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**Course Outline for CNT 7401
INTRO TO LINUX/UNIX, LINUX+
Effective: Fall 2008**

I. CATALOG DESCRIPTION:

CNT 7401 — INTRO TO LINUX/UNIX, LINUX+ — 4.00 units

This course provides hands-on training covering basic installation, management, configuration, security, documentation and hardware topics for the Linux/UNIX operating system on workstations in a LAN environment. The objectives for basic technician certifications such as RHCT, CompTIA Linux+ are covered. Topics include desktop security objectives and major types of security vulnerabilities, physical security, file protection, basic system and network configuration, account security, logging, backups, Linux/UNIX desktop security features and useful utilities, detecting and preventing DOS attacks, hacking, authentication and data recovery.

3.00 Units Lecture 1.00 Units Lab

Strongly Recommended

CIS 50 - Intro to Computing Info Tech

Grading Methods:

Letter or P/NP

Discipline:

	MIN
Lecture Hours:	54.00
Lab Hours:	54.00
Total Hours:	108.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 2

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering this course, it is strongly recommended that the student should be able to:

A. CIS50

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

- A. outline the key features, advantages and uses of the Linux/UNIX operating system
- B. install and configure a basic desktop Linux/UNIX OS
- C. install and configure default IRQs, I/O addresses, DMAs and peripheral devices
- D. identify the default permissions created on files and directories, and apply special file and directory permissions
- E. use basic shell programming, perform text manipulations, and use Linux/UNIX programming tools.
- F. describe common types of CPU's, memory, disk drives, system boards, and peripheral devices
- G. outline the major steps necessary to configure boot loaders, dual booting, the init daemon and runlevels
- H. demonstrate an understanding of X Windows, window managers, and desktop environments
 - I. demonstrate the ability to configure system and network settings
- J. discuss and evaluate account security, logging, backup methods
- K. demonstrate an understanding of TCP-IP basics related to Linux/UNIX/UNIX on LANs
- L. discuss the characteristics DOS and hacking attacks
- M. describe and evaluate file sharing options
- N. use standard utilities to secure a desktop system on a LAN

V. CONTENT:

- A. Introduction to Linux/UNIX
 - 1. History
 - 2. Development
- B. Installing a Linux/UNIX system
 - 1. Understanding hardware requirements
 - 2. Gathering pre-installation information
 - 3. Installing Linux/UNIX
 - 4. Live CDs, ISOs, distributions
- C. Interfaces and filesystems

1. Access and authentication
2. Basic shell commands
3. Working with files and directories
4. Searching and editing text files
- D. Managing the file system
 1. Filesystem Hierarchy
 2. File and directory permissions
 3. Default and special permissions
- E. Managing system processes
 1. X Windows system
 2. Foreground and background processes
 3. Process priorities and scheduling
 4. Printer administration
 5. Log file administration
- F. Users, groups, and file administration
 1. User Management
 2. Group management
 3. File Management
 4. Output formats
- G. Backup / data recovery
 1. Software
 2. Backup
 3. Compression
 4. File restoration / recovery
- H. System Monitoring
 1. Configuration
 2. Troubleshooting
 3. Performance monitoring
 4. Internet connections, Telnet, SSH
 5. Troubleshooting methods, tools, skills
- I. Network Configuration & Security
 1. Networks and TCP/IP basics
 2. PPP, DNS / BIND
 3. Network resources, services
 4. System Security
 5. Hardware/Software security
 6. Physical security
 7. Best practices
 8. Intrusion detection
 9. Troubleshooting methods, tools, skills
- J. Linux Certifications
 1. Linux+
 2. CompTIA
 3. Novell
 4. RHCT
 5. Objectives

VI. METHODS OF INSTRUCTION:

- A. **Lecture** -
- B. **Research** -
- C. **Demonstration** -
- D. **Discussion** -
- E. **Lab** -
- F. Assigned reading

VII. TYPICAL ASSIGNMENTS:

A. Reading / listening to presentations and readings 1. Presentations and lectures Example: Lecture on X Windows configuration 2. Selected current online readings Example: read Linux/UNIX Installation Guide tutorial, at www.Linux.org B. Search for relevant material and read 1. Students use search engines to find readings relevant for each module. 2. Example: Find resources describing DOS attacks, select 3 to read C. Provide comments regarding curriculum 1. Discussion and response questions accompany each module. Example: "Discuss how system applications relate to system memory requirements." D. Answer comments and questions from fellow students and instructor 1. Students must participate in group discussion 2. Example: On the Apple.com web site, research the cross platform capabilities of QTSS and discuss the installation of Darwin on Linux/UNIX.

VIII. EVALUATION:

A. **Methods**

B. **Frequency**

1. Frequency
 - a. 6-10 module assignments
 - b. Weekly discussion of group work
 - c. 6-10 module quizzes
 - d. 6-10 labs
 - e. 1 final project
2. Typical quiz question
 - a. What is the difference between telnet and SSH?
 - b. Describe the relationship between directory and file permissions?
3. Final exam

IX. TYPICAL TEXTS:

1. Course ILT *CompTIA Linux+ Certification*., Course Technology publishing, 2006.
2. Jason Eckert *Getting Started with Linux: Novell's Guide to CompTIA's Linux+.*, Course Technology Publishing, 2006.
3. Jason Eckert *Linux+ In Depth.*, Course Technology publishing, 2006.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

- A. Students require access to a computer connected to the Internet, with word processing and browser software, and an email address.

