Daffodil Polytechnic Institute, Institute Code: 50238

Lesson Plan – Academic session: July to December 2024

Subject Teacher : Md. Rabiul Islam (Instructor)

Subject Name : Computer Networking
Subject Code : 28562
Technology : Computer Science Technology
Semester : 6th
Reference Book : *Computer Networks. By* ANDREW S. *TANENBAUM*
Text Book: Computer Networking
(Publisher: HaqueProkashani / Technical Prokashoni)

Marks	Grade Point	Letter Grade	*Marks*	Grade Point	Letter Grade
80>	4.00	A+	55-59	2.75	B-
75-79	3.75	A	50-54	2.50	C+
70-74	3.50	A-	45-49	2.25	C
65-69	3.25	B+	40-44	2.00	D
60-64	3.00	B	0-39	0.00	F

Mark Distribution (for 150 Marks)			
Theory Marks		**Practical Marks**	
Midterm	20	PC	25
Class test	10	PF	25
Quiz test	10	-	-
Final	60	-	-
Total	**100**	**Total**	**50**

INTENTION

AIMS

• To be able to acquire the knowledge on Computer network Basics.
• To be able to provide the knowledge and to develop skill on Network topologies
• To be able to provide the knowledge and to develop skill on network topologies and protocols.
• To be able to provide the knowledge and to develop skill on MODEM, Hub, Switch, NIC and Repeater.
• To be able to Install and configure windows server ,Configure windows firewall, defender and ping, Establish a Peer to Peer/Workgroup LAN

SHORT DESCRIPTION

Computer network, Network topologies, OSI model, Communication and network protocols, Physical layer and Data Link layer of the OSI Reference Model, Network layer and Transport layer of the OSI reference model, Presentation layer, Session Layer and Application layer of the OSI reference model, Sub-netting, VLSMs, and Summarization, Operation and features of Client Server Network.

Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Supporting Equipment
01	**Introduction**	Introduce subject and all chapter, Marks and Lesson Plan.		https://drive.google.com/drive/folders/1OZbOmz2bt2IF3O6Tzj7ExZjIhFrvLtMo
02	**1.Understand** Computer network.	1.1Define Computer Network. 1.2.State the concept of computer Network. 1.3 Mention elements of computer network.	Understand Computer Network.,basic elements of computer network..	Theory Base 1. Classroom, Whiteeboard, Marker.

		1.4 Describe the advantages of Computer network. 1.5 State the application of computer network.		2. Projector. 3.PC with Internet.
03		1.6 Describe client / server and peer-to-peer network. 1.7 State LAN, MANs and WANs. 1.8 Describe the general features of LAN, MANs and WANs.	To know about various network.	Theory Base 1.Classroom, Whiteboard, Marker. 2.Projector. 3.PC with Internet.
04	**Review Class**	**Chapter:1(**Regarding students problem)	To learn How to Increase Question create Abilities and Expand Answer from different source.	Theory Base 1.Classroom,Whiteboard,Marker. 2.Projector. 3.PC with Internet.
	1st Quez Test	**Chapter 1**	Develop student performance.	
05	**Network topologies**	2.1 Define topology. 2.2 Difference between physical and logical topology. 2.3 Define point-to-point and multi point connections. 2.4 List different types of topologies.	To know about types of topologies	Theory Base/Practical 1.Classroom,Whiteeboard,Marker. 2.Projector. 3.PC with Internet
06		2.4 Describe the physical connection of bus, ring, star and hybrid topologies. 2.5 Mention the advantages and disadvantages of bus, ring, star and hybrid topologies. 2.6 Describe the factors to select a particular topology. 2.7 Describe the logical topologies of a token ring network.	To know about types of topologies	Theory Base 1.Classroom,Whiteboard,Marker. 2.Projector. 3.PC with Internet 4. Answer scripts.
07	**Review Class**	**Chapter:2(**Regarding students problem)	To learn How to Increase Question create Abilities and Expand Answer from	Theory Base 1.Classroom,Whiteboard,Marker.

			different source.	2.Projector. 3.PC with Internet
08	**1st Class Test**	**Chapter 1+ Chapter 2**	Develop student performance.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
09	**OSI model**	3.1 Define communication standards. 3.2 Define OSI Model & DoD model. 3.3 Differentiate between DoD model and the OSI reference model. 3.4 List the global forum and regulatory authority of communication and computer Network sector.	To know about communication standards, OSI Model & DoD model	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
10		3.5 State the function of IEEE in the communication and computer Network sector. 3.6 State International Standard organization-ISO. 3.7 Describe the necessity to develop OSI Model. 3.7 Describe the functions of each layer of the OSI reference model.	To know about communication standards,	
11	**Review Class**	**Chapter:3(**Regarding students problem)	To learn How to Increase Question create Abilities and Expand Answer from different source.	Theory Base/Practical 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
12	**2nd quiz Test**	**Chapter 3**	Develop student performance.	Theory Base 1.Classroom,Whiteboard,Marker .

				2.Projector. 3.PC with Internet 4. Answer scripts.
13	**Communication and network protocols**	4.1 Define network protocol. 4.2 Describe the main elements of protocol. 4.3 Describe the characteristics of different types of protocol. 4.4 Describe the functions of protocol. 4.5 List different types of network protocols.	To know about different types of network protocols.	Theory Base 1.Classroom,Whiteboard,Marker. 2.Projector. 3.PC with Internet
14		4.6 State TCP/IP. 4.7 State the advantages and disadvantages of OSI and TCP/IP. 4.8 Describe the functions of TCP/IP.	To know about different types of network protocols.	Theory Base 1.Classroom,Whiteboard,Marker. 2. Projector. 3.PC with Internet
15	**Review Class**	**Chapter:4(**Regarding students problem)	To learn How to Increase Question create Abilities and Expand Answer from different source.	
16	**2nd Class Test**	**Chapter 3 + Chapter 4**	Develop student performance.	Theory Base/Practical 1.Classroom,Whiteboard,Marker. 2.Projector. 3.PC with Internet
17	**Physical layer and Data Link layer of the OSI Reference Model**	5.1 Draw the position diagram of Physical layer in the Internet model. 5.2 Describe the functions and services of Physical layer. 5.3 Draw the position	To Learn about Physical layer and Data Link layer of the OSI Reference Model	Theory Base 1.Classroom,Whiteboard,Marker. 2.Projector. 3.PC with Internet

		diagram of Data link layer in the Internet model.		4. Answer scripts.
18		5.4 Describe the duties and responsibilities of Data link layer. 5.5 State the functions of LLC and MAC sub layer. 5.6 Describe the function of network connectivity devices used in Physical and Data link layers (Repeater, modems, Hub/ Switch and bridge)	Understandcatagories of. transmission media,Twisted-pair, Co-axial and fiberoptic cable	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
15	**Review Class**	**Chapter:5(**Regarding students problem)	To learn How to Increase Question create Abilities and Expand Answer from different source.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
16	**3rdQuez Test**	**Chapter:5**	Develop student performance.	Theory Base/Practical 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
17	**Network layer and Transport layer of the OSI reference model.**	6.1 Draw the position diagram of Network layer and Transport layer. 6.2 Describe the functions of Network layer and Transport layer. 6.3 Describe Transmission control protocol- TCP and user datagram Protocol - UDP.	To Know transmission media,Twisted-pair, Co-axial and fiberoptic cable,Radio,microwavea nd infrared communication system	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet 4. Answer scripts.

18		6.4 Describe IP, RIP, OSPF, and EIGRP.	Understandmultiplexing and Demultiplexing process of communication system.	Theory Base 1.Classroom,Whiteboard,Marker. 2.Projector. 3.PC with Internet
19		6.5 Describe the responsibilities of Network layer and Transport layer. 6.6 Describe the function of Router and Switch.	To know the multiplexing,demultiplexing technique with block diagram.	Theory Base 1.Classroom,Whiteboard,Marker. 2.Projector. 3.PC with Internet
20	**Review Class**	**Chapter:6**	To learn How to Increase Question create Abilities and Expand Answer from different source.	Theory Base 1.Classroom,Whiteboard,Marker. 2.Projector. 3.PC with Internet
	3rd Class Test	**Chapter:5 + Chapter 6**	Develop student performance.	Theory Base 1.Classroom,Whiteboard,Marker. 2.Projector. 3.PC with Internet
21	**Presentation layer, Session Layer and Application layer of the OSI reference model**	7.1 Draw the position diagram of Presentation layer, Session Layer and Application layer. 7.2 Describe presentation layer protocol. 7.3 Describe Session layer protocol.	To learn How to Increase Question create Ability and Expand Answer from different source.	Theory Base/Practical 1.Classroom,Whiteboard,Marker. 2.Projector. 3.PC with Internet
22		7.4 Describe Application layer protocol 7.5 State Telnet, SMTP, NFS, and FTP.	To Know the multiplexing and Demultiplexing.	Theory Base 1.Classroom,Whiteboard,Marker. 2.Projector.

				3.PC with Internet 4. Answer scripts.
23		7.6 Describe the functions and services of Presentation layer, Session Layer and Application layer.	To Know the 802 project model, IEEE 802 and OSI model.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
24	**Review Class**	**Chapter:7(**Regarding students problem)	To learn How to Increase Question create Abilities and Expand Answer from different source.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
25	**4th Quez Test**	**Chapter:7**	Develop student performance.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
26	**Hubs, Repeaters, Bridges, Switches and Routers**	8.1 List the different network device. 4 8 8.2 Mention the layer of different network device. 8.3 Describe the functions of Hubs, Repeaters, Bridges Switches and Routers. 8.4 Mention the types of Hubs/ Switches.		Theory Base/Practical 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
28		8.5 Describe the important features of passive, active and intelligent Hubs/ Switches. 8.6 Describe the important features of Repeaters, Bridges, Switches and Routers.	To Know the working procedure of FDDI, advantages and disadvantages of using FDDI in networking.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet

		8.7 Differentiate among Bridges, Repeaters, Switches and Routers.		
29	**Review Class**	**Chapter:8**	To learn How to Increase Question create Abilities and Expand Answer from different source.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
30	**4th Class Test**	**Chapter:7 + Chapter 8**	Develop student performance.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
31	**Sub-netting, VLSMs, and Summarization**	9.1. Define Sub-netting. 9.2. State Classless inter domain routing (CIDR). 9.3. Define Variable length subnet mask (VLSMs)	To Know bus, ring, star and hybrid topologies.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet 4. Answer scripts.
32		9.4. Describe VLSM design. 9.5 State the procedure to implement VLSM Network 9.6. Define Summarization.	To Know the network protocol.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
33	**Review Class**	**Chapter:9(**Regarding students problem)	To learn How to Increase Question create Abilities and Expand Answer from different source.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet

34	**Operation and features of Client Server Network.**	10.1 Define Client Server Network. 10.2 Describe role of Client Server Network. List different type of server.		Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
35		10.3 Describe DNS Server, Web Server, Mail Server, Proxy server, File Server and DHCP Server. 10.4 State the Advantages & Disadvantages of Client Server Network.	To Know the function of TCP/IP protocol.	Theory Base/Practical 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet
36	**Review**	**Chapter 10**	To learn How to Increase Question create Abilities and Expand Answer from different source.	Theory Base 1.Classroom,Whiteboard,Marker . 2.Projector. 3.PC with Internet 4. Answer scripts.
37	**5th Class Test**	**Chapter 9 +** **Chapter 10**	Develop student performance.	

Practical

Date	Practical Job Name	Learning Area	Benefits	Supporting Equipment
	1. Identify Network Media	1.1 Collect the cables and computer networking Tools. 1.2 Identify RJ45, BNC and MT-RJ connectors. 1.3 Identify the cables 1.4 Identify Network Interface Cards/LAN cards/ Network Adaptor.	**Practicaly See the all type of Cable and Connectopr.**	**Practical Base** **1.Cable-Twisted Pair Cable(Cat-6),Co-axil,Fiber.** **2.Connector-** RJ-45, BNC Connectors, MT-

		1.5 Identify Modems, Hubs, Repeaters, Switches & Routers. 1.6 Find out the ports of the above devices. 1.7Check the specifications of the devices.		RJ, LC, MTP/MPO, MU, SFF,SC. 3. Network Interface Cards, Cable Tester and Crimper, Modems, Hubs, Repeater, Swi
	2. Establish a wired Peer to Peer/Workgroup LAN	2.1 Collect network cable, connector, network switch / Router and tools. 2.2 Install Network Interface Card (NIC) into the PC. 2.3 Connect cable with connector and network port. 2.4 Check the MAC address of the Network Interface Card (NIC). 2.5 Configure the TCP/IP in each PC 2.6 Test the connectivity among PCs using Ping Command.	**Practically Establish a wired Peer to Peer/Workgroup LAN**	
	3. Establish a wireless (Wi-Fi) Peer to Peer/Workgroup LAN	3.1 Collect Wi-Fi network devices. 3.2 Install Wireless Lan Card into the PC. 3.3 Connect multiple Pcs with Wireless LAN. 3.4 Test the connectivity among PCs using Ping Command	**Practically Establish a wireless Peer to Peer/Workgroup LAN**	
	4. Install and configure windows server	4.1. Install Windows server 2012/2019/2022 into a PC. 4.2. Perform the task to configure the Active Directory. 4.3. Configure TCP/IP to server and client PCs. 4.4. Maintain the record of performed task.	**Practically See how to Install and configure windows server**	
	5. Configure windows firewall, defender and ping.	5.1. Prepare the equipment list. 5.2. Configure windows Firewall, Defender of a PC to the LAN. 5.3. Perform Ping command for the PCs of LAN. 5.4. Maintain the record of performed task.	**Practically See how to Configure windows firewall, defender and ping.**	
	5. Establish a Peer to Peer/Workgroup LAN	5.1 Install Windows server 2012 into a server PC 5.2 Configure TCP/IP to server and client PCs	**Practically See how to Establish a Peer to**	

		5.3 Perform the task to configure the Active Directory 5.4 Perform the task to configure the DNS.	**Peer/Workgroup LAN**	

REFERENCE BOOKS

1. Data Communications and Networking - Behrouz A. Forouzan
2. Computer Networks - Andrew S.Tanenbaum
4. DATA COMMUNICATION & NETWORKING - YEKINI N. ASAFE ADEBARI F. ADEBAYO BELLO OLALEKAN
5. Cisco Certificate Network Associate study Guide - Todd Lammle