RSET
RAJAGIRI SCHOOL OF
ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

B. TECH.
IN
INFORMATION TECHNOLOGY

SEMESTER VII
(2021 SCHEME)

SYLLABUS

Rajagiri Valley, Kakkanad,
Kochi 682 039, Kerala, INDIA
www.rajagiritech.ac.in

COURSE CODE	COURSE NAME	L	T	P	CREDIT	YEAR OF INTRODUCTION
101004/IT701B	MOBILE COMPUTING	2	1	0	3	2021

1. Preamble

The syllabus is prepared with a view to equip the engineering graduates:

1. To impart an understanding of basic concepts of cellular mobile communication.
2. To get an awareness of different mobile communication systems.
3. To introduce mobile network layer and mobile transport layer services.
4. To introduce support for mobility in wireless environments.

2. Prerequisite

NIL

3. Syllabus

Module 1: Introduction to Cellular Systems

Introduction to mobile systems, Limitations of conventional system, Basic cellular mobile system- Analog and digital cellular systems, 1G, 2G, 3G, 4G and 5G cellular systems, Cellular radio system design- Frequency reuse, Co-channel interference.
Medium access control- MAC, SDMA, FDMA, TDMA, CDMA, Handoffs and dropped calls- Initiation of handoff, Types of handoffs- Power difference, Mobile assisted, Cell-site, Intersystem.

Module 2: Communication Systems-I

Telecommunication systems: GSM, System architecture, Protocol, Localization and calling, GPRS- System architecture, Protocol architecture, DECT- System architecture, Protocol architecture, IMT-2000- Basic concepts and Objectives. Broadcast systems: Digital audio and video broadcasting. Satellite Systems: GEO, LEO, MEO.

Module 3: Communication Systems-II

Wireless systems: IEEE 802.11-Architecture, Physical and MAC layer, HIPERLAN-HIPERLAN1, HIPERLAN2, WATM, Bluetooth- Architecture, protocol stack.

Module 4: Mobile Network Layer

Mobile IP- Goals, assumptions and requirements, Entities and terminology, IP packet delivery, Agent advertisement and discovery, Registration, Tunnelling and encapsulation, Optimizations.
Dynamic Host Configuration Protocol (DHCP), Mobile Ad-hoc Networks (MANETs)- Features, Routing, Routing algorithms-DSDV, DSR, MANET Security issues.

Module 5: Mobile Transport Layer

Traditional TCP, Classical TCP improvements-Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission/time-out freezing, Selective retransmission, Transaction oriented TCP. Support for mobility - WWW, WAP.

4. Text Books

1. Jochen Schiller, Mobile Communications, Pearson Education, Second Edition.

5. Reference Books

1. C.K.Toh, AdHoc Mobile Wireless Networks, Pearson Education, First Edition.
2. William Stallings, Wireless Communications and Networks, Pearson Education, 2e.
3. Kaveh Pahlavan, Prasanth Krishnamoorthy, Principles of Wireless Networks, Pearson Education.
4. Theodore S. Rappaport, Wireless Communications: Principles and Practice, Pearson Education, 2/e, 2010.
5. William C.Y Lee, Mobile Cellular Telecommunications, McGraw Hill International Editions, 1995.

6. Course Outcomes

After the completion of the course the student will be able to

CO 1:**Discuss** the basic concepts in cellular mobile systems and its design.

CO 2:**Summarize** telecommunication systems, broadcast systems, and satellite systems.

CO 3:**Compare** wireless standards such as IEEE 802.11, HIPERLAN and Bluetooth.

CO 4:**Discuss** mobile network layer concepts such as mobile IP, DHCP and MANET.

CO 5:**Explain** the concepts of mobile transport layer and support for mobility.

7. Mapping of Course Outcomes with Program Outcomes and Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	-	-	-	-	-	-	-	-	2
CO2	3	1	-	-	-	-	-	-	-	-	-	2
CO3	3	2	2	-	-	-	-	-	-	-	-	2
CO4	3	-	2	-	-	-	-	-	-	-	-	2
CO5	3	1	1	-	-	-	-	-	-	-	-	2

	PSO1	PSO2	PSO3
CO1	3	-	2
CO2	3	-	1
CO3	3	-	1
CO4	3	-	2
CO5	3	1	1

8. Assessment Pattern

Learning Objectives	**Continuous Internal Evaluation (CIE)**		**End Semester Examination (ESE out of 100)**
	Internal Examination 1 (50)	**Internal Examination 2 (50)**	
Remember	15	15	30
Understand	35	35	70
Apply			
Analyse			
Evaluate			
Create			

9. Mark Distribution

Total	CIE				ESE
	Attendance	Internal Examination	Assignment/Quiz/ Course Project	Total	
150	10	25	15	50	100

10. End Semester Examination Pattern

There will be two parts; Part A and Part B. Part A contain 10 questions with 2 questions from each module, having 3 marks for each question. Students should answer all questions. Part B contains 2 questions from each module of which student should answer any one. Each question can have maximum 2 sub-divisions and carry 14 marks.

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