Lecture Plan 1

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: A

S. No.	**Topic :-** Telecommunications	**Time Allotted:-**
1.	Introduction Telecommunications Transmission: Basic Switching System, Simple Tele-phone Communication, evolution of switching systems -Stronger switching systems Switching Used in telecommunications cross bar switching, Electronic Switching – Space Division Switching.	05 min
2	Division of the Topic ■ Internet ■ Routing ■ Points of Presence (POPs) ■ Basic Architectural Components of an IP Router	30
3.	Conclusion Study and concepts of telecommunications were explained.	10

Assignment to be given: - What is the POP?

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 2

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: A

S. No.	**Topic :-** Switching elements	**Time Allotted:-**
1.	Introduction Telecommunications Transmission: Basic Switching System, Simple Tele-phone Communication, evolution of switching systems -Stronger switching systems Switching Used in telecommunications cross bar switching, Electronic Switching – Space Division Switching.	05 min
2	Division of the Topic ■ Types of Switching elements ■ Routing and Switching ■ Equipment Characteristics ■ A generic switch	30
3.	Conclusion Types of switches were discussed in details.	10

Assignment to be given: - What is routing and switching?

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 3

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: A

S. No.	Topic :- Switch and Router Architectures	Time Allotted:-
1.	Introduction Telecommunications Transmission: Basic Switching System, Simple Tele-phone Communication, evolution of switching systems -Stronger switching systems Switching Used in telecommunications cross bar switching, Electronic Switching – Space Division Switching.	05 min
2	Division of the Topic ■ Circuit switching ■ Packet switching 　　■ Switch generations 　　■ Switch fabrics 　　■ Buffer placement 　　■ Multicast switches	30
3.	Conclusion Concept of circuit switching was discussed	10

Assignment to be given: - Nil

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 4

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: A

S. No.	Topic :- Clos Network	Time Allotted:-
1.	Introduction Telecommunications Transmission: Basic Switching System, Simple Tele-phone Communication, evolution of switching systems -Stronger switching systems Switching Used in telecommunications cross bar switching, Electronic Switching – Space Division Switching.	05 min
2	Division of the Topic ■ Time –space switching ■ Clos Network ■ Time -space-Time switching	30
3.	Conclusion Introduction to time space switching	10

Assignment to be given: - what are TST switches?

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 5

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: A

S. No.	Topic :- Packet Switches	Time Allotted:-
1.	Introduction Telecommunications Transmission: Basic Switching System, Simple Tele-phone Communication, evolution of switching systems -Stronger switching systems Switching Used in telecommunications cross bar switching, Electronic Switching – Space Division Switching.	05 min
2	Division of the Topic ■ Packet Switching ■ First Generation Routers ■ Second Generation Routers ■ Third Generation Routers	30
3.	Conclusion Introduction to packet switching	10

Assignment to be given: - Nil.

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 6

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: A

S. No.	Topic :- Circuit & Packet Switching	Time Allotted:-
1.	Introduction Telecommunications Transmission: Basic Switching System, Simple Tele-phone Communication, evolution of switching systems -Stronger switching systems Switching Used in telecommunications cross bar switching, Electronic Switching – Space Division Switching.	05 min
2	Division of the Topic - Circuit switching - Packet switching - Switch generations - **Switch fabrics** - Buffer placement - Multicast switches	30
3.	Conclusion Introduction to switch fabrics	10

Assignment to be given: - What are switch fabrics?

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 7

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: A

S. No.	Topic :- Circuit & Packet Switching	Time Allotted:-
1.	Introduction Telecommunications Transmission: Basic Switching System, Simple Tele-phone Communication, evolution of switching systems -Stronger switching systems Switching Used in telecommunications cross bar switching, Electronic Switching – Space Division Switching.	05 min
2	Division of the Topic ■ Blocking ■ Sorting ■ Merging Networks ■ Effect of packet size on switching fabrics	30
3.	Conclusion Concepts of blocking and sorting were explained	10

Assignment to be given: - Explain the concept of merging networks

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 8

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: B

S. No.	Topic :- Buffer Placement	Time Allotted:-
1.	Introduction Time Division Switching –Time Division space switching, Time Division Time Switching, Time multiplexed space switching, Time multiplexed Time Switching, Combination Switching Control of Switching Systems: Call processing functions, common control, stored program control (For all type of switching systems)	05 min
2	Division of the Topic ■ Buffering ■ Input buffering (input queueing) ■ Dealing with HOL blocking ■ Output queueing ■ Buffered fabric	30
3.	Conclusion Introduction to buffering Concept	10

Assignment to be given: - What is Input buffering?

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 9

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: B

S. No.	Topic :- Non-blocking Switch	Time Allotted:-
1.	Introduction Time Division Switching –Time Division space switching, Time Division Time Switching, Time multiplexed space switching, Time multiplexed Time Switching, Combination Switching Control of Switching Systems: Call processing functions, common control, stored program control (For all type of switching systems)	05 min
2	Division of the Topic • Non-blocking Switch Performance • Switch Performance • Hybrid solutions • Multicasting • Generating and distributing copies • Header translation	30
3.	Conclusion Introduction to Non-blocking Switch	10

Assignment to be given: - Nil.

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 10

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: B

S. No.	Topic :- Switching Network	Time Allotted:-
1.	Introduction Time Division Switching –Time Division space switching, Time Division Time Switching, Time multiplexed space switching, Time multiplexed Time Switching, Combination Switching Control of Switching Systems: Call processing functions, common control, stored program control (For all type of switching systems)	05 min
2	Division of the Topic ■ Switched network ■ Circuit-Switching ■ Space-Division Switch ■ Multistage switch ■ MULTIPLE Switching paths ■ Time-Division Switch	30
3.	Conclusion Introduction to switched network	10

Assignment to be given: - Nil

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 11

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: B

S. No.	Topic :- Switching Network II	Time Allotted:-
1.	Introduction Time Division Switching –Time Division space switching, Time Division Time Switching, Time multiplexed space switching, Time multiplexed Time Switching, Combination Switching Control of Switching Systems: Call processing functions, common control, stored program control (For all type of switching systems)	05 min
2	Division of the Topic ■ Time-slot interchange ■ Comparison of SDM and TDM ■ TDM bus ■ TST switch ■ POPs	30
3.	Conclusion Details of SDM and TDMs were given	10

Assignment to be given: - Nil

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 12

Faculty: Parul Bansal　　　Semester: VIII　　　Class: ECS　　　Course Code: EC-818-F

Subject: Telecommunication Switching & Networks　　　　　　Section: B

S. No.	Topic :- Common Control	Time Allotted:-
1.	Introduction Time Division Switching –Time Division space switching, Time Division Time Switching, Time multiplexed space switching, Time multiplexed Time Switching, Combination Switching Control of Switching Systems: Call processing functions, common control, stored program control (For all type of switching systems)	05 min
2	Division of the Topic ■ Historical Switching ■ Switchboard Plug ■ Supervision Methods ■ Call Connection ■ Some Human Operator Features ■ Strowger Step-by-step Switch	30
3.	Conclusion Details of switching	10

Assignment to be given: - What is a Strowger Step-by-step Switch

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

<u>Lecture Plan 13</u>

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: B

S. No.	Topic :- Stepper Diagram for Switch	Time Allotted:-
1.	Introduction Time Division Switching –Time Division space switching, Time Division Time Switching, Time multiplexed space switching, Time multiplexed Time Switching, Combination Switching Control of Switching Systems: Call processing functions, common control, stored program control (For all type of switching systems)	05 min
2	Division of the Topic ■ Schematic Stepper Diagram ■ Stepper Switching ■ Selector Switches ■ Significant Properties of Stepper Switches ■ Undesirable Stepper Properties ■ Common Control ■ Electronic Switches	30
3.	Conclusion Introduction to stepper switching	10

<u>Assignment to be given:</u> - Nil

<u>Reference Readings:</u>-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 14

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: B

S. No.	Topic :- Switch Configurations	Time Allotted:-
1.	Introduction Time Division Switching –Time Division space switching, Time Division Time Switching, Time multiplexed space switching, Time multiplexed Time Switching, Combination Switching Control of Switching Systems: Call processing functions, common control, stored program control (For all type of switching systems)	05 min
2	Division of the Topic ■ Modern Digital Switch Subscriber Loop Block Diagram ■ Subscriber Line Interface Card/Chip (SLIC) ■ Some BORSCHT Explanations ■ Digital Switch Advantages	30
3.	Conclusion Introduction to BORSCHT	10

Assignment to be given: - Nil

Reference Readings:-

- Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
- Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 15

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: B

S. No.	Topic :- State machine	Time Allotted:-
1.	Introduction Time Division Switching –Time Division space switching, Time Division Time Switching, Time multiplexed space switching, Time multiplexed Time Switching, Combination Switching Control of Switching Systems: Call processing functions, common control, stored program control (For all type of switching systems)	05 min
2	Division of the Topic ■ State machine ■ Finite State Machine (FSM) ■ FSM Description Formats ■ Pictorial FSM Example	30
3.	Conclusion Introduction to state machine	10

Assignment to be given: - Nil

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 16

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: B

S. No.	Topic :- Connection Routing	Time Allotted:-
1.	Introduction Time Division Switching –Time Division space switching, Time Division Time Switching, Time multiplexed space switching, Time multiplexed Time Switching, Combination Switching Control of Switching Systems: Call processing functions, common control, stored program control (For all type of switching systems)	05 min
2	Division of the Topic ■ How is Connection Routed? ■ DC Pulsing Signals ■ Single Frequency (SF) Signaling ■ Multi-Frequency (MF) Digit Signals ■ Automatic Routing of Subscriber Dialed Calls ■ Common Channel Signaling ■ Signaling System 7	30
3.	Conclusion Introduction to SS7	10

Assignment to be given: - Nil

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 17

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: C

S. No.	Topic :- Digital Transmission	Time Allotted:-
1.	Introduction Speech Digitization and Transmission: Quantization Noise, Companding, Differential Coding, Vocodors, Pulse Transmission, Line Coding, NRZ and RZ Codes, Manchester Coding, AMI Coding, Walsh Codes, TDM. Traffic Engineering: Grade of Service and Blocking Probabity– Telephone Networks, Subscriber Loops, Switching Hierchy and Routing, Transmission Plans and Systems, Signaling Techniques, In Channel, Common Channel.	05 min
2	Division of the Topic ▪ Digital-To-Digital Conversation ▪ Line Coding ▪ Mapping Data symbols onto ▪ Data rate and Baud rate	30
3.	Conclusion Introduction to coding was given	10

Assignment to be given: - Nil

Reference Readings:-
1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 18

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: C

S. No.	Topic :- Line Coding	Time Allotted:-
1.	Introduction Speech Digitization and Transmission: Quantization Noise, Companding, Differential Coding, Vocodors, Pulse Transmission, Line Coding, NRZ and RZ Codes, Manchester Coding, AMI Coding, Walsh Codes, TDM. Traffic Engineering: Grade of Service and Blocking Probabity– Telephone Networks, Subscriber Loops, Switching Hierchy and Routing, Transmission Plans and Systems, Signaling Techniques, In Channel, Common Channel.	05 min
2	Division of the Topic ▪ Line encoding C/Cs	30
3.	Conclusion Examples of line coding were given	10

Assignment to be given: - Nil

Reference Readings:-
  1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
  2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 19

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: C

S. No.	Topic :- NRZ	Time Allotted:-
1.	Introduction Speech Digitization and Transmission: Quantization Noise, Companding, Differential Coding, Vocodors, Pulse Transmission, Line Coding, NRZ and RZ Codes, Manchester Coding, AMI Coding, Walsh Codes, TDM. Traffic Engineering: Grade of Service and Blocking Probabity– Telephone Networks, Subscriber Loops, Switching Hierchy and Routing, Transmission Plans and Systems, Signaling Techniques, In Channel, Common Channel.	05 min
2	Division of the Topic ▪ Unipolar ▪ Polar – NRZ ▪ Polar - RZ	30
3.	Conclusion Introduction to NRZ coding was given	10

Assignment to be given: - Nil

Reference Readings:-
1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 20

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: C

S. No.	Topic :- Multilevel Codes	Time Allotted:-
1.	Introduction Speech Digitization and Transmission: Quantization Noise, Companding, Differential Coding, Vocodors, Pulse Transmission, Line Coding, NRZ and RZ Codes, Manchester Coding, AMI Coding, Walsh Codes, TDM. Traffic Engineering: Grade of Service and Blocking Probabity– Telephone Networks, Subscriber Loops, Switching Hierchy and Routing, Transmission Plans and Systems, Signaling Techniques, In Channel, Common Channel.	05 min
2	Division of the Topic ■ Bipolar C/Cs ■ Multilevel Schemes ■ Representing Multilevel Codes	30
3.	Conclusion Introduction to Multilevel Scheme was given	10

Assignment to be given: - Nil

Reference Readings:-
1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 21

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: C

S. No.	Topic :- Block Coding	Time Allotted:-
1.	Introduction Speech Digitization and Transmission: Quantization Noise, Companding, Differential Coding, Vocodors, Pulse Transmission, Line Coding, NRZ and RZ Codes, Manchester Coding, AMI Coding, Walsh Codes, TDM. Traffic Engineering: Grade of Service and Blocking Probabity– Telephone Networks, Subscriber Loops, Switching Hierchy and Routing, Transmission Plans and Systems, Signaling Techniques, In Channel, Common Channel.	05 min

2	Division of the Topic
	
	  ▪ Block Coding
	  ▪ Redundancy
		30

3.	Conclusion Introduction to block coding was given	10

Assignment to be given: - What is block coding?

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 22

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: C

S. No.	Topic :- Scrambling	Time Allotted:-
1.	Introduction Speech Digitization and Transmission: Quantization Noise, Companding, Differential Coding, Vocodors, Pulse Transmission, Line Coding, NRZ and RZ Codes, Manchester Coding, AMI Coding, Walsh Codes, TDM. Traffic Engineering: Grade of Service and Blocking Probabity– Telephone Networks, Subscriber Loops, Switching Hierchy and Routing, Transmission Plans and Systems, Signaling Techniques, In Channel, Common Channel.	05 min
2	Division of the Topic • **Scrambling**	30
3.	Conclusion Introduction to **Scrambling** was given	10

Assignment to be given: - Nil

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 23

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: C

S. No.	Topic :- Introduction to Traffic Engineering	Time Allotted:-
1.	Introduction Speech Digitization and Transmission: Quantization Noise, Companding, Differential Coding, Vocodors, Pulse Transmission, Line Coding, NRZ and RZ Codes, Manchester Coding, AMI Coding, Walsh Codes, TDM. Traffic Engineering: Grade of Service and Blocking Probabity– Telephone Networks, Subscriber Loops, Switching Hierchy and Routing, Transmission Plans and Systems, Signaling Techniques, In Channel, Common Channel.	05 min
2	Division of the Topic ■ Statistical Analysis ■ Call Arrivals ■ Objective of Traffic Engineering ■ Blocking	30
3.	Conclusion Introduction to traffic engineering was given	10

Assignment to be given: - Nil

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 24

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: C

S. No.	Topic :- Signalling	Time Allotted:-
1.	Introduction Speech Digitization and Transmission: Quantization Noise, Companding, Differential Coding, Vocodors, Pulse Transmission, Line Coding, NRZ and RZ Codes, Manchester Coding, AMI Coding, Walsh Codes, TDM. Traffic Engineering: Grade of Service and Blocking Probabity– Telephone Networks, Subscriber Loops, Switching Hierchy and Routing, Transmission Plans and Systems, Signaling Techniques, In Channel, Common Channel.	05 min
2	Division of the Topic ■ Signaling ■ Functions of Signaling ■ Supervisory Signaling ■ Address Signaling	30
3.	Conclusion Introduction to signaling was given	10

Assignment to be given: - What are the functions of signaling?

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 25

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: D

S. No.	Topic :- The Telephone System	Time Allotted:-
1.	Introduction Telephone Networks and Signaling: Introduction, subscriber loops systems, switching hierarchy, transmission and numbering plans, common channel signaling principles, CCITT signaling systems. Data Networks: Data transmission in PSTNs, Switching Techniques for data transmission, Data communication architecture, Satellite based Data networks.	05 min
2	Division of the Topic ■ Introduction ■ Public Switched Telephone Network ■ LATA Topology ■ Hierarchical Switched Network	30 10
3.	Conclusion Introduction to telephone system was given	

Assignment to be given: - Nil

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 26

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: D

S. No.	Topic :- Simple Telephone System	Time Allotted:-
1.	Introduction Telephone Networks and Signaling: Introduction, subscriber loops systems, switching hierarchy, transmicision and numbering plans, common channel signaling principles, CCITT signaling systems. Data Networks: Data transmission in PSTNs, Switching Techniques for data transmission, Data communication architecture, Satellite based Data networks.	05 min

2	Division of the Topic
	
	  ■ Simple Telephone System
	  ■ Signals and Noise in the Telephone System
	  ■ Frequency-Division Multiplexing
	  ■ FDM Hierarchy
		30

3.	Conclusion Example of Simple Telephone System was given	10

Assignment to be given: - Nil

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 27

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: D

S. No.	Topic :- SS7 Signalling	Time Allotted:-
1.	Introduction Telephone Networks and Signaling: Introduction, subscriber loops systems, switching hierarchy, transmission and numbering plans, common channel signaling principles, CCITT signaling systems. Data Networks: Data transmission in PSTNs, Switching Techniques for data transmission, Data communication architecture, Satellite based Data networks.	05 min
2	Division of the Topic ■ Types of signalling ■ SS7 signalling ■ SS7 protocol stack and architecture ■ Components of SS7 Network ■ Interconnection Among SS7 Components ■ Basic call setup ■ SS7 applications	30
3.	Conclusion Concept and details of SS7 signaling was given	10

Assignment to be given: - What are the Components of SS7 Network?

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 28

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: D

S. No.	Topic :- SS7 Signalling II	Time Allotted:-
1.	Introduction Telephone Networks and Signaling: Introduction, subscriber loops systems, switching hierarchy, transmission and numbering plans, common channel signaling principles, CCITT signaling systems. Data Networks: Data transmission in PSTNs, Switching Techniques for data transmission, Data communication architecture, Satellite based Data networks.	05 min
2	Division of the Topic ■ SS7 Protocol Stack ■ SS7 Layers Distribution ■ MTP Level ■ Signal Transfer Point	30 10
3.	Conclusion Introduction to SS7 protocol stack was given	

Assignment to be given: - What is the function of code segment?

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

Lecture Plan 29

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: D

S. No.	Topic :- Satellite based Data Networks	Time Allotted:-
1.	Introduction Telephone Networks and Signaling: Introduction, subscriber loops systems, switching hierarchy, transmission and numbering plans, common channel signaling principles, CCITT signaling systems. Data Networks: Data transmission in PSTNs, Switching Techniques for data transmission, Data communication architecture, Satellite based Data networks.	05 min
2	Division of the Topic 　■ Practical Operator Considerations 　■ Cellular 　■ Analog Cellular 　■ Rogue Base Station 　■ Tumbling 　■ Cloning	30 10
3.	Conclusion 　Introduction to cellular systems was given	

Assignment to be given: - Nil

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).

<u>Lecture Plan 30</u>

Faculty: Parul Bansal   Semester: VIII   Class: ECS   Course Code: EC-818-F

Subject: Telecommunication Switching & Networks   Section: D

S. No.	Topic :- Satellite based Data Networks II	Time Allotted:-
1.	Introduction Telephone Networks and Signaling: Introduction, subscriber loops systems, switching hierarchy, transmission and numbering plans, common channel signaling principles, CCITT signaling systems. Data Networks: Data transmission in PSTNs, Switching Techniques for data transmission, Data communication architecture, Satellite based Data networks.	05 min
2	Division of the Topic ■ GSM Security Goals ■ Anonymity ■ Authentication ■ User data and signaling privacy ■ Cryptographic Algorithms ■ SIM Conversation	30 10
3.	Conclusion Details of Satellite based Data networks was given	

Assignment to be given: - Nil

Reference Readings:-

1. Flood J E, "Telecommunications switching, traffic and networks" first Indian reprint, Pearson education Asia, (2001).
2. Viswanathan T, "Telecommunication switching systems and networks" 17th Indian reprint, PHI, India, (2003).