SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: PROG-325 Department:

Course Title: Operating Systems with Linux Semester: Fall Year: 2003

Course Objective	Competencies
1. To understand the tasks that Operating Systems Performs. 2. To understand the connection between what the user/operator does and how theses tasks are carried out by the operating system. 3. To obtain a working knowledge of Linux. 4. To use many of Linux's tool from both a command line and GUI perspective 5. To be able to administer a Linux Server and to start looking at computer management from an administrators perspective	• Determine appropriate method of installation based on the environment (e.g. boot disk, CD-ROM, Network (HTTP, FTP, NFS, SMB) • Describe the different types of Linux installation interaction and determine which to use for a given situation (e.g. GUI, text, network) • Select appropriate parameters for Linux installation (e.g. language, time zones, keyboard, mouse) • Select packages based on the machine's "role"(e.g. Workstation, Server, Custom) • Select appropriate options for partitions based on pre-installation choices (e.g. FDISK, third party partitioning software) • Partition according to your pre-installation plan using fdisk (e.g./boot, /, /usr, /var/home, SWAP) • Select appropriate networking configuration and protocols (e.g. Modems, Ethernet, Token-Ring) • Select appropriate security settings (e.g. Shadow password, root password, umask value, password limitations and password rules)

- Create users and passwords during installation.
- Select video card support (e.g. Chipset, memory, support, resolution(s))
- Select appropriate window managers or desktop environment (e.g. RPM, tar, gzip)
- Read the Logfiles created during installation to verify the success of the installation
- Reconfigure the Xwindow System with automated utilities (e.g. Xconfigurator, XF86Setup)
- Set environment variables (e.g. PATH, DISPLAY, TERM)
- Configure basic network services and settings (e.g. netconfig, linuxconf; settings for TCP/IP, DNS, DHCP)
- Reconfigure boot loader (e.g. LILO)
- Identify the purpose and characteristics of configuration files (e.g. BASH, inittab, fstab, /etc/*)
- Edit basic configuration files (e.g., BASH files, inittab, fstab)
- Load, remove, and edit list modules (e.g. insmod, rmmod, Ismod, modprobe)
- Create and delete users
- Modify existing users (e.g. password, groups, personal information)
- Create, modify and delete groups
- Identify and change file permissions, modes and types by using chmod, chown and chgrp
- Manage and navigate the Linux hierarchy (e.g. /etc, /usr, /bin, /var)

- Manage and navigate the standard Linux file system (e.g. mv, mkdir, ls, rm)
- Perform administrative tasks while logged in as root or by using the su command (e.g. understand commands that are dangerous to the system)
- Mount and manage file systems and devices (e.g. /mnt, /dev, du, df, mount, umount
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- Describe and use the features of the multi-user environment (e.g. virtual terminals, multiple logins)
- Use common shell commands and expressions
- Use network commands to connect to and manage remote systems (e.g. telnet, ftp. ssh, netstat, transfer files, redirect Xwindow)
- Create, extract and edit file and tape archives using tar
- Manage runlevels using init and shutdown
- Stop, start and restart services (daemons) as needed (e.g. init files)
- Manage and navigate the Graphical User Interface (e.g. menus, xterm)
- Program basic shell scripts using common shell commands
- Run and interpret ifconfig
- Download and install patches and updates (e.g. packages, tgz)
- Identify, execute and kill processes (ps, kill, killall)
- Monitor system log files regularly for errors, logins, and unusual activity

	• Perform and verify security best practices (e.g. passwords, physical environments) • Assess security risks (e.g. location, sensitive data, file system permissions, remove/disable unused accounts, audit system services/programs) • Identify and locate the problem by determining whether the problem is hardware, operating system, application software, configuration or the user • Use systems boot disk(s) and root disk on workstation and server to diagnose and rescue file system • Take appropriate action on boot errors (e.g. LILO, bootstrap) • Identify and use trouble shooting commands (e.g. locate, find, grep, ?, <, >, >>, cat, tail) • Use network utilities to identify network and connectivity problems (e.g. ping, route, traceroute, netstat, Isof)