GROSSMONT COLLEGE

Official Course Outline

COMPUTER SCIENCE INFORMATION SYSTEMS 213 – LINUX SYSTEM ADMINISTRATION

1. Course Number Course Title Semester Units Semester Hours

CSIS 213 Linux System 3 2 hours lecture: 32-36 hours

Administration 3 hours lab: 48-54 hours

64-72 outside-of-class hours

for lecture

144-162 total hours

2. Course Prerequisites

A “C” grade or higher or “Pass” in CSIS 113 or equivalent.

Corequisite

None

Recommended Preparation

.None

3. Catalog Description

Comprehensive hands-on application and instruction in multi-user, multi-tasking operating systems and networked operating systems. Topics include: operating system installation and configuration, storage configuration and management, server security configuration, user and group management, configuration and management of various server roles (such as LDAP, DNS, DHCP, Print, Mail, Samba, Apache), troubleshooting, and disaster recovery. Course maps to the Linux Professional Institute (LPI) Certification Level 2 exam**.**

4. Course Objectives

The student will:

a. Define, describe, discuss and configure:

1) Server and network operating system functions, roles and properties.

2) Server management tools and utilities.

3) Server directory services.

4) Network hardware and printer resources.

5) Server security considerations and utilities.

6) Major elements of the Linux server operating system architecture.

b. Configure, manage and troubleshoot network configuration, protocols, routing tables and remote access.

c. Configure, manage and troubleshoot server network roles, DNS, DHCP, print server, web server, file server (Samba), mail server and FTP server.

d. Configure, manage and troubleshoot network file systems, partitions, logical volumes, compression, errors, disk configurations RAID, disk mount points, and user disk quotas.

e. Configure, compile and install custom kernel modules and software packages.

f. Monitor and troubleshoot server/network performance using pertinent utilities.

g. Backup and recover data, server roles and system configuration using backup utilities.

5. Instructional Facilities

Standard computer lab with one internet-connected workstation per student with appropriate software installed

6. Special Materials Required of Student

Flash/USB drive or cloud storage for backup of in-class work.

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7. Course Content

a. Linux server operating system configuration using command line tools

b. Configuration of network server roles (DNS, DHCP, Print, LDAP, Samba, Apache, etc.)

c. Computer utility programs pertinent to network server configuration and management

d. Storage system management, including quotas, fault-tolerant storage configurations, permissions, security and recovery

e. Software installation, update, configuration and management

f. Sharing files and folders across a network

g. Server security concepts, configuration and management, including authentication, access control lists, and log monitoring and management

h. Server and server role backup

8. Method of Instruction

a. Lecture.

b. Demonstrations.

c. Topical discussion of current operating system trends and issues

9. Methods of Evaluating Student Performance

a. Written quizzes and exams including a final that measure students’ ability to describe computer operating system functions and characteristics, and analyze a scenario and choose the alternatives and troubleshooting options.

b. Scenario-based lab activities that measure students’ ability to configure specific operating system functions or subsystems, troubleshoot/analyze imposed system problems, investigate potential alternatives, and implement corrective action to achieve a determined result.

c. Practical application-based examinations that measure students’ ability to evaluate scenario-based computer configuration requirements/problems, analyze/troubleshoot the operating system configuration, and apply the correct configuration changes to achieve the correct results.

10. Outside Class Assignments

a. Reading assignments

b. Virtualized labs

c. Online computer quizzes

d. Discussion board participation such as describe configuration Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP).

11. Texts

a. Required Text(s):

Basta, Alfred. *Linux Operations and Administration*, 1st Edition, Boston, MA: Cengage Learning. 2012.

b. Supplementary texts and workbooks:

None

Addendum: Student Learning Outcomes

Upon completion of this course, our students will be able to do the following:

Install, deploy, configure and manage a datacenter virtualization project using current industry software and standards.

Date approved by the Governing Board: May 15, 2018