System Administration and Networking

Paper Code: CSC-3076/ INF-3076

Course Plan

Session: 2021-22

Unit	Lecture No.	Title
Unit 1	1	Major components of the Linux operating systems.
	2	Basic Linux commands
	3	Linux commands for listing and opening files and directories
	4	File system in Linux. Types of files in Linux system
	5	Users and Groups in Linux. Creating and changing user and groups
	6	Users and Groups in Linux. Setting user and group ownership of files and directories
	7	Dealing with access permissions in Linux
Unit 2	8	Basic commands for starting and stopping processes
	9	Basic process attributes and their role in access control
	10	Mounting and un-mounting file systems and partitions
	11	System Calls in Linux
	12	Linux Kernel program, starting and stopping a Linux system
	13	Setting up user and group accounts on single machines
	14	The basics of backup and restore procedures
	15	Tar, CPIO and SCP for file backups
	16	Compression of files using GZip
Unit 3	17	Linux system monitoring and logging
	18	Examining the list of running processes on the system
	19	Use of top, ps and jobs command for listing processes in a system

Unit 3	20	Background process in Linux system. Using sigkill to terminate a background process
	21	Monitoring memory usage and disk space usage on the system
	22	Customizing system log configuration
Unit 4	23	The rules of governing IP address classes and netmasks
	24	Networks and Subnets. Basic idea of subnetting
	25	Subnetting a network. Idea of Gateway, Network IP address, Broadcast IP address.
	26	Classless Inter Domain Routing.
	27	Using Cisco Packet Tracer to simulate a network with subnets
	28	Configuring the resolver library to arrange for TCP/IP name service
	29	Bringing interfaces up and down, and set their IP addresses and netmasks
	30	Kernel routing table. Setting the default route in the kernel routing table
	31	Understanding the significance of the /etc/services file and well-known port numbers
	32	Configuring the inet daemon.
	33	Using telnet to contact servers directly, using ping command to test network connectivity
	34	netstat command to examine kernel tables pertaining to networking
	35	traceroute command to discover network paths
	36	Usage of tcpdump to examine network traffic. Understanding the output of tcpdump
	37	Methods used to bring interfaces up and down
Unit 5	38	Basics of configuring and using Domain Name Service, sendmail
	39	The Network Information System, Network File System
	40	Structure and function of the Domain Name Service
	41	DNS Cache poisoning attack
	42	Setting up a Linux machine to function as a DNS server. Configuring and using sendmail
	43	Setting up an NIS domain with an NIS master server and NIS clients
Unit 6	44	Basic network security issues and solutions. Virus, threats and attacks
	45	Firewall and proxy servers. Proxy vs VPN

Unit 7	46	Setting up a Linux machine to act as an NFS server
	47	Setting up a Linux machine to act as an NFS client
	48	Incremental back up.
Unit 8	49	Monthly back. Mail server setup
	50	Linux Shells- Bourne shell, Bash, Korn shell, C shell
	51	Shell scripting, running Linux commands on script
	52	Loops in shell script, conditional statements.
	53	Arithmetic and Conditional operations in shell script
	54	Functions in shell script. Parameter passing. Command line argument passing.

Teaching Associate
Department of Computer Science