

Lecture Plan 1

Semester:-VII
Course Code:- EE-402-F

Class:- ECS
Subject:- Wireless Communication

Section: A

S. No.	Topic :- Introduction to wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems	<u>15</u>
2.	Division of the Topic 1. Evolution of mobile radio communications 2. Mobile radio systems in the world	<u>30</u>
3.	Conclusion Introduction to various wireless systems would be discussed. Brief description of evolution and various mobile radio systems in the world are introduced.	<u>5</u>
4.	Question / Answer What do you understand by the term wireless?	<u>10</u>

Reference Readings:-

Wireless Communications: Theodore S. Rappaport, Pearsons

Lecture Plan 2Semester:-VIIClass:-ECSCourse Code:- EE-402-FSubject:-Wireless CommunicationsSection - A

S. No.	Topic :- Introduction to wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems Examples of wireless communication systems .	<u>5</u>
2.	Division of the Topic * Paging system * block diagram of paging system * paging system considerations	<u>30</u>
3.	Conclusion One-way paging systems would be discussed.	<u>5</u>
4.	Question / Answer 1. What is page? Explain the operation of pagers	<u>10</u>

Reference Readings:-

Wireless Communications: Theodore S. Rappaport, Pearsons

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Lecture Plan 3

Semester:-VII

Class:-ECS

Course Code: EE-402-F Subject:- Wireless Communications Section - A

S. No.	Topic :- Introduction to wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems Examples of wireless communication systems	<u>5</u>
2.	Division of the Topic 1. Cordless telephone systems 2. Operation and application 3. Cordless generations	<u>30</u>
3.	Conclusion Function of cordless telephone systems would be discussed	<u>5</u>
4.	Question / Answer 1. What are the applications of pagers and cordless phones.	<u>10</u>

Reference Readings:-

Wireless Communications: Theodore S. Rappaport, Pearsons

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Lecture Plan 4

Semester:-VII

Class:-ECS

Course Code:- EE-402-F

Subject:- Wireless Communications

Section - A

S. No.	Topic :- Introduction to wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems Examples of wireless communication systems	<u>5</u>
2.	Division of the Topic * Cellular telephone systems * Explain the process of making a mobile call	<u>30</u>
3.	Conclusion Cellular telephone system and its components will be explained. Process of making cellular telephone call would be explained	<u>5</u>
4.	Question / Answer What are the various componets of a cellular telephone system?	<u>10</u>

Reference Readings:-

Wireless Communications: Theodore S. Rappaport, Pearsons

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Lecture Plan 5

Semester:-VII

Class:-ECS

Course Code:- EE-402-F

Subject:- Wireless Communications

Section - A

S. No.	Topic :- Introduction to wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems Examples of wireless communication systems	<u>5</u>
2.	Division of the Topic 1. Comparison of various wireless systems 2. TVII remote controller 3. Door opener 4. Cordless phone 5. Cellular phone	<u>30</u>
3.	Conclusion Comparison of common wireless communication systems would be discussed	<u>5</u>
4.	Question / Answer Q1. What is coverage area and operating frequency requirements of various commonly used wireless systems?	<u>10</u>

Reference Readings:-

Wireless Communications: Theodore S. Rappaport, Pearsons

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Lecture Plan 6

Semester:-VII

Class:-ECS

Course Code:- EE-402-F

Subject:- Wireless Communications

Section - A

S. No.	Topic :- Modern wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems Modern wireless communication systems	<u>5</u>
2.	Division of the Topic 1. Second generation (2G) cellular networks 2. GSM & radio interface 3. GSM network architecture	<u>30</u>
3.	Conclusion Second generation digital cellular network would be discussed. Concept of radio interface will be explained. Various elements of GSM networks would be explained.	<u>5</u>
4.	Question / Answer Q1. What is radio interface? Q2. How GSM technology would be related to radio interface?	<u>10</u>

Reference Readings:-

Wireless Communications: Theodore S. Rappaport, Pearsons

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Lecture Plan 7

Semester:-VII

Class:-ECS

Course Code:- EE-402-F Subject:- Wireless Communications Section - A

S. No.	Topic :- Modern wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems Modern wireless communication systems	<u>5</u>
2.	Division of the Topic 1. Second generation (2G) cellular networks 2. IS-95 3. IS – 136 & PDC	<u>30</u>
3.	Conclusion Other second generation cellular IS-95, IS-136 & PDC would be explained.	<u>5</u>
4.	Question / Answer What is the difference between IS-95 & IS-136?	<u>10</u>

Reference Readings:-

Wireless Communications: Theodore S. Rappaport, Pearsons

Lecture Plan 8Semester:-VIIClass:- ECSCourse Code:- EE-402-FSubject:- Wireless CommunicationsSection - A

S. No.	Topic :- Modern wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems Modern wireless communication systems	<u>5</u>
2.	Division of the Topic 1. Second generation (2G) cellular networks 2. GPRS (2.5G) 3. EDGE (2.75G)	<u>30</u>
3.	Conclusion Digital cellular networks GPRS (General Packet Radio Service) and EDGE would be discussed.	<u>5</u>
4.	Question / Answer Q1. What is GPRS used for? Q2. What is the basic difference between GPRS and EDGE?	<u>10</u>

Assignment to be given:-

Write a short note about Process creation and process termination?

Reference Readings:-

Wireless Communications: Theodore S. Rappaport, Pearsons

Lecture Plan 9Semester:-VIIClass:- ECSCourse Code:- EE-402-FSubject:- Wireless CommunicationsSection - A

S. No.	Topic :- Modern wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems Modern wireless communication systems	<u>5</u>
2.	Division of the Topic 1. Third generation (3G) cellular networks 2. UMTS and Um 3. UMTS architecture	<u>30</u>
3.	Conclusion Third generation cellular network (3G) would be discussed. Architecture of UMTS and various air-interface standards are explained.	<u>5</u>
4.	Question / Answer Q1. What is the air-interface standard used in UMTS? Q2. Mention 3G cellular networks other than UMTS	<u>10</u>

Reference Readings:-Operating system concepts by Silberchatz, 5th edition

Lecture Plan 10Semester:-VIIClass:-ECSCourse Code:- EE-402-FSubject:- Wireless CommunicationsSection - A

S. No.	Topic :- Modern wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems Modern wireless communication systems	<u>5</u>
2.	Division of the Topic 1. Wireless in Local Loop (WLL)	<u>30</u>
3.	Conclusion Purpose and standards of WLL would be discussed.	<u>5</u>
4.	Question / Answer Q1. What is the difference between WLL and UMTS?	<u>10</u>

Reference Readings:-Operating system concepts by Silberchatz, 5th edition

Lecture Plan 11

Semester:-VII

Class:- ECS

Course Code:- EE-402-F Subject:- Wireless Communications Section - A

S. No.	Topic :- Modern wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems Modern wireless communication systems	<u>5</u>
2.	Division of the Topic 1. Wireless LAN	<u>30</u>
3.	Conclusion Architecture of WLAN and its applications, standards would be discussed.	<u>5</u>
4.	Question / Answer Q1. Difference between WLL and WLAN.	<u>10</u>

Reference Readings:-

Operating system concepts by Silberchatz, 5th edition

Lecture Plan 12Semester:-VIIClass:- ECSCourse Code:- EE-402-FSubject:- Wireless CommunicationsSection - A

S. No.	Topic :- Modern wireless communication systems	Time Allotted:-
1.	Introduction to wireless communication systems Modern wireless communication systems	<u>5</u>
2.	Division of the Topic 1. Bluetooth 2. Personal Area Networks	<u>30</u>
3.	Conclusion Various modern wireless communication technologies like Bluetooth and PAN would be discussed.	<u>5</u>
4.	Question / Answer 1. What are Bluetooth and PAN?	<u>10</u>

Reference Readings:-Operating system concepts by Silberchatz, 5th edition

Lecture Plan 13

Semester:-VII

Class:-ECS

Course Code:- EE-402-F

Subject:- Wireless Communications

Section - B

S. No.	Topic :- Introduction to Cellular Mobile Systems	Time Allotted:-
1.	Introduction to Cellular Mobile Systems	<u>5</u>
2.	Division of the Topic 1. Spectrum allocation 2. Basic Cellular Concepts	<u>30</u>
3.	Conclusion Spectrum allocation for various wireless communication standards would be explained. Basic cellular concepts like cell splitting and sectoring would be discussed.	<u>5</u>
4.	Question / Answer Q1. What is a cell in cellular networks? Q2. Why cell shape is to be designed as hexagonal?	<u>10</u>

Reference Readings:-

Operating system concepts by Silberchatz, 5th edition

Lecture Plan 14

Semester:-VII

Class:- ECS

Course Code:- EE-402-F

Subject:- Wireless Communications

Section - B

S. No.	Topic :- Introduction to Cellular Mobile Systems	Time Allotted:-
1.	Introduction to Cellular Mobile Systems	<u>5</u>
2.	Division of the Topic 1. Performance criterion of cellular networks 2. Operation of cellular systems	<u>38</u>
3.	Conclusion VIIarious performance parameters of a cellular network would be discussed. Explanation of operation of cellular network systems (hand-off etc) would be introduced.	<u>2</u>
4.	Question / Answer Q1. What is hand-off? Q2. What are various performance criteria of cellular communication system?	<u>5</u>

Reference Readings:-

Operating system concepts by Silberchatz, 5th edition

Lecture Plan 15

Semester:-VII

Class:-ECS

Course Code:- EE-402-F

Subject:- Wireless Communications

Section - B

S. No.	Topic :- Introduction to Cellular Mobile Systems	Time Allotted:-
1.	Introduction to Cellular Mobile Systems	<u>5</u>
2	Division of the Topic 1. Analog Cellular Systems 2. Digital Cellular systems	<u>35</u>
3.	Conclusion VIIarious analog cellular communication systems are compared and explained against digital cellular systems.	<u>3</u>
4.	Question / Answer Q1. What is differences between analog and digital cellular systems?	<u>7</u>

Reference Readings:-

Operating system concepts by Silberchatz, 5th edition

Lecture Plan 16

Semester:-VII

Class:-ECS

Course Code:- EE-402-F Subject:- Wireless Communications Section - B

S. No.	Topic :- Introduction to Cellular Mobile Systems	Time Allotted:-
1.	Cellular System Design Fundamentals	<u>5</u>
2.	Division of the Topic 1. Frequency reuse 2. Channel assignment strategies	<u>35</u>
3.	Conclusion Cellular system design considerations and frequency reuse techniques would be explained. Also various channel assignment strategies are discussed.	<u>5</u>
4.	Question / Answer Q1. What is frequency reuse?	<u>5</u>

Reference Readings:-

Operating system concepts by Silberchatz, 5th edition

Lecture Plan 17

Semester:-VII

Class:- ECS

Course Code:- EE-402-F

Subject:- Wireless Communications

Section - B

S. No.	Topic :- Cellular System Design Fundamentals	Time Allotted:-
1.	Cellular System Design Fundamentals	<u>5</u>
2.	Division of the Topic 1. Hand-off 2. Interference and system capacity	<u>35</u>
3.	Conclusion VIIarious hand-off strategies would be explained. Interference and capacity of cellular system would be discussed.	<u>5</u>
4.	Question / Answer Q1. What is hand-off? Q2. What do you understand by capacity of a cellular system?	<u>5</u>

Reference Readings:-

Operating system concepts by Silberchatz, 5th edition

Lecture Plan 18

Semester:-VII

Class:- ECS

Course Code:- EE-402-F

Subject:- Wireless Communications

Section - B

S. No.	Topic :- Cellular System Design Fundamentals	Time Allotted:-
1.	Cellular System Design Fundamentals	<u>7</u>
2.	Division of the Topic 1. Tracking and grade off service 2. Improving coverage and capacity	<u>35</u>
3.	Conclusion Improving cellular area coverage and capacity would be discussed.	<u>3</u>
4.	Question / Answer Q1. What are the factors that influence coverage and capacity of a cellular network?	<u>5</u>

Reference Readings:-

Operating system concepts by Silberchatz, 5th edition

Lecture Plan 19Semester:-VIIClass:- ECSCourse Code:- EE-402-F Subject:- Wireless Communications Section - C

S. No.	Topic :- Multiple Access techniques for Wireless Communication	Time Allotted:-
1.	Multiple Access techniques for Wireless Communication	<u>5</u>
2.	Division of the Topic <ol style="list-style-type: none"> 1. Introduction to multiple access 2. FDMA 3. TDMA 	<u>40</u>
3.	Conclusion <p>Introduction to multiple access techniques in cellular networks would be explained. Multiple access techniques TDMA and FDMA are explained.</p>	<u>2</u>
4.	Question / Answer <p>Q1. Difference between FDMA and TDMA? Q2. What do you understand by multiple access?</p>	<u>3</u>

Assignment to be given:-**Reference Readings:-**Operating system concepts by Silberchatz, 5th edition

Lecture Plan 20

Semester:-VII

Class:- ECS

Course Code:- EE-402-F Subject:- Wireless Communications Section - C

S. No.	Topic :- Multiple Access techniques for Wireless Communication	Time Allotted:-
1.	Multiple Access techniques for Wireless Communication	<u>5</u>
2.	Division of the Topic 1. SSMA (Spread Spectrum Multiple Access) 2. Space Division Multiple Access (SDMA)	<u>35</u>
3.	Conclusion Other multiple access techniques: SSMA and SDMA would be discussed in detail.	<u>5</u>
4.	Question / Answer Q1. What is spread spectrum and its advantages?	<u>5</u>

Reference Readings:-

Operating system concepts by Silberchatz, 5th edition

Lecture Plan 21

Semester:-VII

Class:- ECS

Course Code:- EE-402-F

Subject:- Wireless Communications

Section - C

S. No.	Topic :- Multiple Access techniques for Wireless Communication	Time Allotted:-
1.	Multiple Access techniques for Wireless Communication	<u>7</u>
2.	Division of the Topic 1. Packet radio 2. Capacity of cellular system	<u>35</u>
3.	Conclusion Packet radio in detail would be explained. Capacity of cellular system is to be discussed.	<u>3</u>
4.	Question / Answer Q1. What is packet radio?	<u>5</u>

Reference Readings:-

Operating system concepts by Silberchatz, 5th edition

Lecture Plan 22

Semester:-VII

Class:- ECS

Course Code:- EE-402-F Subject:- Wireless Communications Section - C

S. No.	Topic :- Wireless Networking	Time Allotted:-
1.	Wireless Networking	<u>6</u>
2.	Division of the Topic 1. Fixed telephone networks 2. Wireless telephone networks	<u>35</u>
3.	Conclusion Fixed telephone networks (PSTN) would be explained and compared with wireless telephone networks.	<u>2</u>
4.	Question / Answer Q1. What are differences between fixed and wireless telephone networks?	<u>7</u>

Reference Readings:-

Operating system concepts by Silberchatz, 5th edition

Lecture Plan 23Semester:-VIIClass:- ECSCourse Code:- EE-402-F Subject:- Wireless Communications Section - C

S. No.	Topic :- Wireless Networking	Time Allotted:-
1.	Multiple Access techniques for Wireless Communication	<u>10</u>
2.	Division of the Topic <ol style="list-style-type: none"> 1. Fixed network transmission hierarchy 2. Traffic routing in wireless networks 3. Common channel signaling 	<u>30</u>
3.	Conclusion <p>Traffic routing and transmission hierarchy would be discussed. Various common channel signaling would be introduced.</p>	<u>5</u>
4.	Question / Answer <p>Q1. How traffic routing in wireless network can be done?</p>	<u>5</u>

Reference Readings:-

Wireless Communications: Theodore S. Rappaport, Pearsons

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Lecture Plan 24

Semester:-VII

Class:- ECS

Course Code:- EE-402-F Subject:- Wireless Communication

Section - C

S. No.	Topic :- Wireless Networking	Time Allotted:-
1.	Wireless Networking	<u>5</u>
2.	Division of the Topic 1. ISDN 2. BRI, PRI rates 3. Advanced Intelligent Networks	<u>35</u>
3.	Conclusion Architecture and block diagram of ISDN would be explained. Various data rate services like BRI, PRI would be introduced. Intelligence and advanced intelligent networks would be discussed.	<u>3</u>
4.	Question / Answer Q1. What are BRI and PRI services?	<u>7</u>

Reference Readings:-

Wireless Communications: Theodore S. Rappaport, Pearsons

Lecture Plan 25Semester:-VIIClass:- ECSCourse Code:- EE-402-F Subject:- Wireless CommunicationSection - D

S. No.	Topic :- Intelligent Cell concept and Application	Time Allotted:-
1.	Intelligent Cell concept and Application	<u>7</u>
2.	Division of the Topic 1. Intelligent cell concept	<u>35</u>
3.	Conclusion Intelligent cell concept would be explained.	<u>3</u>
4.	Question / Answer Q1. What is intelligent cell concept?	<u>5</u>

Reference Readings:-

Mobile Cellular Telecommunications: Willium C. Y. Lee, TMH

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Semester:-VII

Class:- ECS

Course Code:- EE-402-F Subject:- Wireless Communication

Section - D

S. No.	Topic :- Intelligent Cell concept and Application	Time Allotted:-
1.	Intelligent Cell concept and Application	<u>3</u>
2.	Division of the Topic 1. Applications of Intelligent micro-cell systems	<u>40</u>
3.	Conclusion Explanation of Intelligent micro-cell systems and its applications would be introduced.	<u>2</u>
4.	Question / Answer Q1. What is micro-cell??	<u>5</u>

Reference Readings:-

Mobile Cellular Telecommunications: Willium C. Y. Lee, TMH

Lecture Plan 27Semester:-VIIClass:- ECSCourse Code:- EE-402-FSubject:- Wireless CommunicationSection - D

S. No.	Topic :- Intelligent Cell concept and Application	Time Allotted:-
1.	Intelligent Cell concept and Application	<u>5</u>
2	Division of the Topic 1. In-Building communication 2. CDMA cellular radio networks \ 	<u>35</u>
3.	Conclusion Deadlock can be avoided using two algorithms	<u>3</u>
4.	Question / Answer Q1. Explain in detail CDMA cellular radio networks. Q2. What is in-building communication?	<u>7</u>

Reference Readings:-

Mobile Cellular Telecommunications: Willium C. Y. Lee, TMH