SILVER OAK UNIVERSITY

Computer Application
Integrated M.Sc(IT)
Subject Name: Computer Networks
Subject Code:
Semester: 3rd

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	2	4	40	20	60	30	150

Content:

Unit No.	Course Contents	Teaching Hours	Weightage %
1	**Introduction:** Understanding of network and Internet, The network edge, The network core, Understanding of Delay, Loss and Throughput in the packet-switching network, protocols layers and their service model, History of the computer network	7	15
2	**The Link layer and Local area networks:** Introduction and link layer services, error-detection and correction techniques, Multiple access protocols, addressing, Ethernet, switches.	6	15
3	**Network Layer:** Introduction, Virtual and Datagram networks, study of router, IP protocol and addressing in the Internet, Routing algorithms, Broadcast and Multicast routing	10	25

4	**Transport Layer:** Introduction and transport layer services, Multiplexing and Demultiplexing, Connection less transport (UDP), Principles of reliable data transfer, Connection oriented transport (TCP), Congestion control.	10	25
5	**Application Layer:** Principles of computer applications, Web and HTTP, E-mail, DNS, Socket programming with TCP and UDP	6	20

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	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies	2,3
CO-3	Getting Knowledge of Networking Tools	4,5

Teaching & Learning Methodology:-

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

List of Experiments/Tutorials:

Sr. No.	Practical's
1	Block Diagram of Computer System and Explain its Various Components
2	Study of different types of Network cable and practical implement of cross wired cable using clamping tool
3	Explain following computer network devices.
4	1.HUB 2.BRIDGES 3.ROUTER 4.SWITCH 5.GATEWAY 6.REPEATER
5	Study of Network IP
6	Prepare one demo Network with Subnetting.
7	Wireless Access Point Setup Instructions
8	Packet Analysis Using Wireshark.
9	Study of Various packets of protocols like http,smtp,tcp etc.

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- A Top-Down approach, BehrouzForouzan, McGraw Hill
3. Computer Networks (4th edition), Andrew Tanenbaum, Prentice Hall

List of Open Source Software/learning website:

4. https://www.coursera.org/courses?query=c%20programming
5. https://www.udemy.com/
6. https://www.tutorialspoint.com/cprogramming
7. NPTEL Tutorials