SILVER OAK UNIVERSITY
College Of Computer Application
Bachelor of Computer Application (BCA)
Subject Name: Computer Networks
Subject Code: 2040233212
Semester: 4

Prerequisite: Basic information of Computer hardware and Devices

Objective: The course will create basic fundamental of Networking and network devices with functions. Introduce to data transfer in Network.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Evaluation Scheme				Total Marks
L	T	P	C	Internal		External		
				Th	Pr	Th	Pr	
3	0	0	3	40	--	60	--	100

Content:

Unit No.	Course Contents	Teaching Hours	Weightage %
1	**Introduction to Computer Networks and Networking Elements:** Network Definition, Network Topologies, Network Classifications, Network Protocol, Layered Network Architecture, Overview of OSI Reference Model, Overview of TCP/IP Protocol Suite, Hub, Switch (Managed and Unmanaged), Routers	10	25
2	**Data Communication Fundamentals and Techniques:** Analog and Digital Signal, Data-Rate Limits, Digital to Digital Line Encoding Schemes, Pulse Code Modulation, Parallel and Serial Transmission, Digital to Analog Modulation - Multiplexing Techniques- FDM, TDM, Transmission Media.	11	27
3	**Networks Switching Techniques and Access Mechanisms:** Circuit Switching, Packet Switching- Connectionless Datagram Switching, Connection Oriented Virtual Circuit Switching;	7	16
4	**Data Link Layer and Network Layer Functions and Protocol:** Error Detection and Error Correction Techniques, Data-Link Control- Framing and Flow Control, Network Layer Protocol of Internet - IP Protocol	7	16
5	**Transport Layer and Application Layer Functions and Protocols:** Transport Services- Error and Flow Control, Overview of Application Layer Protocol DNS Protocol; WWW & HTTP Protocol.	7	16

Course Outcome:

Sr. No.	CO statement	Unit No
CO-1	Analyze, specify and design the topological and routing strategies for an IP based networking infrastructure.	1
CO-2	Acquire knowledge of data Communication Fundamentals and Techniques.	2
CO-3	Demonstrate Networks Switching Techniques and Access Mechanisms	3
CO-4	Demonstrate proficiency in error management at the Data Link Layer and the Internet Protocol (IP) in the Network Layer.	4
CO-5	Remembering the concept of Transport Layer and Application Layer Functions, Protocols	5

Teaching & Learning Methodology:

1. The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
2. Lectures with live practical example using Projector and Computer.
3. Experiments shall be performed in the laboratory related to course contents.

Major Equipment:

1. Computer System
2. Switches and HUB
3. LAN cable, Crimping Tools

Books Recommended:

1. Computer Networking- A Top-Down approach, 5th edition, Kurose and Ross, Pearson
2. Computer Networks (4th edition), Andrew Tanenbaum, Prentice Hall

List of Open Source Software/learning website:

1. https://www.coursera.org/courses?query=c%20programming
2. https://www.udemy.com/
3. https://www.tutorialspoint.com/cprogramming
4. NPTEL Tutorials