

# Bangladesh Polytechnic Institute

Technology: **Computer**

Semester: 6<sup>th</sup>

Sub Name: **Data Communication & Computer network-1(6663)**

Teacher Name: Mst.Amina Khatun

**Course Outline**

Mob.No: 01783 84 32 66

Class No.	Discussion and Explanation of Topics/ Titles	Remarks
Class-1	<ul style="list-style-type: none"> <li>❖ <b>Understand communication basics.</b></li> <li>➤ Define Electronic Communication.</li> <li>➤ Mention the basic elements of a communication system.</li> <li>➤ Describe communication system with a simple block diagram.</li> </ul>	
Class-2	<ul style="list-style-type: none"> <li>❖ <b>Understand communication basics.</b></li> <li>➤ State the terms :Frequency,Wavelenth,Spectrum,Bandwidth, Throughput,propagation speed, propagation time,Noise figure &amp; SNR</li> <li>➤ Mention the difference between bandwidth and data rate.</li> <li>➤ Describe simplex, half-duplex and full duplex modes of communication.</li> <li>➤ Describe synchronous and asynchronous communication techniques.</li> </ul>	
Class-3	<ul style="list-style-type: none"> <li>❖ <b>Understand Analog communication system</b></li> <li>➤ Define Modulation and Demodulation.</li> <li>➤ State the necessity of modulation.</li> <li>➤ Mention the types of modulation.</li> <li>➤ Describe amplitude, Frequency and Phase modulation with necessary waveform.</li> </ul>	
Class-4	<ul style="list-style-type: none"> <li>❖ <b>Understand Analog communication system</b></li> <li>➤ State the meaning of modulation index and percentage of modulation.</li> <li>➤ State the comparison of amplitude, Frequency and Phase modulation.</li> <li>➤ State the difference between analog and digital modulation</li> <li>➤ Describe ASK,FSK,PSK and QPSKwith necessary waveform and bandwith.</li> <li>➤ State the advantage and disadvantages of ASK,FSK and PSK (BPSK)</li> </ul>	
Class-5	<ul style="list-style-type: none"> <li>❖ <b>Understand Digital communication system</b></li> <li>➤ Define digital modulation.</li> <li>➤ Describe Digital communication system with block diagram.</li> <li>➤ Define linecoding.</li> <li>➤ Mention the catagories of Line coding</li> <li>➤ State Unipolar Linecoding with timing diagram and its drawbacks.</li> <li>➤ Describe different types of polar encoding with necessary timing diagram.</li> </ul>	
Class-6	<ul style="list-style-type: none"> <li>❖ <b>Understand transmission media and connectors.</b></li> <li>➤ Mention the catagories of. transmission media</li> <li>➤ Describe the construction of Twisted-pair (STP,UTP) Co-axial and fiberoptic cable.</li> <li>➤ State the characteristics of Twisted-pair (STP,UTP),Co-axial and fiber optic cable including their connectors.</li> </ul>	
Class-7	 <b>Feedback</b>	

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Class-8	 <b>Feedback</b>	
Class-9	<p>❖ <b>Understand transmission media and connectors.</b></p> <ul style="list-style-type: none"> <li>➤ State difference between baseband and broadband cables.</li> <li>➤ State the advantage and disadvantages of each types of cables.</li> <li>➤ Describe the method of Radio,microwave and infrared communication system.</li> <li>➤ State the characteristics of Radio,microwave and infra red communication system.</li> </ul>	
Class-10	<p>❖ <b>Understand multiplexing techniques</b></p> <ul style="list-style-type: none"> <li>➤ Define multiplexing and Demultiplexing process of communication system.</li> <li>➤ State the necessity of multiplexing.</li> <li>➤ Mention the categories of multiplexing.</li> <li>➤ Define Frequency division multiplexing.</li> </ul>	
Class-11	 <b>Feedback</b>	
Class-12	 <b>Class Test</b>	
Class-13	<p>❖ <b>Understand multiplexing techniques</b></p> <ul style="list-style-type: none"> <li>➤ Describe Frequency division multiplexing and demultiplexing technique with block diagram</li> <li>➤ Describe the Wave division multiplexing and Demultiplexing technique with block diagram</li> <li>➤ Define Time division Multiplexing.</li> <li>➤ Describe the process of synchronous Time division Multiplexing.</li> <li>➤ Describe the principle of Code division multiplexing system.</li> </ul>	
Class-14	<p>❖ <b>Understand computer network basics.</b></p> <ul style="list-style-type: none"> <li>➤ Define Computer Network</li> <li>➤ State the concept of computer Network.</li> <li>➤ Mention elements of computer network.</li> <li>➤ Describe the advantages of Computer network.</li> </ul>	
Class-15	<p>❖ <b>Understand computer network basics.</b></p> <ul style="list-style-type: none"> <li>➤ Describe the application of computer network.</li> <li>➤ Describe client / server and peer-to-peer network.</li> <li>➤ Describe the general features of LAN, MANs and WANs.</li> </ul>	
Class-16	<p>❖ <b>Understand the network topologies.</b></p> <ul style="list-style-type: none"> <li>➤ Define topology.</li> <li>➤ Mention the difference between physical and logical topology.</li> <li>➤ Describe the physical connection of bus, ring, star and hybrid topologies</li> </ul>	
Class-17	<p>❖ <b>Understand the network topologies.</b></p> <ul style="list-style-type: none"> <li>➤ Mention the advantages and disadvantages of bus, ring, star and hybrid topologies.</li> <li>➤ Describe the factors to select a particular topology.</li> <li>➤ Describe the logical topologies of a token ring network.</li> </ul>	
Class-18	❖ <b>Understand network protocols.</b>	

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	<ul style="list-style-type: none"> <li>➤ Define network protocol.</li> <li>➤ Describe the main elements of protocol.</li> <li>➤ Describe the characteristics of protocol.</li> <li>➤ Describe the functions of protocol.</li> </ul>	
Class-19	<ul style="list-style-type: none"> <li>❖ <b>Understand network protocols.</b></li> <li>➤ List different types of network protocols.</li> <li>➤ State the function of TCP/IP protocol.</li> </ul>	
Class-20	 <b>Feedback</b>	
Class-21	 <b>Feedback</b>	
	<b>Model Test</b>	
Class-22	<ul style="list-style-type: none"> <li>❖ <b>Understand IP addressing.</b></li> <li>➤ Define Network Addressing.</li> <li>➤ State the format of physical address of a NIC.</li> <li>➤ Define IP.</li> </ul>	
Class-23	<ul style="list-style-type: none"> <li>❖ <b>Understand IP addressing.</b></li> <li>➤ Describe the IP address Formats of Class A,B,C,D,E with example.</li> <li>➤ Describe subnet and subnet masks.</li> <li>➤ Define IPv6.</li> </ul>	
Class-24	<ul style="list-style-type: none"> <li>❖ <b>Understand Network Interface Cards (NIC)</b></li> <li>➤ State the role of NIC.</li> <li>➤ Describe the network address.</li> <li>➤ Mention the points that agree both the sending and receiving NICs.</li> </ul>	
Class-25	<ul style="list-style-type: none"> <li>❖ <b>Understand Network Interface Cards (NIC)</b></li> <li>➤ State the importance of base memory address for NIC.</li> <li>➤ Mention the important points to maintain the compatibility among NIC, bus and cables.</li> <li>➤ Describe the NIC related factors that enhanced the performance of network.</li> </ul>	
Class-26	<ul style="list-style-type: none"> <li>❖ <b>Understand the connectivity devices.</b></li> <li>➤ List the connectivity devices used in networking.</li> <li>➤ Describe function of MODEM..</li> <li>➤ Describe MODEM types and Standard.</li> <li>➤ Describe the features of ADSL and Digital MODEM.</li> </ul>	
Class-27	<ul style="list-style-type: none"> <li>❖ <b>Understand the connectivity devices.</b></li> <li>➤ Describe the functions of Hubs, Repeaters and switches in network.</li> <li>➤ Mention the types of Hubs.</li> <li>➤ Describe the important features of passive, active and intelligent Hubs.</li> <li>➤ Describe the important features of Repeaters and switches.</li> </ul>	

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**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