

Bangladesh Sweden Polytechnic Institute

Department of Computer Technology

Semester Plan – 2017

Semester: 6th (Sixth)

Subject Code: 6663

Name of the Subject: Data Communication and Computer Network – I

Name of the Teacher: Md. Javed Hossain

Designation: Guest Lecturer

T	P	C
2	6	4

Week	Date	Topic no	Topic Details	Theory Class	Practical Class	Class Test	Quiz Test
Week-1		1.1---1.4	Define Electronic Communication. Mention the basic elements of a communication system. Describe communication system with a simple block diagram. State the terms: Frequency, Wavelength, Spectrum, Bandwidth, Throughput, propagation speed, propagation time, Noise figure & SNR	T1			
		1.5---1.7	Mention the difference between bandwidth and data rate. Describe simplex, half-duplex and full duplex modes of communication. Describe synchronous and asynchronous communication techniques.	T2			
		1	1. Identify different types of guided communication media (UTP, STP, Co-axial and fiber-optic cable) and observe their constructional features.		P1		
		2	2. Identify different types of connectors and accessories used with UTP,STP, Coaxial and fiber-optic cable and observe their constructional features		P2		
Week-2		2.1---2.5	Define Modulation and Demodulation. State the necessity of modulation. Mention the types of modulation. Describe amplitude, Frequency and Phase modulation with necessary waveform. State the meaning of modulation index and percentage of modulation.	T3			
		2.6---2.9	State the comparison of amplitude, Frequency and Phase modulation. State the difference between analog and digital modulation Describe ASK,FSK,PSK and QPSK with necessary waveform and bandwidth. State the advantage and disadvantages of ASK,FSK and PSK (BPSK)	T4			
		3	Identify the Network Cards, Tools, Tester and Accessories(modems, Hub/Switch, Repeater ,switch etc.)		P-3		
		3	Identify the Network Cards, Tools, Tester and Accessories(modems, Hub/Switch, Repeater ,switch etc.)		P-4		

Week-3	3.1---3.3	Define digital modulation. Describe Digital communication system with block diagram. Define line coding.	T5			
	3.4---3.6	Mention the categories' of Line coding State Unipolar Line coding with timing diagram and its drawbacks. Describe different types of polar encoding with necessary timing diagram.	T6			
	4	Connect RJ45 Cnnector with UTP Cable in the form of straight through/Cross Over.		P5		
	4	Connect RJ45 Cnnector with UTP Cable in the form of straight through/Cross Over.		P6		
Week-4		Quiz Test Or Class Test	T7			
	4.1-4.3	<ul style="list-style-type: none"> - Mention the categories of. transmission media - Describe the construction of Twisted-pair (STP, UTP) Co-axial and fiber optic cable. - State the characteristics of Twisted-pair (STP, UTP), Co-axial and fiber optic cable including their connectors. 	T8			
	5	<ul style="list-style-type: none"> - Establish a Peer to Peer/Workgroup LAN (a) Install NIC into the PC (b)Check the MAC address of the NIC (c) Connect cable connector with PC & Hub/Switch 		P7		
	5	<ul style="list-style-type: none"> - Establish a Peer to Peer/Workgroup LAN (d) Configure the TCP/IP in each PC (e) Test the connectivity of the PCs 		P7		
Week-5	4.5---4.8	State difference between baseband and broadband cables. State the advantage and disadvantages of each type of cables. Describe the method of Radio, microwave and infrared communication system. State the characteristics of Radio, microwave and infra red communication system.	T9			
	5.1---5.5	Define multiplexing and De-multiplexing process of communication system. State the necessity of multiplexing. Mention the categories of multiplexing. Define Frequency division multiplexing. Describe Frequency division multiplexing and de-multiplexing technique with block diagram	T10			
	6	Perform the task to Work with a Peer/Workgroup LAN environment for simple data communication. (a) Share the folders / secondary memory.		P9		
	6	6 Perform the task to Work with a Peer/Workgroup LAN environment for simple data communication. (b) Share a printer or any other resources.		P10		

Week-6		5.6---5.9	Describe the Wave division multiplexing and Demultiplexing technique with block diagram Define Time division Multiplexing. Describe the process of synchronous Time division Multiplexing. Describe the principle of Code division multiplexing system.	T11			
		6.1---6.4	Define Computer Network State the concept of computer Network. Mention elements of computer network. Describe the advantages of Computer network	T12			
		7	Extend a LAN using Hub/Switch/Repeater.		P11		
		7	Extend a LAN using Hub/Switch/Repeater.		P12		
Week-7			Class Test On 1—6 Chapter	T13			
		7.1---7.3	Define topology. Mention the difference between physical and logical topology. Describe the physical connection of bus, ring, star and hybrid topologies.	T14			
		8	Establish a Client–Server Local Area Network (a). Install Windows server into a server PC		P13		
		8	Establish a Client–Server Local Area Network (a). Install Windows server into a server PC		P14		
Week-8		7.4---7.6	Mention the advantages and disadvantages of bus, ring, star and hybrid topologies. Describe the factors to select a particular topology. Describe the logical topologies of a token ring network.	T15			
		8.1---8.3	Define network protocol. Describe the main elements of protocol. Describe the characteristics of protocol.	T16			
		8	8. Establish a Client–Server Local Area Network (b).Configure TCP/IP to server and client PCs		P15		
		8	8. Establish a Client–Server Local Area Network (b).Configure TCP/IP to server and client PCs		P16		

Week-9	8.4---8.6	Describe the functions of protocol. List different types of network protocols. State the function of TCP/IP protocol.	T17			
	9.1---9.3	Define Network Addressing. State the format of physical address of a NIC. Define IP.	T18			
	8	8. Establish a Client–Server Local Area Network (c).Perform the task to configure the Active Directory		P17		
	8	8. Establish a Client–Server Local Area Network (d) Perform the task to configure The DNS.		P18		
Week-10	9.4---9.6	Describe the IP address Formats of Class A,B,C,D,E with example. Describe subnet and subnet masks. Define IPv6.	T19			
	10.1---10.3	State the role of NIC. Describe the network address. Mention the points that agree both the sending and receiving NICs.	T20			
	8	Perform the task to configure the DHCP		P19		
	8	Perform the task to configure the DHCP		P20		
Week-11	10.4---10.6	State the importance of base memory address for NIC. Mention the important points to maintain the compatibility among NIC, bus and cables. Describe the NIC related factors that enhanced the performance of network.	T21			
	11.1---11.3	List the connectivity devices used in networking. Describe function of MODEM.. Describe MODEM types and Standard.	T22			

		9	Perform the task to Work with a Client–Server LAN environment for simple data Communication and Administrative functions.		P21		
		9	Perform the task to Work with a Client–Server LAN environment for simple data Communication and Administrative functions.		P22		
Week-12		11.4--11.8	Describe the features of ADSL and Digital MODEM. Describe the functions of Hubs, Repeaters and switches in network. Mention the types of Hubs. Describe the important features of passive, active and intelligent Hubs. Describe the important features of Repeaters and switches.	T23			
			CLASS TEST ON 7,8,9,10,11 CHAPTER	T24			
		Lab Test	Revision of previous practical		P23		
		Lab Test	Revision of previous practical		P24		

Reference Books

1. Data communications and Networking – Behrouz A. Forouzan.
2. Fundamentals of communication-M. Shamim Kaiser and associates
3. Data communications and Networking – Behrouz A. Forouzan
4. Data and Computer Communications-William Stallings
5. Local Area Networking – S. K Basandra.
6. MCSE Windows & Networking Essential – Joe Casad