Doc. No.:
Revision :00

Lecture Plan -1

Semester: - VII Class:-ECS Course Code:-CSIT-410

Subject:- **MOBILE COMPUTING** Section-A

S. No.	**Topic:- Introduction**:	**Time Allotted:-**
1.	**Introduction** Wireless communication, Wireless data technologies, Frequencies for radio signals, antennas and signal propagation, need and types of multiplexing techniques, modulation types, use of spread spectrum, cellular systems.	10 min
2	**Division of the Topic** Wireless communication Wireless data technologies Frequencies for radio signals Antennas and signal propagation Frequencies & Regulation Signals Antennas	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -2

Semester: - VII Class:-ECS Course Code:-CSIT-410

Subject:- **MOBILE COMPUTING** Section-A

S. No.	Topic :-Introduction	Time Allotted:-
1.	**Introduction** Wireless communication, Wireless data technologies, Frequencies for radio signals, antennas and signal propagation, need and types of multiplexing techniques, modulation types, use of spread spectrum, cellular systems.	5 min
2	**Division of the Topic** • Multiplexing • Need of multiplexing techniques • Frequency multiplexing • Time multiplexing • Code multiplexing	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -3

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- **MOBILE COMPUTING** Section-A

S. No.	Topic :- **Introduction**:	Time Allotted:-
1.	**Introduction** Wireless communication, Wireless data technologies, Frequencies for radio signals, antennas and signal propagation, need and types of multiplexing techniques, modulation types, use of spread spectrum, cellular systems.	5 min
2	**Division of the Topic** • Modulation • Demodulation • Digital Modulation • Use of spread spectrum • Effects of spreading • DSSS • FHSS • Cellular systems	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -4

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- **MOBILE COMPUTING** Section-A

S. No.	Topic :- Medium Access Control	Time Allotted:-
1.	**Introduction** **Medium Access Control:** Need for MAC algorithm, medium access methods and comparison of these methods.	5 min
2	**Division of the Topic** - • Introduction • Need for MAC algorithm • Multiple Access • Motivation • Taxonomy of protocols	45 min

v**TEXT BOOKS:**

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -5

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- **MOBILE COMPUTING** Section-A

S. No.	Topic :- Medium Access Control	Time Allotted:-
1.	**Introduction** **Medium Access Control:** Need for MAC algorithm, medium access methods and comparison of these methods. .	5 min
2	**Division of the Topic** • Random Access • Maximum Propagation Delay • Aloha • Pure Aloha • Slotted Aloha • Efficiency	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -6

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- **MOBILE COMPUTING** Section-A

S. No.	Topic :- Medium Access Control	Time Allotted:-
1.	**Introduction** **Medium Access Control:** Need for MAC algorithm, medium access methods and comparison of these methods. .	5 min
2	**Division of the Topic** • CSMA • Types of CSMA • Flow Diagram • CSMA/CD • Exponential Backoff Algorithm • Performance of Random Access Protocols	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -7

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- **MOBILE COMPUTING** Section-A

S. No.	Topic :- Medium Access Control	Time Allotted:-
1.	**Introduction** **Medium Access Control:** Need for MAC algorithm, medium access methods and comparison of these methods. .	10 min
2	**Division of the Topic** • **Controlled Access or Scheduling** • **Reservation access method** • **Polling** • **Token-Passing network** • **Channelization** • **FDMA** • **TDMA** • **CDMA** • **Comparison**	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -8

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-B

S. No.	Topic :- Digital mobile Phone Systems	Time Allotted:-
1.	**Introduction** GSM: mobile services, system architecture, radio interference, protocols, localization and calling, hand over, security, new data services, other digital cellular networks, comparison with GSM. .	5 min
2	**Division of the Topic** • Market • GSM • Mobile services	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -9

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-B

S. No.	Topic :- Digital mobile Phone Systems	Time Allotted:-
1.	**Introduction** GSM: mobile services, system architecture, radio interference, protocols, localization and calling, hand over, security, new data services, other digital cellular networks, comparison with GSM.	5 min
2	**Division of the Topic** • Architecture of the GSM system • GSM Overview • Elements & interfaces • Subsystems	40min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -10

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-B

S. No.	Topic :- Digital mobile Phone Systems	Time Allotted:-
1.	**Introduction** GSM: mobile services, system architecture, radio interference, protocols, localization and calling, hand over, security, new data services, other digital cellular networks, comparison with GSM.	5 min
2	**Division of the Topic** • Cellular Network • frequency bands • BTS, BSC • MS • GSM TDMA FDMA • GSM hierarchy of frames	45min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-11

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-B

S. No.	Topic:- Digital mobile Phone Systems	Time Allotted:-
1.	**Introduction** GSM: mobile services, system architecture, radio interference, protocols, localization and calling, hand over, security, new data services, other digital cellular networks, comparison with GSM.	10 min
2	**Division of the Topic** • GSM protocol layers for signaling • Mobile Terminated Call • Mobile Originated Call • MTC/MOC • 4 types of handover • Security in GSM • GPRS	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-12

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-**B**

S. No.	Topic :- Digital mobile Phone Systems	Time Allotted:-
1.	**Introduction** GSM: mobile services, system architecture, radio interference, protocols, localization and calling, hand over, security, new data services, other digital cellular networks, comparison with GSM.	10 min
2	**Division of the Topic** • DECT Architecture Layers • TETRA Architecture Technology Data Rates	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-13

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- **MOBILE COMPUTING** Section-B

S. No.	Topic: - Digital mobile Phone Systems	Time Allotted:-
1.	**Introduction** GSM: mobile services, system architecture, radio interference, protocols, localization and calling, hand over, security, new data services, other digital cellular networks, comparison with GSM.	10 min
2	**Division of the Topic** • UMTS • IMT • Licensing example • UMTS architecture • Domains & interfaces • OVSF • Frame Structure	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-14

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-B

S. No.	Topic: - Digital mobile Phone Systems	Time Allotted:-
1.	**Introduction** GSM: mobile services, system architecture, radio interference, protocols, localization and calling, hand over, security, new data services, other digital cellular networks, comparison with GSM.	10 min
2	**Division of the Topic** • UTRAN architecture • Functions • Breathing Cells • UMTS Services • Early 3G networks • Some current GSM enhancements • Some current UMTS enhancements	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-15

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-B

S. No.	Topic: - Digital mobile Phone Systems	Time Allotted:-
1.	**Introduction** GSM: mobile services, system architecture, radio interference, protocols, localization and calling, hand over, security, new data services, other digital cellular networks, comparison with GSM.	10 min
2	**Division of the Topic** • Long Term Evolution (LTE) • Features • Frame Structure • Architecture • LTE Advanced	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-16

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-C

S. No.	Topic :- Wireless LAN	Time Allotted:-
1.	**Introduction-** Introduction, advantages and design goals for wireless LAN, Infrastructure, ad-hoc networks, IEEE 802.11: system and protocol architecture, physical layer, HIPERLAN protocol architecture and physical layer and MAC, Blue tooth physical and MAC layer. Wireless ad-hoc networks.	10 min
2	**Division of the Topic** • Introduction • Advantages of WLAN • Design goals for wireless LAN • Comparison: infrared vs. radio transmission • Comparison: infrastructure vs. ad-hoc networks • IEEE standard 802.11 • 802.11 - Layers and functions	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-17

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-C

S. No.	Topic :- Wireless LAN	Time Allotted:-
1.	**Introduction-** Introduction, advantages and design goals for wireless LAN, Infrastructure, ad-hoc networks, IEEE 802.11: system and protocol architecture, physical layer, HIPERLAN protocol architecture and physical layer and MAC, Blue tooth physical and MAC layer. Wireless ad-hoc networks.	10 min
2	**Division of the Topic** • 802.11 - DFWMAC • Fragmentation • 802.11 - Frame format • WLAN: IEEE 802.11b • Channel selection (non-overlapping) • WLAN: IEEE 802.11a • HIPERLAN • Characteristics	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-18

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-C

S. No.	Topic :- Wireless LAN	Time Allotted:-
1.	**Introduction-** Introduction, advantages and design goals for wireless LAN, Infrastructure, ad-hoc networks, IEEE 802.11: system and protocol architecture, physical layer, HIPERLAN protocol architecture and physical layer and MAC, Blue tooth physical and MAC layer. Wireless ad-hoc networks.	10 min
2	**Division of the Topic** • ATM • Basic principle • Cell-based transmission • WATM services • BRAN • HiperLAN2	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-19

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-C

S. No.	Topic :- Wireless LAN	Time Allotted:-
1.	**Introduction-** Introduction, advantages and design goals for wireless LAN, Infrastructure, ad-hoc networks, IEEE 802.11: system and protocol architecture, physical layer, HIPERLAN protocol architecture and physical layer and MAC, Blue tooth physical and MAC layer. Wireless ad-hoc networks.	10 min
2	**Division of the Topic** • **Bluetooth** • **Characteristics** • **Piconet** • **Scatternet** • **Bluetooth protocol stack** • **SDP – Service Discovery Protocol** • **Future developments**	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-20

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-C

S. No.	Topic :- Protocols for mobile computing	Time Allotted:-
1.	**Introduction-** Mobile network layer, mobile IP, Snooping TCP, Mobile TCP, Fast and selective retransmission and recovery, Transaction oriented TCP.	10 min
2	**Division of the Topic** • Mobile network layer • Goals, Assumptions and Requirements • Motivation for Mobile IP • Requirements to Mobile IP • Overview • Encapsulation • Problems with mobile IP	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-21

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- **MOBILE COMPUTING** Section-C

S. No.	Topic :- Protocols for mobile computing	Time Allotted:-
1.	**Introduction-** Mobile network layer, mobile IP, Snooping TCP, Mobile TCP, Fast and selective retransmission and recovery, Transaction oriented TCP.	10 min
2	**Division of the Topic** • Transport Layer • Motivation • Snooping TCP • Mobile TCP • Fast retransmit/fast recovery • Selective retransmission • Transaction oriented TCP • Comparison	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -22

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-D

S. No.	**Topic :- Wireless Application Protocol**	Time Allotted:-
1.	**Introduction** WAP architecture wireless datagram protocol, transport layer security, WML, script.	10 min
2	**Division of the Topic** - History - Mobile Applications - WAP - Goals - Features - Architecture	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -23

Semester: -VII Class:-ECS Course Code:- CSIT-410
Subject:- MOBILE COMPUTING Section-D

S. No.	Topic :- Wireless Application Protocol	Time Allotted:-
1.	**Introduction** WAP architecture wireless datagram protocol, transport layer security, WML, script.	10 min
2	**Division of the Topic** - WAP Devices - WAP Proxy - WML - Protocol Stack - Wireless Datagram Protocol (WDP) - Wireless Session Protocol (WSP) - Wireless Transaction Protocol (WTP)	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-24

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-D

S. No.	Topic :- Wireless Application Protocol	Time Allotted:-
1.	**Introduction** WAP architecture wireless datagram protocol, transport layer security, WML, script.	10 min
2	**Division of the Topic** • Wireless Transport Layer Security (WTLS) • Internal Architecture • Wireless Application Environment (WAE) • Wireless Markup Language • WML Script • Advantages • Disadvantages • Usage	45min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-25

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-D

S. No.	Topic :- Palm OS	Time Allotted:-
1.	**Introduction-** Architecture, features of kernel, memory, system managers, Symbian OS: Architecture, hardware interface, memory, management, Window CE: features and architecture.	10 min
2	**Division of the Topic** • Overview • Architecture • Features of kernel • Memory organization	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -26

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-D

S. No.	Topic :- Palm OS	Time Allotted:-
1.	**Introduction** Architecture, features of kernel, memory, system managers, Symbian OS: Architecture, hardware interface, memory, management, Window CE: features and architecture..	10 min
2	**Division of the Topic** • System managers • Data manager • Resource manager • Application structure	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -27

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-D

S. No.	Topic :- Palm OS	Time Allotted:-
1.	**Introduction-** Architecture, features of kernel, memory, system managers, Symbian OS: Architecture, hardware interface, memory, management, Window CE: features and architecture.	10 MIN
2	**Division of the Topic** • EMBEDDED OPERATING SYSTEM • INTRODUCTION • HISTORY • CHARACTERISTICS • MEMORY MANAGEMENT	45 MIN

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-28

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-D

S. No.	Topic :- Palm OS	Time Allotted:-
1.	**Introduction-** Architecture, features of kernel, memory, system managers, Symbian OS: Architecture, hardware interface, memory, management, Window CE: features and architecture.	10 MIN
2	**Division of the Topic** • FEATURES • STRENGTHS AND WEAKNESS • SYMBIAN ACHITECTURE • HARDWARE INTERFACE • PLATFORM SECURITY	45 MIN

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan-29

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-D

S. No.	Topic :- Palm OS	Time Allotted:-
1.	**Introduction-** Architecture, features of kernel, memory, system managers, Symbian OS: Architecture, hardware interface, memory, management, Window CE: features and architecture.	10 min
2	Division of the Topic • Brief History • Windows CE Limits • Windows CE 5.0 Memory Model • Windows CE 6.0 Memory Model • Application Virtual Memory Space • Kernel Virtual Memory Space • New Features	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)

Doc. No.:
Revision :00

Lecture Plan -30

Semester: -VII Class:-ECS Course Code:-CSIT-410

Subject:- MOBILE COMPUTING Section-D

S. No.	Topic :- Palm OS	Time Allotted:-
1.	**Introduction-** Architecture, features of kernel, memory, system managers, Symbian OS: Architecture, hardware interface, memory, management, Window CE: features and architecture.	10 min
2	**Division of the Topic** • Compatibility • Windows CE 6.0 OAL Design • Drivers	45 min

TEXT BOOKS:

1. Mobile Communications – Jachen Schiller (Addison- Wesley)
2. Mobile Computing – Asoke K Talukder, Roopa R Yavgal, (TMH Publishing)