

**AIR FORCE INSTITUTE OF TECHNOLOGY
FACULTY OF COMPUTING
DEPARTMENT OF CYBER SECURITY**

COURSE CONTENT FOR TUTORIAL CLASSES

Module 1 – Understanding Linux Concepts <ul style="list-style-type: none"><input type="checkbox"/> What is Linux?<input type="checkbox"/> Everyday use of Linux<input type="checkbox"/> Unix vs. Linux<input type="checkbox"/> Homework	Module 2 – Download, Install and Configure <ul style="list-style-type: none"><input type="checkbox"/> What is Oracle Virtual Box?<input type="checkbox"/> Downloading and Installing Oracle Virtual Box<input type="checkbox"/> Creating virtual machine<input type="checkbox"/> Linux Distributions<input type="checkbox"/> Different way to install Linux<input type="checkbox"/> Downloading and Installing Linux (CentOS)<input type="checkbox"/> Redhat Linux installation (Optional)<input type="checkbox"/> Linux Desktop (GUI)<input type="checkbox"/> Virtual Machine Management<input type="checkbox"/> Linux vs. Windows<input type="checkbox"/> Who Uses Linux?<input type="checkbox"/> Homework
Module 3 – System Access and File System <ul style="list-style-type: none"><input type="checkbox"/> Accessing Linux system<input type="checkbox"/> Download and install Putty<input type="checkbox"/> New Network Commands (ifconfig and ip)<input type="checkbox"/> Connect Linux VM via Putty	Module 4 – Linux Fundamentals <ul style="list-style-type: none"><input type="checkbox"/> Commands Syntax<input type="checkbox"/> File Permissions (<i>chmod</i>)<input type="checkbox"/> File Ownership (<i>chown, chgrp</i>)<input type="checkbox"/> Getting Help (<i>man, whatis etc.</i>)

<ul style="list-style-type: none"> <input type="checkbox"/> Important Things to Remember in Linux <input type="checkbox"/> Introduction to File System <input type="checkbox"/> File system structure description <input type="checkbox"/> File system navigation commands <input type="checkbox"/> File System Paths <input type="checkbox"/> Directory listing overview <input type="checkbox"/> Creating Files and Directories <input type="checkbox"/> Linux File Types <input type="checkbox"/> Finding Files and Directories (find, locate) <input type="checkbox"/> Difference between find and locate command <input type="checkbox"/> Changing Password <input type="checkbox"/> Wildcard (*, \$, ^) <input type="checkbox"/> Soft and Hard Links (ln) <input type="checkbox"/> How to open image file through GUI <input type="checkbox"/> Homework 	<ul style="list-style-type: none"> <input type="checkbox"/> TAB completion and up arrow keys <input type="checkbox"/> Adding text to file <input type="checkbox"/> Standard output to a file (tee command) <input type="checkbox"/> Pipes (/) <input type="checkbox"/> File Maintenance Commands <input type="checkbox"/> File Display Commands <input type="checkbox"/> Filters / Text Processing Commands (<i>cut, sort, grep, awk, uniq, wc</i>) <input type="checkbox"/> Compare Files (<i>diff, cmp</i>) <input type="checkbox"/> Compress and un-compress files/directories (<i>tar, gzip, gunzip</i>) <input type="checkbox"/> Truncate file size (truncate) <input type="checkbox"/> Combining and Splitting Files (<i>cat and split</i>) <input type="checkbox"/> Linux vs. Windows Commands <input type="checkbox"/> Homework
<p>Module 5 – Linux System Administration</p> <ul style="list-style-type: none"> <input type="checkbox"/> Linux File Editors (<i>vi text editor</i>) <input type="checkbox"/> “sed” command <input type="checkbox"/> User account management <input type="checkbox"/> Switch users and Sudo access <input type="checkbox"/> Monitor users <input type="checkbox"/> Talking to users (<i>users, wall, write</i>) <input type="checkbox"/> Linux Directory Service - Account Authentication 	<p>Module 6 – Networking, Servers and System Updates</p> <ul style="list-style-type: none"> <input type="checkbox"/> Enabling internet in Linux VM <input type="checkbox"/> Network Components <input type="checkbox"/> Network files and commands (<i>ping, ifconfig, netstat, tcpdump, networking config files</i>) <input type="checkbox"/> NIC Information (<i>ethtool</i>) <input type="checkbox"/> NIC or port bonding <input type="checkbox"/> Download files with URLs (<i>wget</i>)

- ☐ System utility commands (*date, uptime, hostname, which, cal, bc etc.*)
- ☐ Processes and schedules (*systemctl, ps, top, kill, crontab and at*)
- ☐ System Monitoring Commands (*top, df, dmesg, iostat 1, netstat, free etc.*)
- ☐ OS Maintenance Commands (*shutdown, reboot, halt, init etc.*)
- ☐ System logs monitor (*/var/log*)
- ☐ Changing System Hostname (*hostnamectl*)
- ☐ Finding System Information (*uname, cat /etc/redhat-release, cat /etc/*rel*, dmidecode*)
- ☐ System Architecture (*arch*)
- ☐ Terminal control keys
- ☐ Terminal Commands (*clear, exit, script*)
- ☐ Recover root Password (*single user mode*)
- ☐ SOS Report
- ☐ Environment variables
- ☐ Homework

- ☐ curl and ping commands
- ☐ File transfer commands (*ftp, scp etc.*)
- ☐ System updates and repositories (*rpm and yum*)
- ☐ System Upgrade/Patch Management
- ☐ Create Local Repository from CD/DVD
- ☐ Advance Package Management
- ☐ Rollback Patches and Updates
- ☐ SSH and Telnet
- ☐ DNS
- ☐ Hostname and IP Lookup (*nslookup and dig*)
- ☐ NTP
- ☐ chronyd
- ☐ Sendmail
- ☐ Apache Web Server (*http*)
- ☐ Central Logger (*rsyslogd*)
- ☐ Securing Linux Machine (OS Hardening)
- ☐ OpenLDAP Installation
- ☐ Tracing Network Traffic (*traceroute*)
- ☐ Homework