Mobile Cellular Telecommunications-Analog and Digital Systems‖, Second Edition,TataMcGraw Hill Edition ,2006.
R4. C.K.Toh, ―AdHoc Mobile Wireless Networks‖, First Edition, Pearson Education, 2002.
R5. Android Developers : http://developer.android.com/index.html
R6. Apple Developer : https://developer.apple.com/
R7. Windows Phone DevCenter : http://developer.windowsphone.com
R8. BlackBerry Developer : http://developer.blackberry.com

WEB RESOURCES

W1: https://nptel.ac.in

TEACHING METHODOLOGIES:

- BB - BLACK BOARD
- VIDEO - VIDEO TUTORIAL
- PPT - POWER POINT PRESENTATION

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CS8601	**MOBILE COMPUTING**	**L T P C**
		3 0 0 3

UNIT I INTRODUCTION 9

Introduction to Mobile Computing – Applications of Mobile Computing- Generations of Mobile Communication Technologies- Multiplexing – Spread spectrum -MAC Protocols – SDMA- TDMA- FDMA- CDMA

UNIT II MOBILE TELECOMMUNICATION SYSTEM 9

Introduction to Cellular Systems - GSM – Services & Architecture – Protocols – Connection Establishment – Frequency Allocation – Routing – Mobility Management – Security – GPRSUMTS – Architecture – Handover - Security

UNIT III MOBILE NETWORK LAYER 9

Mobile IP – DHCP – AdHoc– Proactive protocol-DSDV, Reactive Routing Protocols – DSR, AODV , Hybrid routing – ZRP, Multicast Routing- ODMRP, Vehicular Ad Hoc networks (VANET) –MANET Vs VANET – Security.

UNIT IV MOBILE TRANSPORT AND APPLICATION LAYER 9

Mobile TCP– WAP – Architecture – WDP – WTLS – WTP –WSP – WAE – WTA Architecture – WML

UNIT V MOBILE PLATFORMS AND APPLICATIONS 9

Mobile Device Operating Systems – Special Constraints & Requirements – Commercial Mobile Operating Systems – Software Development Kit: iOS, Android, BlackBerry, Windows Phone – MCommerce – Structure – Pros & Cons – Mobile Payment System – Security Issues

TOTAL: 45 PERIODS

Topic No	Topic Name	Books For reference	Page No	Teaching Methodology	No of periods required	Cumulative periods
UNIT I	**INTRODUCTION**					**(9)**
1.	Introduction to Mobile Computing	T1	(3-7)	BB	1	1
2.	Applications of Mobile Computing.	T1 T2	(25-27), (27-29)	BB	1	2
3.	Generations of Mobile Communication Technologies	T1 T2	(28-37), (109-115)	BB	1	3
4.	Multiplexing	T1	(39-44)	BB	1	4
5.	Spread spectrum	T1	(45-50)	BB	1	5
6.	MAC Protocols	T1 T2	(50-59), (180-187)	BB	1	6
7.	SDMA- TDMA	T1 T2	(59-64), (175-180)	BB	1	7
8.	FDMA	T1	(69-89)	BB	1	8
9.	CDMA	T2	(278-329)	BB	1	9
LEARNING OUTCOME: **At the end of unit , the students will be able to** • To understand the concepts of Mobile Computing • Students to learn how to Media Access Control.						
UNIT II	**MOBILE TELECOMMUNICATION SYSTEM**					**(9)**
10.	Introduction to Cellular Systems	T1 T2	(93-100), (18-20)	BB/PPT	1	10
11.	GSM	T1	(105-113)	BB	1	11
12.	Services & Architecture	T1	(117-122)	BB/PPT	1	12
13.	Protocols, Connection Establishment	T1	(122-130)	BB/PPT	1	13
14.	Frequency Allocation, Routing	T1	(130-134)	BB	1	14
15.	Mobility Management, Security	T1	(134-149)	BB/PPT	1	15
16.	GPRS/UMTS	T2	(251-252)	BB	1	16

17.	Architecture	T2	(252-259)	BB	1	17
18.	Handover , Security	T2	(260-275)	BB/PPT	2	18

LEARNING OUTCOME:

At the end of unit , the students will be able to

- To make the students solve UMTS & IMT 2000-UMTS.
- To using Telecommunication Networks methods.

UNIT – III	**MOBILE NETWORK LAYER**					**(9)**
19.	Mobile IP – DHCP.	T1	(201-205)	BB	1	19
20.	AdHoc– Proactive protocol	T1	(207-210)	BB/PPT	1	20
21.	DSDV, Reactive Routing Protocols	T1	(211-213)	BB	1	21
22.	DSR, AODV	T1	(214-224)	BB	1	22
23.	Hybrid routing ZRP,	T1	(225-230)	BB/PPT	1	23
24.	ODMRP	T1	(231-238)	BB/PPT	1	24
25.	Vehicular Ad Hoc networks (VANET)	T1	(239-257)	BB	1	25
26.	MANET Vs VANET	T1	(257-268)	BB	1	26
27.	Security Phase.	T1	(269-293)	BB/PPT	1	27

LEARNING OUTCOME:

At the end of unit , the students will be able to

- To make the students understand Ad Hoc Network: - Routing, Types..
- And using Blue tooth – Physical Layer techniques.

UNIT IV	**MOBILE TRANSPORT AND APPLICATIONS LAYER**					**(9)**
28.	Mobile TCP	T1 T2	(303-308), (373-387)	BB	1	28
29.	WAP ,Architecture	T1	(309-312)	BB	1	29

30.	WDP	T1	(315-320)	BB	1	30
31.	WTLS	T1	(321-324)	BB	1	31
32.	WTP	T1	(328-330)	BB	1	32
33.	WSP	T1	(330-334)	BB	1	33
34.	WAE	T1	(335-338)	BB	1	34
35.	WTA Architecture	T1	(339-343)	BB	1	35
36.	WML	T1	(343-346)	BB	1	36

LEARNING OUTCOME:

At the end of unit , the students will be able to

- Problems solved Mobile TCP - IP Packet Delivery are discussed for better understanding.
- Understand the concept of WTP,WSP

UNIT V	**MOBILE PLATFORMS AND APPLICATIONS**					**(9)**
37.	Mobile Device Operating Systems	T1	(351-353)	BB	1	37
38.	Special Constraints & Requirements	T1	(353-359)	BB	1	38
39.	Commercial Mobile Operating Systems	T1	(360-363)	BB	2	40
40.	Software Development Kit: iOS, Android, BlackBerry, Windows Phone	T1	(363-365)	BB	1	41
41.	MCommerce	T1	(392-394)	BB	1	42
42.	Structure.	T1	(394-397)	BB	1	43
43.	Pros & Cons	T1	(400-416)	BB & PPT	2	45
44	Mobile Payment System					
45	Security Issues					

LEARNING OUTCOME:

At the end of unit , the students will be able to

To make students understand Software Development Kit: iOS, Android, BlackBerry, Windows Phone.

COURSE OUTCOME

At the end of the course, the student should be able to:

- Explain the basics of mobile telecommunication systems
- Illustrate the generations of telecommunication systems in wireless networks
- Determine the functionality of MAC, network layer and Identify a routing protocol for a given Ad hoc network
- Explain the functionality of Transport and Application layers
- Develop a mobile application using android/blackberry/ios/Windows SDK

CONTENT BEYOND THE SYLLABUS

- Basics of mobile telecommunication systems
- Generations of telecommunication systems in wireless networks.
- Network layer and Identify a routing protocol for a given Ad hoc network.

CONTINUES INTERNAL ASSESSMENT DETAILS

ASSESMENT NUMBER	**I**	**II**	**MODEL**
TOPIC NO.(UNIT)	1-18 (1st & 2nd units)	19-36 (3rd & 4th units)	1-45 (units 1-5)

ASSIGNMENT DETAILS

ASSIGNMENT NUMBER	**I**	**II**	**III**
TOPIC NUMBER FOR REFERENCE	1-18 (1st & 2nd units)	19-36 (3rd & 4th units)	1-45 (units 1-5)
DEAD LINE			

ASSIGNMENT NUMBER	**DESCRIPTIVE QUESTIONS/TOPIC (Minimum of 8 Pages)**
I	Applications of Mobile Computing
II	GSM Architecture
III	DSDV

PREPARED BY **VERIFIED BY**

F.ANGEL IGNISHYAA, AP/CSE **HOD/CSE**

APPROVED BY

PRINCIPAL