

**LAST REVIEW:**

*(i.e. 2003-2004)*

**NEXT REVIEW: 2014-2015**

*(i.e. 2008-2009)*

**STATUS: A**

*(A, I, D)*

**COURSE TITLE: Linux+**

**COMMON COURSE NUMBER: CTS1111C**

**CREDIT HOURS: 4**

**CONTACT HOUR BREAKDOWN**

*(per 16 week term)*

**CLOCK HOURS:**

*(Voc. Course ONLY)*

Lecture: **48**      Lab: **16**

Clinic: **0**      Other: **0**

**PREREQUISITE(S): None**

**COREQUISITE(S):**

**PRE/COREQUISITE(S):**

**COURSE DESCRIPTION** *(750 characters, maximum):*

This course provides students with the knowledge and skills necessary to effectively administer Linux workstations and servers. Students will plan, install, maintain, and troubleshoot Linux operating system services. The skills developed by students completing this course will help prepare them for the CompTIA Linux+ certification exam.

General Education Requirements – Associate of Arts Degree (AA), meets Area(s):      Area

General Education Requirements – Associate in Science Degree (AS), meets Area(s):      Area

General Education Requirements – Associate in Applied Science Degree (AAS), meets Area(s):      Area

## **UNIT TITLES**

1. Installation & Configuration
2. System Maintenance & Operations
3. Application & Services
4. Networking
5. Security

## **EVALUATION:**

Please provide a brief description (250 characters maximum) that details how students will be evaluated on the course outcomes.

**Evaluation instruments will include written and/or skills-based examinations and individual in-class and/or take-home assignments. Evaluation methods may also include group in-class and/or take-home assignments.**

**Common Course Number: CTS1111C**

## **UNITS**

### **Unit 1**

General Outcome:

1.0 The student shall: be able to install and configure a Linux operating system.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 1.1 Compare and contrast installation sources
- 1.2 Implement partitioning schemes and filesystem layout using the following tools and practices
- 1.3 Explain the purpose for using each of the following filesystem types
- 1.4 Conduct routine mount and unmount of filesystems
- 1.5 Explain the advantages of having a separate partition or volume for any of the following directories
- 1.6 Explain the purpose of the following directories
- 1.7 Configure the boot process including the following
- 1.8 Perform the following package management functions
- 1.9 Configure profile and environment variables system-wide and at the user level
- 1.10 Troubleshoot boot issues using the following tools
- 1.11 Manage devices using the following tools

**Common Course Number: CTS1111C**

**Unit 2**

General Outcome:

2.0 The student shall: be able maintain and operation a Linux operating system.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 2.1 Given a scenario, use the following fundamental Linux tools, techniques and resources
- 2.2 Conduct basic tasks using BASH
- 2.3 Given a scenario, analyze system and application logs to troubleshoot Linux systems
- 2.4 Conduct and manage backup and restore operations
- 2.5 Explain the following features and concepts of X11
- 2.6 Explain the difference in runlevels and their purpose
- 2.7 Manage filesystems using the following
- 2.8 Implement task scheduling using the following tools
- 2.9 Utilize performance monitoring tools and concepts to identify common problems

**Common Course Number: CTS1111C**

**Unit 3**

General Outcome:

3.0 The student shall: be able to install and maintain applications and services.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 3.1 Manage Linux system services using the following
- 3.2 Implement interoperability with Windows using the following
- 3.3 Implement, configure and maintain Web and FTP services
- 3.4 Given a scenario, explain the purpose of the following web-related services
- 3.5 Troubleshoot web-related services using the following utilities
- 3.6 Given a scenario, troubleshoot common FTP problems
- 3.7 Explain the purpose of each of the following mail services, protocols and features
- 3.8 Deploy and manage CUPS print services
- 3.9 Set up, install, configure and maintain a BIND DNS server and related services
- 3.10 Perform basic administration of the DHCP server
- 3.11 Given a scenario, troubleshoot NTP related issues

**Common Course Number: CTS1111C**

**Unit 4**

General Outcome:

4.0 The student shall: be able to configure the Linux operating system on a network.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 4.1 Identify common networking ports and the associated service
- 4.2 Execute network interface configuration using the following
- 4.3 Implement configurations and/or configuration changes for the following
- 4.4 Explain the different DNS record types and the process of DNS resolution
- 4.5 Troubleshoot basic connectivity issues using the following tools
- 4.6 Troubleshoot name resolution issues using the following tools

**Common Course Number: CTS1111C**

**Unit 5**

General Outcome:

5.0 The student shall: be able to security the Linux operating system.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 5.1 Manage and monitor user and group accounts using the following
- 5.2 Given a scenario, select the appropriate file permissions and ownership and troubleshoot common problems
- 5.3 Explain the basics of SELinux
- 5.4 Given a scenario, implement privilege escalation using the following