PGScIT S4 03
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Linux System Administration

SEMESTER-IV

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY

BLOCK-2

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DETAILED SYLLABUS

		Page No.
UNIT 9:	**LINUX Shells** Various types of Shell available in Linux, Comparisons between various Shells, Study of different Linux Shells (sh, bash, csh, zsh), Environment variables, Shell script basics (examples of some simple shell programming), Shell programming in bash, read command, conditional and looping statements, case statements, parameter passing and arguments, Shell variables, system shell variables, shell keywords, creating Shell programs for performing various tasks.	**161-199**
UNIT 10:	**Process** Services and Process, Basic commands for starting and stopping processes, Basic process attributes and their role in Access control. Examining the list of running processes on the system and understand the data presented there. Background process, Job control, Crontab file format, Backup and Restore procedure	**200-223**
UNIT 11:	**Printing Jobs** Submit a print job, check the status of a print job, cancel a print job, configuring the Print Queue, Selecting the Print Driver, Editing the Printer configuration	**224-240**
UNIT 12:	**System Administration Tasks** Getting Started: Login process, Creating Users Account and Group, Getting Help, Understanding the "root" account, Managing user accounts-adding, modifying and removing User accounts, changing permissions and ownerships, Creating and managing groups, modifying group attributes, becoming super user using su; limited su (sudo) Changing Password, System monitoring and logging, Monitoring memory usage, disk space usage and I/O activity, Temporary disable user?s accounts, creating and mounting file system, checking and monitoring system performance file security & Permissions, Getting system information with uname, host name, disk partitions & sizes, users, kernel. Backup and restore files, reconfiguration hardware with kudzu, installing and removing packages in Linux. Configure X-windows starting & using X desktop. KDE & Gnome graphical interfaces, changing X windows settings.	**241-272**

UNIT 13: Networking in LINUX **273-313**

Installation and configuration of: Proxy server(Squid), DNS server(BIND), Mail server, Web server(Apache), File server(Samba), DHCP server; Installation and configuration of a SSH server and client; Installation and configuration of FTP server and client, rules governing IP address classes and netmasks, Network Address, Netmask and Gateway configuring Interface with ifconfig, ping, netstat, traceroute, telnet, understanding the significance of the /etc/services file and well known port numbers

UNIT 14: Network Protocols **314-348**

Basics of configuring NFS, NIS, DNS, FTP, Squid Proxy, DHCP server, ip tables and firewall

UNIT 15: Basic Network Security Issues **349-366**

Introduction to Basic Network Security Issues, Packet Snifflers, DOS Attacks, Linux Kernel Firewalling, Virtual Private Networks

COURSE INTRODUCTION

This is a course on ***Linux System Administration***. Linux is an open-source operating system. The Linux OS was developed by Linus Torvalds in 1991.Nowadays, Linux is the fastest-growing operating system. Linux system administration is a process of setting up, configuring, and managing a computer system in a Linux environment. This course is designed to describe most of the skills needed for Linux system administration work.

The course consists of two blocks.

Block 1 deals with the basic concepts of Linux Operating System. The installation processes of the Linux operating system are explained. The file and directory structure of Linux OS are explained. At the end of this block, various file handling and filter commands are discussed.

Block 2 discusses about the Linux shells. It also discusses the processes, printing jobs and establishment of networking in Linux OS. In the last part of this block, the concept of network protocols and basic network security issues are explained.

BLOCK INTRODUCTION

This is the second block of the course ***Linux System Administration.*** This block contains seven units.

Unit 9 describes the concept of shell scripts. The use of conditional, loop control statements, and functions in a shell script are explained in this unit.

Unit 10 discusses about the process and the commands required to handle process activities

Unit 11 describes the installation, configurations and settings of a printer and printing jobs in Linux

Unit 12 describes the basic system administration tasks.

Unit 13 describes the installation and configuration of various networking services in Linux

Unit 14 discusses configuration of NFS, NIS, DNS, FTP, Squid Proxy, DHCP server, ip tables and firewall

Unit 15 discusses basic network security issues.

Each unit of these blocks includes "CHECK YOUR PROGRESS" questions. These have been designed to self-check your progress of study. It will be helpful for you if you solve the problems put in these boxes immediately after you go through the sections of the units and then match your answers with "ANSWERS TO CHECK YOUR PROGRESS" given at the end of each unit.