SANATAN DHARMA COLLEGE, AMBALA CANTT
College with Potential for Excellence, UGC, New Delhi
NAAC Accredited Grade "A+" with CGPA 3.51 in 3rd cycle
ISO 9001:2015 & ISO 14001:2015 Certified

Department of Computer Science
Lesson Plan (Session 2022-2023)
BVSD-23 Networking and Internet

Maximum marks: 100   External: 80

Time: 3 hours   Internal: 20

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of objective type/short-answer type questions covering the entire syllabus. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus.
Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit. All questions will carry equal marks.

Unit I

Introduction to Computer Communications and Networking Technologies, Uses of Computer Networks, Network Devices, Nodes, and Hosts, Types of Computer Networks and their Topologies. Network Software: Network Design Issues and Protocols, Connection-Oriented and Connectionless Services, Network Applications and Application Protocols, Computer Communications. Networking Models: Decentralized and Centralized Systems, Distributed Systems, Client/Server Model, Peer-to-Peer Model, Web-Based Model, Network Architecture and the OSI Reference Model. Example Networks: The Internet, X.25, Frame Relay, ATM.

Unit II

Analog and Digital Communications Concepts: Representing Data as Analog Signals, Representing Data as Digital Signals, Data Rate and Bandwidth, Capacity, Baud Rate, Digital Carrier Systems; Guided and Wireless Transmission Media, Communication Satellites, Switching and Multiplexing, Dialup Networking, Analog Modem Concepts, DSL Service.

Unit III

Data Link Layer: Framing, Flow Control, Error Control, Error Detection and Correction, Sliding Window Protocols, Media Access Control, Random Access Protocols, Token Passing Protocols, Token Ring. Introduction to LAN Technologies: Ethernet, Switched Ethernet, VLAN, Fast Ethernet, Gigabit Ethernet, Token ring, FDDI, Wireless LANs, Bluetooth. Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways. Network Security Issues: Security Threats, Encryption Methods, Authentication. Symmetric – Key Algorithms, Public-Key Algorithms.

Unit IV

Internet, Growth of Internet, Owner of the Internet, Internet Services Provider, Anatomy of Internet, Arpanet and Internet, History of the World Wide Web, Services Available on Internet Wais, Basic Internet Terminologies, Net Etiquette, Applications, Commerce on the Internet Governance on/through the Internet, Impact of Internet on Society.

TEXT BOOKS:

- Greenlaw Raymond, Hepp Ellen, Fundamentals of the Internet & World Wide Web, Mc-Graw Hill Higher Education, 2001
- Deitel Harvey M., Internet & World Wide Programming, Pearson Education, 2000

REFERENCE BOOKS:

- Dordoigne Jose, Networking Essentials, Firewall Media, 2005
- Syan Kiranjeet, Network Firewalls, New Rider Publication

Course Outcomes

After the completion of this course, prospective Computer professionals will have the ability to

CourseTitle	Networking & Internet
CO No.	Course Outcomes
CO-1	Explain the fundamental knowledge in Network Hardwareand Software; summarizeOSI reference Model.
CO-2	Describe about the types of Transmission Media andundunderstands the workingof Public Switches Telephone Network.
CO-3	Relate and illustrate the techniques of Error Detection andCorrection.
CO-4	Express the Elementary Data Link Protocols.
CO-5	Illustrate and analyse the Routing and Congestion ControlAlgorithms in NetworkLayer; explain the underlying protocol in Transport Layer.
CO-6	Identify the functionality of Application Layer services.
CO-7	Analyze and interpret the network securityalgorithms.
CO-8	Analyze the various concepts of networks related to OSI andTCP reference models

S.No	Instructional Technique	Assessment Methods (AM)
1	Chalk & Talk	Assignments
2	ICT tools	Quiz
3	Group discussions	Group Discussions
4	Industrial visit	Oral Tests
5	Case studies	Sessional
6	Small Projects	Presentations
7	Workshop	Seminar
8	Spoken Tutorials	University Exams
9	Flipped Class	
10.	E-Resources	

Date	Topics to be covered	Instructional Technique	Assessment Method
02.02.2023	Introduction to Computer Communications and Networking Technologies, Uses of Computer Networks, Network Devices, Nodes, and Hosts	1	1,2,3,4
03.02.2023	Types of Computer Networks and their Topologies. Network Software: Network Design Issues and Protocols	1	1,2,3,4
04.02.2023	Connection-Oriented and Connectionless Services, Network Applications and Application Protocols	1	1
05.02.2023	**SUNDAY**		
09.02.2023	Computer Communications. Networking Models: Decentralized and Centralized Systems, Distributed Systems, Client/Server Model	2-(PPT/Projector)	1,2,3,4
10.02.2023	Peer-to-Peer Model, Web-Based Model	2-(PPT/Projector)	1,2,3,4
11.02.2023	Network Architecture and the OSI Reference Model	2-(PPT/Projector)	1,2,3,4
12.02.2023	**SUNDAY**		
16.02.2023	Example Networks: The Internet, X.25	2-(PPT/Projector)	1,2,3,4
17.02.2023	Frame Relay, ATM		
18.02.2023	Representing Data as Analog Signals, Representing Data as Digital Signals	1	1,2,3,4
19.02.2023	**SUNDAY**		
23.02.2023	Data Rate and Bandwidth, Capacity, Baud Rate	2-(PPT/Projector)	1,2,3,4
24.02.2023	Digital Carrier Systems; Guided and Wireless Transmission Media	2-(PPT/Projector)	1,2,3,4
25.02.2023	Revision		
26.02.2023	**SUNDAY**		
02.03.2023	Communication Satellites		
03.03.2023	Switching and	8,10,2	1,2,3,4,

	Multiplexing		
04.03.2023	Dialup Networking, Analog Modem Concepts, DSL Service	**8,10,2**	**1,2,3,4,**
05.03.2023	**SUNDAY**		
16.03.2023	Data Link Layer: Framing, Flow Control, Error Control, Error Detection and Correction, Sliding Window Protocols	**6**	**1,2,3,4**
17.03.2023	Media Access Control, Random Access Protocols	**1**	**6**
18.03.2023	Token Passing Protocols, Token Ring. Introduction to LAN Technologies		
19.03.2023	**SUNDAY**		
23.03.2023	**HOLIDAY**		
24.03.2023	Ethernet, Switched Ethernet, VLAN, Fast Ethernet, Gigabit Ethernet,	**2-(PPT/Projector)**	**1,2,3,4**
25.03.2023	Token ring, FDDI, Wireless LANs, Bluetooth. Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs	**2-(PPT/Projector)**	**1,2,3,4**
26.03.2023	**SUNDAY**		
30.03.2023	**HOLIDAY**		
31.03.2023	Network Interface Cards and PC Cards,		
01.04.2023	Bridges, Switches	**6**	**1,2,3,4**
02.04.2023	**SUNDAY**		
06.04.2023	Routers, Gateways	**2-(PPT/Projector)**	**1,2,3,4**
07.04.2023	Network Security Issues	**2-(PPT/Projector)**	**1,2,3,4**
08.04.2023	Security Threats	**2-(PPT/Projector)**	**1,2,3,4**
09.04.2023	**SUNDAY**		
13.04.2023	Encryption Methods		

Date	Topic		
14.04.2023	**HOLIDAY**		
15.04.2023	Authentication. Symmetric – Key Algorithms	**9,10**	**1,2,3,4**
16.04.2023	**SUNDAY**		
20.04.2023	Public-Key Algorithms		
21.04.2023	Internet, Growth of Internet	**2-(PPT/Projector)**	**1,2,3,4**
22.04.2023	**Holiday**		
23.04.2023	**SUNDAY**		
27.04.2023	Owner of the Internet, Internet Services Provider	**2-(PPT/Projector)**	**1,2,3,4**
28.04.2023	Anatomy of Internet, Arpanet and Internet		
29.04.2023	History of the World Wide Web	**2-(PPT/Projector)**	**1,2,3,4**
30.04.2023	**SUNDAY**		
04.05.2023	Services Available on Internet Wais	**2-(PPT/Projector)**	**1,2,3,4**
05.05.2023	Basic Internet Terminologies	**2-(PPT/Projector)**	**1,2,3,4**
06.05.2023	Net Etiquette		
07.05.2023	**SUNDAY**		
11.05.2023	Applications		
12.05.2023	Commerce on the Internet Governance on/through the Internet		
13.05.2023	revision		
14.05.2023	**SUNDAY**		

	Teacher Incharge	Head of the Department
Name	Kamna Billus	Dr. Girdhar Gopal
Sign with Date		