

## INT249:SYSTEM ADMINISTRATION

L:2 T:0 P:2 Credits:3

**Course Outcomes:** Through this course students should be able to

- CO1 :: discuss the installation process of windows server and virtual environment
- CO2 :: administer the basic server configurations and perform implementation of storage solutions
- CO3 :: apply server hardening techniques
- CO4 :: enumerate the process of managing, permissions and storage in linux
- CO5 :: examine different files, directories, kernel modules and boot process
- CO6 :: analyze devices, networks and packages in linux operating system

### Unit I

**Installing Windows Server** : prepare an installation plan, prepare the server hardware, set up the server hardware, install an operating system

**Configuring Network** : manage network cabling, configure network interface cards, implement IP addressing and network infrastructure services

**Creating a Virtual Environment** : create virtual servers, create virtual switches

### Unit II

**Performing Basic Server Configuration** : configure local server properties, configure server roles, set up IP addressing service roles

**Administering the Server** : update the server, server administration access and control methods, create service level agreements, monitor server performance

**Implementing Storage Solutions** : perform capacity planning, deploy primary storage devices, storage technologies, configure RAID

### Unit III

**Securing The Server** : configure firewalls, configure security protocols, implement intrusion detection systems, implement logical access control methods, implement data security models, apply server hardening techniques, implement physical security, create virtual networks

### Unit IV

**Performing Basic Linux Tasks** : identify linux design philosophy, enter shell commands, get help with linux

**Managing Users and Groups** : assume superuser privileges, create, modify and delete users, create, modify and delete groups, query users and groups, configure account profiles

**Managing Permissions and Ownership** : modify file and directory permissions, modify file and directory ownership, configure special permissions and attributes, troubleshoot permissions issues

**Managing Storage** : create partitions, manage logical volumes, mount file systems, manage file systems, navigate the linux directory structure

### Unit V

**Managing Files and Directories** : create and edit text files, search for files, perform operations on files and directories, process text files, manipulate file output, explore the linux kernel, install and configure kernel modules, monitor kernel modules

**Managing the Linux Boot Process** : configure linux boot components, configure GRUB2

**Managing Kernel Modules** : explore the linux kernel, install and configure kernel modules, monitor kernel modules

### Unit VI

**Managing Devices** : identify the types of linux devices, configure devices, monitor devices, troubleshoot hardware issues

**Managing Networking** : identify TCP/IP fundamentals, identify linux server roles, connect to a network, configure DHCP and DNS client services, configure cloud and virtualization technologies, troubleshoot networking issues

### List of Practicals / Experiments:

**Setup virtual environment**

- installation of virtual workstation

**Installation of windows server**

- install operating system, setup server hardware, configure network

**Server configuration**

- configure server roles, setup IP addressing service roles, administering the server, manage storage solutions

**Server hardening**

- configure firewall, server hardening techniques, physical security, create virtual network

**Working with linux**

- shell commands, manage users, groups, permissions, storage

**Linux file and directories**

- Linux file and directories

**Manage components**

- install and configure kernel modules, monitor modules, boot components, configuring GRUB2

**Manage devices, networks in linux**

- monitor and troubleshoot hardware issues, configure DHCP and DNS client services

**Text Books:**

1. COMPTIA SERVER+ STUDY GUIDE by T MCMILLAN, SYBEX
2. COMPTIA LINUX+ STUDY GUIDE by CHRISTINE BRESNAHAN, SYBEX

**References:**

1. COMPTIA LINUX+ CERTIFICATION ALL-IN-ONE EXAM GUIDE: EXAM XK0-004 by TED JORDAN, MC GRAW HILL