

Lecture Plan 1**FACULTY: - Parul Bansal****SEMESTER: - VI****CLASS: - ECS****SUBJECT: - Computer Networks****UNIT: - I****COURSE CODE: - IT-305-F**

S. No.	Topic :- Computer Networks	Time Allotted:- min
1.	Introduction OSI Reference Model and Network Architecture: Introduction to Computer Networks, Example networks ARPANET, Internet, Private Networks, Network Topologies: Bus-, Star-, Ring-, Hybrid -, Tree -, Complete -, Irregular –Topology; Types of Networks, Local Area Networks, Metropolitan Area Networks, Wide Area Networks; Layering architecture of networks, OSI model, Functions of each layer, Services and Protocols of each layer	5
2	Division of the Topic <ul style="list-style-type: none"> ▪ What is Computer Networks ▪ Uses of Computer Networks ▪ Types of transmission technology ▪ Applications 	<u>30</u>
3.	Conclusion: The students came to know about the uses of computer networking and an overview of subject.	<u>10</u>
4	Question / Answer 1. What is computer networking? 2. What are the uses of computer networking in the private and professional lives of Insert people?	<u>5</u>

Assignment to be given: - What are computer networks?Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 2

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - I

COURSE CODE: - IT-305-F

S. No.	Topic :- Topologies	Time Allotted:- min
1.	Introduction OSI Reference Model and Network Architecture: Introduction to Computer Networks, Example networks ARPANET, Internet, Private Networks, Network Topologies: Bus-, Star-, Ring-, Hybrid -, Tree -, Complete -, Irregular –Topology; Types of Networks, Local Area Networks, Metropolitan Area Networks, Wide Area Networks; Layering architecture of networks, OSI model, Functions of each layer, Services and Protocols of each layer	5
2	Division of the Topic <ul style="list-style-type: none">▪ Topologies▪ Bus topology▪ Star▪ Ring▪ Tree▪ Hybrid▪ Fully connected or Complete (Mesh)▪ Applications	<u>35</u>
3.	Conclusion: Application of computers in home as well as in the office.	<u>5</u>
4	Question/Answer Q1. What is Ring Topology? Q2. How is bus Topology different from Ring Topology?	<u>5</u>

Assignment to be given: - Compare bus & ring topology

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 3

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - I

COURSE CODE: - IT-305-F

S. No.	Topic :- LAN,MAN,WAN	Time Allotted:-
1.	Introduction: OSI Reference Model and Network Architecture: Introduction to Computer Networks, Example networks ARPANET, Internet, Private Networks, Network Topologies: Bus-, Star-, Ring-, Hybrid -, Tree -, Complete -, Irregular –Topology; Types of Networks, Local Area Networks, Metropolitan Area Networks, Wide Area Networks; Layering architecture of networks, OSI model, Functions of each layer, Services and Protocols of each layer	<u>5</u>
2	Division of Topic <ul style="list-style-type: none">▪ Local area network▪ Metropolitan area networks▪ Wide area networks▪ Man and Internet▪ Applications	<u>40</u>
3.	Conclusion Understood the concept of networking, and internetworking.	
4	Question/Answer Q1. What is LAN?	<u>5</u>

Assignment to be given: - Differentiate b/w LAN and MAN.

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15
Revision: 00

Lecture Plan 4

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - I

COURSE CODE: - IT-305-F

S. No.	Topic :- Layering Architecture	Time Allotted:-
1.	Introduction: OSI Reference Model and Network Architecture: Introduction to Computer Networks, Example networks ARPANET, Internet, Private Networks, Network Topologies: Bus-, Star-, Ring-, Hybrid -, Tree -, Complete -, Irregular –Topology; Types of Networks, Local Area Networks, Metropolitan Area Networks, Wide Area Networks; Layering architecture of networks, OSI model, Functions of each layer, Services and Protocols of each layer	<u>5</u>
2	Division of Topic <ul style="list-style-type: none">• Network Software• Protocol Hierarchies• Layers, protocols, and interfaces• Design Issues for the Layers• Addressing• Error Control• Multiplexing• Routing• Connection-Oriented and Connectionless Services	<u>30</u>
3.	Conclusion *Layering architecture	<u>10</u>
4	Question/Answer 1. What Is error control?	<u>5</u>

Assignment to be given : What are Connection-Oriented and Connectionless Services?

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 5

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - I

COURSE CODE: - IT-305-F

S. No.	Topic :-Reference Model (OSI)	Time Allotted:-
1.	Introduction: OSI Reference Model and Network Architecture: Introduction to Computer Networks, Example networks ARPANET, Internet, Private Networks, Network Topologies: Bus-, Star-, Ring-, Hybrid -, Tree -, Complete -, Irregular –Topology; Types of Networks, Local Area Networks, Metropolitan Area Networks, Wide Area Networks; Layering architecture of networks, OSI model, Functions of each layer, Services and Protocols of each layer	<u>5</u>
2	Division of Topic <ul style="list-style-type: none">■ OSI model■ Physical layer■ Data link layer■ Unacknowledged connectionless service■ Acknowledged connectionless service■ Checking the errors■ Flow control■ Physical addressing	<u>30</u>
3.	Conclusion In networking Similar networks or different network need to communicate with each other with the help of different protocols.	<u>10</u>
4	Question/Answer Q1. What is physical layer? Q2. What is physical addressing?	<u>5</u>

Assignment to be given: - Two networks each provide reliable connection-oriented service. One of them offers byte stream and the other offers reliable message stream. Are these identical? If so why is the distinction made? If not, give an example of how they differ.

Reference Readings: - Computer Network by Tanenbaum

Lecture Plan 6**FACULTY: - Parul Bansal****SEMESTER: - VI****CLASS: - ECS****SUBJECT: - Computer Networks****UNIT: - I****COURSE CODE: - IT-305-F**

S. No.	Topic :-OSI LAYERS	Time Allotted:-
1.	Introduction: OSI Reference Model and Network Architecture: Introduction to Computer Networks, Example networks ARPANET, Internet, Private Networks, Network Topologies: Bus-, Star-, Ring-, Hybrid -, Tree -, Complete -, Irregular –Topology; Types of Networks, Local Area Networks, Metropolitan Area Networks, Wide Area Networks; Layering architecture of networks, OSI model, Functions of each layer, Services and Protocols of each layer	<u>5</u>
2	Division of Topic 1. Network layer 2. Responsibilities included by the n/w layer 3. Routing 4. Transport layer 5. Session layer 6. Presentation layer 7. Application layer 8. Applications	<u>30</u>
3.	Conclusion In networking Similar networks or different network need to communicate with each other with the help of different protocols.	<u>10</u>
4	Question/Answer Q1. How is presentation layer different from physical layer? Q2. Data is transported in the network layer in the form of -----? Q3. What is diff between OSI/ TCPIP layer.	<u>5</u>

Assignment to be given: - Explain different layers of OSI Model.Reference Readings: - Computer Network by Tanenbaum

Lecture Plan 7

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - II

COURSE CODE: - IT-305-F

S. No.	Topic :- TCP/IP	Time Allotted:-
1.	Introduction TCP/IP: Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, ARP, RARP, ICMP, Application Layer, Domain Name System, Email – SMTP, POP,IMAP; FTP, NNTP, HTTP, Overview of IP version 6.	<u>5</u>
2	Division of the Topic <ul style="list-style-type: none">■ History of TCP/IP■ TCP/IP Reference Model■ What is TCP/IP?■ TCP/IP Reference Model■ What is a protocol?■ The Internet Layer■ The Transport Layer■ The Application Layer■ Applications	<u>40</u>
3.	Conclusion Protocols are set of rules. Protocols are agreement between two parties how communication is to be proceeding. Different types of protocols like TCP, UDP etc.	
4	Question/Answer Q1. What are protocols and discuss their types. Q2. What do you understand with TCP and UDP give examples?	<u>5</u>

Assignment to be given: - Nil

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 8

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - II

COURSE CODE: - IT-305-F

S. No.	Topic : Internet Protocol	Time Allotted:-
1.	Introduction TCP/IP: Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, ARP, RARP, ICMP, Application Layer, Domain Name System, Email – SMTP, POP,IMAP; FTP, NNTP, HTTP, Overview of IP version 6.	<u>5</u>
2	Division of Topic <ul style="list-style-type: none">■ IP Protocol■ IP Datagram■ Structure of IP frame header■ Header length (HLEN)■ Flags■ Fragmentation offset■ Time to live■ Various n/w layer protocols	<u>30</u>
3.	Conclusion Details of IP protocol	<u>10</u>
4	Question/Answer Q1. What are protocols and discuss their types. Q2. What is Fragmentation offset?	<u>5</u>

Assignment to be given:-Nil

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 9

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - II

COURSE CODE: - IT-305-F

S. No.	Topic :- ARP	Time Allotted:-
1.	Introduction TCP/IP: Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, ARP, RARP, ICMP, Application Layer, Domain Name System, Email – SMTP, POP,IMAP; FTP, NNTP, HTTP, Overview of IP version 6.	<u>5</u>
2	Division of Topic <ul style="list-style-type: none">■ ARP■ ARP packet format■ Operations of ARP on internet■ Reverse Address Resolution Protocol (RARP)■ ICMP■ Message Format■ Error Reporting■ IGMP■ Applications	<u>40</u>
3.	Conclusion Host-A is communicating with Host-B or a host wants to get the services from the internet there is always require corresponding protocol.ARP is used to convert ip address into physical address.	
4	Question/Answer Q1. Explain ARP, RARP and ICMP?	<u>5</u>

Assignment to be given:- Explain ICMP

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 10

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - II

COURSE CODE: - IT-305-F

S. No.	Topic :- IPv\$	Time Allotted:-
1.	Introduction TCP/IP: Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, ARP, RARP, ICMP, Application Layer, Domain Name System, Email – SMTP, POP,IMAP; FTP, NNTP, HTTP, Overview of IP version 6.	<u>10</u>
2	Division of Topic <ul style="list-style-type: none">■ Dotted-decimal notation■ Examples■ Unicast, Multicast, reserved addresses■ Class Ranges of Internet Addresses	<u>30</u>
3.	Conclusion Details of IPv4 addressing	<u>5</u>
4	Question/Answer Q1. What is Unicast address?	<u>5</u>

Assignment to be given:- compare Unicast, Multicast, reserved addresses

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 11

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - II

COURSE CODE: - IT-305-F

S. No.	Topic :- IPv\$	Time Allotted:-
1.	Introduction TCP/IP: Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, ARP, RARP, ICMP, Application Layer, Domain Name System, Email – SMTP, POP,IMAP; FTP, NNTP, HTTP, Overview of IP version 6.	<u>10</u>
2	Division of Topic 1. Finding the address class 2. Finding the class in decimal notation 3. Network Addresses 4. Network and Host Addresses 5. Masking concept 6. Applications	<u>30</u>
3.	Conclusion Details of IPv4 addressing	<u>5</u>
4	Question/Answer Q1. Network & host addresses	<u>5</u>

Assignment to be given:-nil.

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 12

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - II

COURSE CODE: - IT-305-F

S. No.	Topic :- Subnet addressing	Time Allotted:-
1.	Introduction TCP/IP: Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, ARP, RARP, ICMP, Application Layer, Domain Name System, Email – SMTP, POP,IMAP; FTP, NNTP, HTTP, Overview of IP version 6.	<u>5</u>
2	Division of Topic ■ Benefits of subnetting ■ Subnetting ■ Subnet Mask ■ Examples ■ Applications	<u>30</u>
3.	Conclusion The subnetting concept was explained	<u>10</u>
4	Question/Answer Q1. What is subnetting? How is it done?	<u>5</u>

Assignment to be given:-nil

Reference Readings: - Computer Network by Tanenbaum

Lecture Plan 13**FACULTY: - Parul Bansal****SEMESTER: - VI****CLASS: - ECS****SUBJECT: - Computer Networks****UNIT: - II****COURSE CODE: - IT-305-F**

S. No.	Topic :- Application Layer	Time Allotted:-
1.	Introduction TCP/IP: Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, ARP, RARP, ICMP, Application Layer, Domain Name System, Email – SMTP, POP,IMAP; FTP, NNTP, HTTP, Overview of IP version 6.	<u>5</u>
2	Division of Topic <ul style="list-style-type: none"> ▪ DNS ▪ Name Space ▪ Flat name space ▪ Hierarchical name space ▪ Distribution of name space ▪ DNS in the Internet ▪ Applications 	<u>30</u>
3.	Conclusion Concept of DNS & name space	<u>10</u>
4	Question/Answer Q1.Explain flat name space?	<u>5</u>

Assignment to be given:-What is the use of DNS?Reference Readings: - Computer Network by Tanenbaum

Lecture Plan 14**FACULTY: - Parul Bansal****SEMESTER: - VI****CLASS: - ECS****SUBJECT: - Computer Networks****UNIT: - II****COURSE CODE: - IT-305-F**

S. No.	Topic :- Application Layer	Time Allotted:-
1.	Introduction TCP/IP: Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, ARP, RARP, ICMP, Application Layer, Domain Name System, Email – SMTP, POP,IMAP; FTP, NNTP, HTTP, Overview of IP version 6.	<u>5</u>
2	Division of Topic <ul style="list-style-type: none"> ■ MESSAGE TRANSFER AGENT: SMTP ■ Mail Transfer Phases ■ SMTP ■ MESSAGE ACCESS AGENT: POP AND IMAP ■ Post Office Protocol ■ Limitations of POP ■ IMAP4 ■ File Transfer Protocol 	<u>30</u>
3.	\\\\\\\\\\\\\\\\ Conclusion SMTP usage and concept	<u>10</u>
4	Question/Answer Q1. What is FTP?	<u>5</u>

Assignment to be given: - Explain FTP and IMAP4Reference Readings: - Computer Network by Tanenbaum

Lecture Plan 15**FACULTY: - Parul Bansal****SEMESTER: - VI****CLASS: - ECS****SUBJECT: - Computer Networks****UNIT: - II****COURSE CODE: - IT-305-F**

S. No.	Topic :- Application Layer	Time Allotted:-
1.	Introduction TCP/IP: Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, ARP, RARP, ICMP, Application Layer, Domain Name System, Email – SMTP, POP,IMAP; FTP, NNTP, HTTP, Overview of IP version 6.	<u>5</u>
2	Division of Topic 1. TELNET 2. Client-Server Model 3. Local Login 4. Remote Login 5. Concept of NVT 6. ELECTRONIC MAIL 7. Scenarios	<u>35</u>
3.	Conclusion Concept of TELNET	<u>10</u>
4	Question/Answer nil	

Assignment to be given: - NILReference Readings: - Computer Network by Tanenbaum

Lecture Plan 16

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - II

COURSE CODE: - IT-305-F

S. No.	Topic :- IPv6	Time Allotted:-
1.	Introduction TCP/IP: Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, ARP, RARP, ICMP, Application Layer, Domain Name System, Email – SMTP, POP,IMAP; FTP, NNTP, HTTP, Overview of IP version 6.	<u>5</u>
2	Division of Topic. <ul style="list-style-type: none">■ WHY IPv6?■ LARGER ADDRESS SPACE■ IPv6 Packet Format■ 128-bit IPv6 Address■ Text Representation of Addresses■ Differences Between IPv4 & IPv6■ Types of IPv6 Addresses■ Applications	<u>30</u>
3.	Conclusion Concept of IPv6 and its usage	<u>10</u>
4	Question/Answer Q1. What is IPv6 frame format	<u>5</u>

Assignment to be given: - What are the Types of IPv6 Addresses?

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 17

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - III

COURSE CODE: - IT-305-F

S. No.	Topic :- Aloha	Time Allotted:-
1.	Introduction: Local Area Networks: Introduction to LANs, Features of LANs, Components of LANs, Usage of LANs, LAN Standards, IEEE 802 standards, Channel Access Methods, Aloha, CSMA, CSMA/CD, Token Passing, Ethernet, Layer 2 & 3 switching, Fast Ethernet and Gigabit Ethernet, Token Ring, LAN interconnecting devices: Hubs, Switches, Bridges, Routers, Gateways.	<u>5</u>
2	Division of Topic 1. IEEE Standards 2. RANDOM ACCESS 3. Aloha 4. Slotted ALOha 5. CSMA 6. Flow diagram for three persistence methods 7. Applications	<u>30</u>
3.	Conclusion What is ALOHA?	<u>10</u>
4	Question/Answer Q1. What is slotted Aloha? Q2. What is the difference between Slotted Aloha and pure Aloha?	<u>5</u>

Assignment to be given: - Write Details about ALOHA.

Reference Readings: - Computer Network by Tanenbaum

Lecture Plan 18**FACULTY: - Parul Bansal****SEMESTER: - VI****CLASS: - ECS****SUBJECT: - Computer Networks****UNIT: - III****COURSE CODE: - IT-305-F**

S. No.	Topic :- Carrier Sense Multiple access Protocols	Time Allotted:-
1.	Introduction: Protocols in which stations listen for a carrier and act accordingly are called carrier sense protocols .	<u>5</u>
2	Division of Topic CSMA <ol style="list-style-type: none"> 1. Persistent and non-Persistent. 2. P- Persistent. 3. 0 –Persistent. 4. CSMA with Collision Detection. Collision free Protocols <ol style="list-style-type: none"> 1. A Bit –Map Protocol. 2. Binary Countdown 	<u>30</u>
3.	Conclusion :-- It is an analog process and MAC sub layer guarantees reliable delivery.	<u>5</u>
4	Question/Answer Q1. What is MAC sub Layer? Q2. What do you understand by P- persistent? Q3. Contention algorithm? Q4. What are different ways of making the cable free from collision of frames?	<u>10</u>

Assignment to be given: - Explain p-persistent techniqueReference Readings: - Computer Network by Tanenbaum

Lecture Plan 19

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - III

COURSE CODE: - IT-305-F

S. No.	Topic :- LAN interconnecting devices	Time Allotted:-
1.	Introduction: LAN is connected through several interconnecting devices which are known switches, hubs, bridges and gateways.	<u>5</u>
2	Division of Topic 1. Hubs 2. Switches 3. Bridges 4. Routers 5. Gateways	<u>30</u>
3.	Conclusion Segments of LANs are connected by repeaters; more than one LANs are connected by bridges and so on.	<u>10</u>
4	Question/Answer Q1. Discuss the following with diagrams : Hubs, Switches, Bridges, Routers and Gateways	<u>5</u>

Assignment to be given: - nil

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 20

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - III

COURSE CODE: - IT-305-F

S. No.	Topic :- IEEE Standards	Time Allotted:-
1.	Introduction: Wide Area Networks: Introduction of WANs, Routing, Congestion Control, WAN Technologies, Distributed Queue Dual Bus (DQDB), Synchronous Digital Hierarchy (SDH)/ Synchronous Optical Network (SONET), Asynchronous Transfer Mode (ATM), Frame Relay, Wireless Links.	<u>5</u>
2	Division of Topic <ul style="list-style-type: none">■ IEEE STANDARDS■ OSI Model and Project 802■ STANDARD ETHERNET■ Ethernet address/MAC address/Physical Address■ BRIDGED ETHERNET■ SWITCHED ETHERNET■ FAST ETHERNET■ GIGABIT ETHERNET	<u>30</u>
3.	Conclusion IEEE standards importance	<u>10</u>
4	Question/Answer NO questions	<u>5</u>

Assignment to be given: - nil

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 21

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - III

COURSE CODE: - IT-305-F

S. No.	Topic :- Wide Area Networks	Time Allotted:-
1.	Introduction: Wide Area Networks: Introduction of WANs, Routing, Congestion Control, WAN Technologies, Distributed Queue Dual Bus (DQDB), Synchronous Digital Hierarchy (SDH)/ Synchronous Optical Network (SONET), Asynchronous Transfer Mode (ATM), Frame Relay, Wireless Links.	<u>5</u>
2	Division of topic <ul style="list-style-type: none">■ Congestion Control■ Factors that Cause Congestion■ Congestion Control vs Flow Control■ Warning Bit■ Hop-by-Hop Choke Packets■ Load Shedding■ Random Early Discard (RED)	<u>40</u>
3.	Conclusion There is WAN Technologies are used for different purposes.	
4	Question/Answer Q1. Discuss congestion control	<u>5</u>

Assignment to be given: - nil

Reference Readings: - Computer Network by Tanenbaum

Lecture Plan 22**FACULTY: - Parul Bansal****SEMESTER: - VI****CLASS: - ECS****SUBJECT: - Computer Networks****UNIT: - III****COURSE CODE: - IT-305-F**

S. No.	Topic :- DQDB	Time Allotted:-
1.	Introduction: Wide Area Networks: Introduction of WANs, Routing, Congestion Control, WAN Technologies, Distributed Queue Dual Bus (DQDB), Synchronous Digital Hierarchy (SDH)/ Synchronous Optical Network (SONET), Asynchronous Transfer Mode (ATM), Frame Relay, Wireless Links.	<u>5</u>
2	Division of topic <ul style="list-style-type: none"> ▪ DQDB in OSI ▪ DQDB Buses and Nodes ▪ Working of DQDB ▪ DQDB Data Transmission ▪ Distributed Queues ▪ Reservation Token ▪ DQDB Operation ▪ DQDB Rings 	<u>40</u>
3.	Conclusion There is DQDB in OSI	
4	Question/Answer Q1. Discuss Distributed Queue Dual Bus (DQDB)?	<u>5</u>

Assignment to be given: - nilReference Readings: - Computer Network by Tanenbaum

Lecture Plan 23**FACULTY: - Parul Bansal****SEMESTER: - VI****CLASS: - ECS****SUBJECT: - Computer Networks****UNIT: - III****COURSE CODE: - IT-305-F**

S. No.	Topic :- SDH/SONET	Time Allotted:-
1.	Introduction: Wide Area Networks: Introduction of WANs, Routing, Congestion Control, WAN Technologies, Distributed Queue Dual Bus (DQDB), Synchronous Digital Hierarchy (SDH)/ Synchronous Optical Network (SONET), Asynchronous Transfer Mode (ATM), Frame Relay, Wireless Links.	<u>5</u>
2	Division of topic <ul style="list-style-type: none"> ■ Introduction to SDH ■ SONET/SDH Architecture ■ SONET Layers ■ Device-Layer Relationship in SONET ■ SONET/SDH ■ SONET Network ■ Applications 	<u>40</u>
3.	Conclusion The concept of SDH and SONET	
4	Question/Answer Q1. Discuss Synchronous Digital Hierarchy (SDH)?	<u>5</u>

Assignment to be given: - Explain SONET networkReference Readings: - Computer Network by Tanenbaum

Lecture Plan 24

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - III

COURSE CODE: - IT-305-F

S. No.	Topic :- Wide Area Networks	Time Allotted:-
1.	Introduction: Wide Area Networks: Introduction of WANs, Routing, Congestion Control, WAN Technologies, Distributed Queue Dual Bus (DQDB), Synchronous Digital Hierarchy (SDH)/ Synchronous Optical Network (SONET), Asynchronous Transfer Mode (ATM), Frame Relay, Wireless Links.	<u>5</u>
2	Division of topic <ul style="list-style-type: none">■ FRAME RELAY■ Frame Relay network■ Frame Relay layers■ Frame Relay frame■ Applications	<u>40</u>
3.	Conclusion The concept of frame relay and its layers	
4	Question/Answer Q1. Compare Asynchronous Transfer Mode (ATM) and Frame Relay?	<u>5</u>

Assignment to be given: - Give the frame relay frame in detail.

Reference Readings: - Computer Network by Tanenbaum

Lecture Plan 25

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - III

COURSE CODE: - IT-305-F

S. No.	Topic :- ATM	Time Allotted:-
1.	Introduction: Wide Area Networks: Introduction of WANs, Routing, Congestion Control, WAN Technologies, Distributed Queue Dual Bus (DQDB), Synchronous Digital Hierarchy (SDH)/ Synchronous Optical Network (SONET), Asynchronous Transfer Mode (ATM), Frame Relay, Wireless Links.	<u>5</u>
2	Division of topic <ul style="list-style-type: none">■ ATM■ Multiplexing using different frame sizes■ Multiplexing using cells■ ATM multiplexing■ Architecture of an ATM network■ An ATM cell■ ATM layers■ APPLICATIONS	<u>40</u>
3.	Conclusion The concept of ATM and ATM cell.	
4	Question/Answer Q1. Compare Asynchronous Transfer Mode (ATM) and Frame Relay?	<u>5</u>

Assignment to be given: - nil

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15
Revision: 00

Lecture Plan 26

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - III

COURSE CODE: - IT-305-F

S. No.	Topic :- Wireless Links	Time Allotted:-
1.	Introduction: Wide Area Networks: Introduction of WANs, Routing, Congestion Control, WAN Technologies, Distributed Queue Dual Bus (DQDB), Synchronous Digital Hierarchy (SDH)/ Synchronous Optical Network (SONET), Asynchronous Transfer Mode (ATM), Frame Relay, Wireless Links.	<u>5</u>
2	Division of topic <ul style="list-style-type: none">■ Transmission medium and physical layer■ Classes of transmission media■ Wireless transmission waves■ Wireless Channels■ Applications	<u>40</u>
3.	Conclusion Classes of transmission media and the applications.	
4	Question/Answer Q1. What are wireless channels?	<u>5</u>

Assignment to be given: - nil

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 27

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - IV

COURSE CODE: - IT-305-F

S. No.	Topic :- Introduction to Network Management	Time Allotted:-
1.	Introduction: Introduction to Network Management: Remote Monitoring Techniques: Polling, Traps, Performance Management, Class of Service, Quality of Service, Security management, Firewalls, VLANs, Proxy Servers, Introduction to Network Operating Systems: Client-Server infrastructure, Windows NT/2000.	<u>5</u>
2	Division of Topic <ul style="list-style-type: none">■ Remote Monitoring Techniques■ Simple Network Management Protocol■ Managers in SNMP■ Polling & Traps■ Agents in SNMP■ SNMP Polling■ MIB■ Applications	<u>30</u>
3.	Conclusion Network management is done by three things. These are remote monitoring, performance management and security management.	<u>10</u>
4	Question/Answer Q1.Explain Polling and Traps? Q2.Explain Class of Service, Quality of Service? Q3.Explain Firewalls, VLANs, Proxy Servers?	<u>5</u>

Assignment to be given: - :- Nil.

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 28

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - IV

COURSE CODE: - IT-305-F

S. No.	Topic :- Introduction to Network Management	Time Allotted:-
1.	Introduction: Introduction to Network Management: Remote Monitoring Techniques: Polling, Traps, Performance Management, Class of Service, Quality of Service, Security management, Firewalls, VLANs, Proxy Servers, Introduction to Network Operating Systems: Client-Server infrastructure, Windows NT/2000.	<u>5</u>
2	Division of Topic <ul style="list-style-type: none">■ Proxy Servers■ Potential purposes■ Firewalls■ Protection Methods■ Packet Filters■ Network Address Translation■ Effective Border Security■ Network Management Tasks/Applications■ Performance Management■ Security Management	<u>30</u>
3.	Conclusion Network management is done by three things. These are remote monitoring, performance management and security management.	<u>10</u>
4	Question/Answer Q1.Explain proxy servers.	<u>5</u>

Assignment to be given: - :- Nil.

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 29

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - IV

COURSE CODE: - IT-305-F

S. No.	Topic :- Introduction to Network Operating Systems	Time Allotted:-
1.	Introduction: Introduction to Network Management: Remote Monitoring Techniques: Polling, Traps, Performance Management, Class of Service, Quality of Service, Security management, Firewalls, VLANs, Proxy Servers, Introduction to Network Operating Systems: Client-Server infrastructure, Windows NT/2000.	<u>5</u>
2	Division of Topic <ul style="list-style-type: none">■ Functions of NOS■ Overview of NOS Characteristics■ Differences Between PC and a NOS■ Multiuser, Multitasking, and Multiprocessor Systems■ NOS Server Hardware■ Windows■ Windows NT 4.0■ Linux■ Server Software and Programs	<u>30</u>
3.	Conclusion Network Operating Systems are used to connect number of host through the network for communicating them.	<u>10</u>
4	Question/Answer Q1. Explain Windows NT/2000?	<u>5</u>

Assignment to be given: - :- Nil.

Reference Readings: - Computer Network by Tanenbaum

Doc. No.: DCE/0/15

Revision: 00

Lecture Plan 30

FACULTY: - Parul Bansal

SEMESTER: - VI

CLASS: - ECS

SUBJECT: - Computer Networks

UNIT: - IV

COURSE CODE: - IT-305-F

S. No.	Topic :- Quality of Service	Time Allotted:-
1.	Introduction: Introduction to Network Management: Remote Monitoring Techniques: Polling, Traps, Performance Management, Class of Service, Quality of Service, Security management, Firewalls, VLANs, Proxy Servers, Introduction to Network Operating Systems: Client-Server infrastructure, Windows NT/2000.	<u>5</u>
2	Division of Topic <ul style="list-style-type: none">■ Realtime Applications■ Playback Buffer■ Example Distribution of Delays■ Taxonomy■ Integrated Services■ Per-Router Mechanisms■ Reservation Protocol■ RSVP Example	<u>30</u>
3.	Conclusion Network Operating Systems are used to connect number of host through the network for communicating them.	<u>10</u>
4	Question/Answer Q1.Explain reservation protocol	<u>5</u>

Assignment to be given: - :- Nil.

Reference Readings: - Computer Network by Tanenbaum