

## LINUX ADMINISTRATION – 3 weeks

### Linux Ideas and History

- An Introduction to Linux and Open Source

### Linux Usage Basics

- Logging into the system, changing users and editing text files.

### Running Commands and Getting Help

- How to use built-in and online documentation to enhance your experience

### Browsing the Filesystem

- Understanding the locations of important directories on a Linux system and navigating them from the command line and using the graphical browser.

### Users, Groups and Permissions

- Reading and setting permissions on files and directories

### Using the bash Shell

- Basic tips and tricks to make default shell work for you. Topics include tab completion, history and an introduction to shell scripting.

### Standard I/O and Pipes

- The ins-and-outs of redirecting output between programs and files.

### Text Processing Tools

- An introduction to some of the most useful text-processing utilities in Linux, including grep, cut, sed, sort, diff and patch

### vim: An Advanced Text Editor

### Basic System Configuration Tools

- Using Linux's graphical and text-based configuration tools to manage networking, printing and date/time settings.

### Investigating and Managing Processes

- Listing, terminating and scheduling program executions on a Linux system.

<h3>Configuring the Bash Shell</h3> <ul style="list-style-type: none"><li>• using shell variables and scripts to customize the command-line environment</li></ul>
<h3>Finding and Processing Files</h3> <ul style="list-style-type: none"><li>• Using the find command and related utilities to locate and act upon files based on arbitrary criteria.</li></ul>
<h3>Network Clients</h3> <ul style="list-style-type: none"><li>• An overview of network tools available in Linux, from web browsers to email clients and diagnostic utilities.</li></ul>
<h3>Advanced Topics in Users, Groups and Permissions</h3> <ul style="list-style-type: none"><li>• How user and group identities are stored on a Linux system, as well as the introduction of advanced filesystem permissions like SetUID and SetGID.</li></ul>
<h3>The Linux Filesystem In-Depth</h3> <ul style="list-style-type: none"><li>• How Linux deals with filesystems. Topics include partitions, inodes, linking and archiving tools.</li></ul>
<h3>Essential System Administration Tools</h3> <ul style="list-style-type: none"><li>• An introduction to fundamental system administration topics such as installation of Linux, managing software packages, and enhancing security with SELinux and the netfilter firewall.</li></ul>
<h3>System Initialization</h3> <ul style="list-style-type: none"><li>• Define boot process, recover system, and manage service startup.</li></ul>
<h3>Package Management</h3> <ul style="list-style-type: none"><li>• Manage software on system using yum, Red Hat Network, and rpm.</li></ul>
<h3>Kernel Services</h3> <ul style="list-style-type: none"><li>• Explore kernel modules and variants, tune kernel parameters, manage devices, and monitor processes and resources.</li></ul>
<h3>System Services</h3> <ul style="list-style-type: none"><li>• Configure and access various consoles to manage system logging, time synchronization, printers, and task automation.</li></ul>

<h3>User Administration</h3> <ul style="list-style-type: none"><li>• Create, modify and delete users, groups, and policy. Escalate privileges. Establish collaborative group directories.</li></ul>
<h3>Filesystem Management</h3> <ul style="list-style-type: none"><li>• Expand storage by adding new filesystems and swap space. Configure autofs for on-demand network storage.</li></ul>
<h3>Advanced Filesystem Management</h3> <ul style="list-style-type: none"><li>• Back up your data. Manage filesystems using Software RAID and Logical Volume Management.</li></ul>
<h3>Network Configuration</h3> <ul style="list-style-type: none"><li>• Configure dynamic and static network settings for both IPv4 and IPv6.</li></ul>
<h3>Installation</h3> <ul style="list-style-type: none"><li>• Perform both interactive and automated installations of Red Hat Enterprise Linux.</li></ul>
<h3>Virtualization with Xen</h3> <ul style="list-style-type: none"><li>• Install the xen environment and create a para-virtualized user domain running Red Hat Enterprise Linux.</li></ul>
<h3>Troubleshooting</h3> <ul style="list-style-type: none"><li>• Explore troubleshooting methodologies while defining standard things to check. Maintain system from different runlevels. Utilize the rescue environment of anaconda.</li></ul>
<h3>System Performance and Security</h3> <ul style="list-style-type: none"><li>• Identify how concepts and well formed policy map to configuration and accountability in networking and security administration.</li></ul>
<h3>System Service Access Controls</h3> <ul style="list-style-type: none"><li>• Implement secure access to system and network services using host-based access, SELinux, and system services management.</li></ul>
<h3>Network Resource Access Controls</h3> <ul style="list-style-type: none"><li>• Secure access to systems and services using the NetFilter kernel-level firewall.</li></ul>

<p>Organizing Networked Systems</p> <ul style="list-style-type: none"><li>• Understand and implement organized networked systems using the DNS and DHCP services</li></ul>
<p>Network File Sharing Services</p> <ul style="list-style-type: none"><li>• Configure, control and secure access to FTP, NFS, and SMB/CIFS (Samba).</li></ul>
<p>Web Services</p> <ul style="list-style-type: none"><li>• Configure, implement and secure access to the Apache Web Server and Squid Proxy Cache.</li></ul>
<p>Electronic Mail Services</p> <ul style="list-style-type: none"><li>• Configure, implement and secure access to the Sendmail and Postfix SMTP servers.</li></ul>
<p>Securing Data</p> <ul style="list-style-type: none"><li>• Secure data using fundamental encryption protocols, Public Key Infrastructure, and Digital Certificates. Configure and utilize encrypted remote system administration tools.</li></ul>
<p>Account Management</p> <ul style="list-style-type: none"><li>• Understand account management using Name Switch Service and Pluggable Authentication Modules.</li></ul>