

3/3 MCA First Semester

CA5L2

OPEN SOURCE TECHNOLOGIES LABCredits : 2

Lab Hours : 4 periods / week

Internal assessment : 25 Marks

Semester and Examination: 50 Marks

Week 1

I: Introducing Linux

The following are explained while installing Linux or during the first bootup

- | History
- | Distributions
- | Devices and Drives in Linux
- | Filesystem Hierarchy
- | Components: Kernel, Distribution, XFree86, Sawfish, Gnome

II: User Software

- | GNOME Basics. Changing the desktop background, adding menu items, plugins.
- | Changing the screen resolution
- | Evolution - the default e-mail client in Fedora.
- | Mozilla - Web browser
- | OpenOffice - Productivity tools. Word processor, spreadsheet, presentation software.
- | gaim - Chat application
- | XScreensaver
- | How user preferences are stored in your home directory
- | Updating your system with up2date / yum.
- | How to restart X11: Ctrl-Alt-Backspace

Week 2

III: The command-line

- | The command-line (shells, tab completion, cd, ls) \
- | File management: cd, df, find, locate nano, the text editor that replaces pico.
- | man pages - the help system
- | ssh - secure text-based connectivity to other machines. Demonstrate X-Forwarding.

- | Handling compressed archives with zip and tar.
- | GNU screen - The ability to resume command-line sessions from anywhere.

IV: Basic Administration

- | Adding users, groups
- | su - the obsoleted way to become the root user.
- | sudo - the modern way to run processes as another user.
- | Changing users passwords with the passwd command.
- | Printing with CUPS.
- | Installing new software with yum (if Fedora) or YaST (if SUSE)
- | Installing new software with rpm
- | Installing webmin for easy web based systems administration

Week 3

V: System Administration

- | logfiles. Using tail -f to watch /var/log/messages
- | Configuring Kerberos authentication
- | Explaining file permissions, including setuid.

- | How to enable and disable services
- | ntp - Setting up time synchronization
- | Setting DNS settings by editing /etc/resolv.conf
- | Changing XFree86 settings in /etc/XFree86/XFree86.conf

VI: Apache and MySQL administration

- | About the Apache webserver.
- | About the MySQL database engine.
- | About the PHP scripting language.
- | Enabling the Apache with PHP and MySQL services
- | Using MySQL Administrator
- | PHPMyAdmin - web based administration and query console for MySQL.
- | Adding a MySQL user in phpmyadmin
- | Installing WordPress - a popular blogging software that uses MySQL.
- | Installing Coppermine - a popular photo gallery software that uses MySQL.

Week 4

VII: Windows Integration

- | Connecting to your Linux machine from Windows using PuTTY and WinSCP.
- | WINE - free Windows API compatibility layer, for running Windows applications in Linux. We will use mIRC as a sample application.
- | Samba basics.
- | Configuring Samba to authenticate using ADS
- | rdesktop - Windows Terminal Server Client.
- | smbclient - an FTP-like client for SMB shares
- | smb4k (unless Konqueror decides to work)

VIII: Automation

- | cut - cutting out the good parts of your input
- | sort - sorting files
- | uniq - finding the unique lines in a set of input
- | sed - searching and replacing
- | tail, head
- | find -exec - running a command on a large set of files
- | Writing a shell script
- | Scheduling tasks with cron.

Week 5

IX: System Administration II

- | Mounting disks
- | Killing processes with kill
- | Where to find software: freshmeat.net
- | Fetching files with wget
- | Compiling software: configure, make, make install
- | fstab
- | Reviewing find and du for finding out where your disk space went to.
- | Single user mode

X: Networking Tools

- | ping - check if a host is online
- | traceroute - see your hops between hosts

- | telnet - diagnostics
- | nmap - seeing what ports are open on a host
- | xinetd - the "internet super server". TCP/IP service manager.
- | lsof - list open ports and files
- | ethereal - Packet Sniffer Extraordinaire.

Week 6

XI: Customizing your user environment

- | symbolic links
- | The Z Shell
- | aliases, including -s types in zsh.
- | variables
- | PATH
- | prompts
- | Terminal transparency
- | adding things to your X startup