CET 252 Operating Systems - Linux/UNIX Server

Ruth Schultz

KELLOGG COMMUNITY COLLEGE

COURSE INFORMATION

This course is designed to further develop the skills in using the Linux/UNIX operating systems. The emphasis in this course will be the administration of the Linux Server services. Students will construct administrate a Linux/UNIX based system with the most commonly installed services. [32-32-64] Lab Fee

Credits: 3

Pre/Corequisites:

- Prerequisite: CET 152
- Prerequisite: CET 235

CLASS INFORMATION

Section Number: 1250

Term: Fall   Year: 2024   Start Date: 8/28/2024   End Date: 12/11/2024

Meeting Times: Tu 5:30-9:30p

Meeting Location: OITC Room 05

Delivery Mode: Face to Face

INSTRUCTOR

Ruth Schultz

Email: schultzr@kellogg.edu

Office Phone: (269) 965-3931 ext 2271

Office Location: OITC Room 201C   Often in OITC Room 05 or Room 06

Office Hours:

M & W 11a-11:30a, 1:00p-2:30p Tu 4:00p-5:30p Virtual Office Hours Tu, Th & Fri 8:00a-8:30a

GENERAL EDUCATION LEARNING OUTCOMES

Effective Communication

Criteria

- Graduates will demonstrate effective communication appropriate to audience and purpose.
- - Students will develop content, matching clarity and formality with the audience and purpose.
- - Students will refine the communication using appropriate processes and structural approaches to meet the audience's expectations/needs.
- - Students will document sources both to meet the audience's expectations and to respect the intellectual property of others.

Critical Thinking

Criteria

- Graduates will analyze arguments and evaluate evidence, draw conclusions, make decisions, and solve problems from a variety of perspectives.

Personal & Cultural Engagement

Criteria

- Graduates will engage through exploration of civic, intercultural, and ethical issues, making connections between their knowledge, choices, and actions.
- - Students are able to identify a social problem(s) impacting a defined community.
- - Students are able to evaluate the identified social problem(s) impacting the defined community through the lens of diversity, equity, and inclusion.
- - Students are able to formulate an ethical strategy of addressing the identified social problem impacting their community via civic institutions and/or the democratic process.

PROGRAM/STUDENT LEARNING OUTCOMES

An ability to design, implement, and evaluate a network-based system, process, component, or program to meet desired needs.

An understanding of professional, ethical, security and social issues and responsibilities.

To conceptualize multiple views of problems, to develop computational solutions grounded in theory, and to evaluate their solutions using a range of metrics.

COURSE LEARNING OUTCOMES

1. Demonstrate the installation, configuration, maintenance and monitoring of common server daemons.

2. Demonstrate the management of users and groups in the Linux/Unix Server environment.

3. Demonstrate management of network interfaces applying best practices in security in the Linux/Unix server environment.

4. Demonstrate proper management of storage devices and media within the Linux/Unix Server environment.

GRADING INFORMATION

KCC Institutional Grading Chart

Percentage	Grade	GPA
100.00-93.00	A	4.00
92.99-90.00	A-	3.67
89.99-87.00	B+	3.33
86.99-83.00	B	3.00
82.99-80.00	B-	2.67
79.99-77.00	C+	2.33

76.99-73.00	C	2.00
72.99-70.00	C-	1.67
69.99-67.00	D+	1.33
66.99-63.00	D	1.00
62.99-60.00	D-	0.67
59.99-0.00	F	0.00

Additional Grades

X	Audit
I	Incomplete
W	Withdrawal
P	Pass (grade of a C or higher)
N	No Credit

These grades are not computed in either the semester or cumulative grade point averages.

**Contact Financial Aid for more information on financial impact.

Grade Determination:

Assignments:	Points Possible:
Quiz/Tests	325
Lab Assignments	475
Class Engagement	25
Final Exam	125
Total Points Possible	1000

INSTITUTIONAL GUIDELINES AND POLICIES

Academic Support Services

Kellogg Community College is committed to your academic success. If for any reason you are struggling with a class, speak to your Professor immediately. They are the best resource. Additional resources, including tutoring are available at the Center for Student Success.

Students enter each class with various skill sets and learn course material at different paces. As such, faculty have the option of requiring individual students to seek tutoring assistance in the Center for Student Success based on academic performance. These early interventions will be tailored to the needs of each student.

Academic Integrity Policies

Ethical conduct is the obligation of every member of the KCC community. Breaches of academic integrity constitute serious breaches of ethical conduct. Academic integrity requires that all academic work be wholly the product of an identified individual or individuals. This policy demonstrates KCC's concern for academic integrity and guarantees a fair procedure for handling these concerns. For more information regarding KCC's Academic Integrity Policy is found in theKCC College Catalog or KCC Operating Policies & Procedures under Instruction - Students.

American with Disabilities Act and Section 504

Kellogg Community College does not discriminate in the admission or treatment of students on the basis of disability. KCC is committed to compliance with the American Disabilities Act and Section 504 of the Rehabilitation Act. See Student Handbook for information about student services.

Attendance

Regular attendance is an essential part of the educational experience and a requirement for an adequate evaluation of each student's academic progress. Excessive absence is reported to the Academic Advising department. An Advisor will reach out to students to discuss options for success. Continued absenteeism may lead to administration action. Faculty are required to report to the Financial Aid office students who have never attended class. Federal aid may be reduced if a student does not begin attendance in all classes. This includes online courses. For more information, please refer to the KCC Student Handbook.

Code of Conduct

Kellogg Community College students are expected to model the skills and behaviors of working professionals. This includes exhibiting behaviors which support respect and courtesy in the class environment. For more information regarding KCC's Student Code of Conduct, please refer to the KCC Student Handbook.

Disability Services

 While ensuring the academic integrity of its programs, Kellogg Community College is dedicated to providing the reasonable accommodations needed to ensure equal access to educational opportunities for individuals with verified disabilities. Disability services are provided to students who self-disclose a disability to the Center for Student Success and provide appropriate documentation. The Center for Student Success may be reached at 269.965.4150.

Drop/Add

The drop/add dates for every course may be found on theKCC Catalog - Class Schedule.

Incomplete Grade and Additional Grading Policies

For information regarding additional grading policies, please refer to the KCC Academic Catalog.

Instructional Policies

 Instructional policies provide informed guidance to college faculty, staff, and students. Becoming familiar with KCC Instructional Policies & Procedures will support individual academic success and will provide students vital resources to resolve problems.

Retain this Syllabus & Syllabus Disclaimer

This syllabus is a record of learning outcomes associated with this course. Many institutions will require a copy of this syllabus to grant transfer credit. It is the student's responsibility to retain a copy for future use.

Information contained in this syllabus was, to the best knowledge of the instructor, considered correct and complete when distributed for use at the beginning of the semester. However, this syllabus should not be considered a contract between Kellogg Community College and any student, nor between the instructor and any student. The instructor reserves the right, acting within the policies and procedures of Kellogg Community College, to make changes in course content or instructional techniques without notice or obligation.

Textbook Statement

There are multiple choices for purchasing textbooks, including the Kellogg Community College bookstore (www.kellogg.edu - follow the on campus link to the bookstore). Please be advised that each student should fully investigate the refund policies of book retail stores, including the Kellogg Community College bookstore, PRIOR to purchasing a book for any course. When purchasing a book from the Kellogg Community College bookstore, students are encouraged not to break a textbook's binding, or open a book in shrink-wrap covering, prior to attending the first course session in order to verify that a correct book has been purchased. Students are advised to keep all receipts from book purchases.

Some KCC courses utilize Inclusive Access (I.A.) textbooks. This does not apply to all course sections. This applies only to course sections using digital access/inclusive access.

If students have already purchased a code for digital access from textbook publishers such as Cengage, Pearson, or McGraw-Hill, they should OPT OUT of the I.A. textbook attached to the course section (for example, a code for Cengage Unlimited). Students will be able to OPT OUT via the Moodle learning management shell associated with the course

section. Students have until the drop/add date of the course section to OPT OUT. KCC will issue a refund back to the student account if the student OPTs Out during the allowed time frame. For more information, contact the course instructor.

Use of Technology & Student Email Accounts

The College has a variety of computer systems which are provided for the use of students and are to be used for education, research, academic development, and public service only. You are responsible for seeing that the computing facilities are used in an effective, efficient, ethical, and lawful manner. Computer systems, such as e-mail, are intended for college related activities only. Inappropriate messages and/or materials are not to be sent or stored. For more information, visit the KCC web page at: www.kellogg.edu.

Safe and Successful Campus Environment

KCC is dedicated to providing a safe environment which is conducive to success for all students. When faculty and staff notice that a student is struggling emotionally, intellectually, or behaviorally with classroom expectations, they may notify the appropriate College personnel to intervene; in such cases, students may be contacted by College personnel who will offer support and assistance.

If you have a safety concern(s) about others' behavior in class or on campus, please report those concerns online at Report an Incident. KCC Public Safety is located in the walkway across from the Ohm building or by notifying Public Safety by using one of the yellow emergency call boxes on campus, or calling 269.965.4147.

KCC does not tolerate sexual harassment or sexual misconduct of any kind and is legally obligated to investigate such concerns. Sexual harassment includes sexual assault, dating violence, domestic violence, and stalking. KCC is an equal opportunity educator and employer, and does not discriminate on the basis of national or ethnic origin, ethnicity, race, ancestry, color, sex (sex or gender, affiliation, expression or orientation), marital/family status, age, physical or mental ability or attributes, genetic information, political affiliation, veterans status, religion, or any other characteristic covered by law in its admission policy, education programs, activities, or employment policies. KCC also prohibits relation against any person participating in good faith in any investigation or complaint process internal or external to the institution; for bringing a complaint of harassment or misconduct; for assisting someone with such a complaint; for attempting to stop harassment or misconduct. Students should report concerns at Report an Incident. Learn more at www.kellogg.edu/titleix.

Sense of Belonging

KCC is committed to creating a supportive environment where students, faculty, and staff feel safe and included; have a voice; and can learn, grow, and achieve success without barriers.

Service Learning

Incoming students enrolled in any degree seeking program will be required to complete a service-learning endorsement to qualify for graduation. KCC instructors must be Service-Learning Certified in order to offer it as an option in their course section. If this section is offering service-learning opportunities, the instructor will provide further details about how to pursue service-learning in this course.

STUDENT LEARNING OBJECTIVES

- Identify all system hardware required (for example: CPU, memory, drive space, scalability) and check compatibility with Linux/UNIX Distribution
- Create, modify and use basic shell scripts
- Create, modify and simple use Perl/CGI scripts

- Determine appropriate installation based on environment.

- Identify the purpose of Linux/UNIX variant based on predetermined customer requirements.

- Determine what software and services should be installed

- Install partitions and appropriate files systems using the partition manager

- Customize the boot manager

- Install and manage software packages and peripheral devices as necessary

- Maintain and manage local storage devices and file systems from command line and graphical interface

- Modify the default permissions for files and directories using both command line and graphical interface
- Perform and verify backups and restores of data

- Identify and manage the run levels and system initialization from the command line and graphical interface as well as configuration files

- Identify, execute, manage and kill (terminate) processes as well as distinguishing core processes from non-critical services
- Repair installation packages and scripts

- Monitor and troubleshoot network activity

- Perform fundamental text/script editing and manipulation using vi

- Manage print jobs and print queues

- Create, modify, and delete user and group accounts from the command line, /etc/passwd file and graphical interface

- Direct network services and settings for proper operation from server and client perspectives.

- Activate the X windows system environment

- Access log files for diagnostic purposes

- Implement simple security of data and information through network and policies

- Determine the appropriate level for login, processes and special permissions

- Control user-level security through limited logins, memory usage and quotas

A: ACADEMIC INTEGRITY

Ethical conduct is the obligation of every member of the KCC community. Breaches of Academic integrity constitute serious breaches of ethical conduct. Academic integrity requires that all academic work be wholly the product of an identified individual or individuals. This policy demonstrates KCC's concern for academic integrity and guarantees a fair procedure for handling these concerns. Examples of unethical conduct include: cheating, fabrication, and plagiarism. For more information regarding KCC's Student Code of Conduct, please visit: http://catalog.kellogg.edu.

Please refer to the KCC Nursing Student Handbook and KCC Student Handbook.

EARLY COLLEGE/ DUAL ENROLLMENT STATEMENT

During times when the student's high school is closed while KCC is open, the responsibilities of and expectations for the dual enrolled student are the same as those of any college student. Students are expected to attend class, turn in assignments on time, and participate in scheduled assessments.

For closures scheduled on the high school calendar, students should contact their college professor as soon as possible if they are unable to attend. Some professors may be able to make adjustments to mitigate the impact of schedule conflicts, but faculty must follow course policies outlined in the syllabus, in order to treat all students equitably. For unscheduled closures, such as adverse weather days when the college remains open, or times when the student unexpectedly needs to be absent, the student should contact the college professor as soon as possible to ask if alternate arrangements can be made.

SCHEDULE

Date/Session	Notes			
	CET 252 Schedule Fall			
	Week	**Activities**		Quiz/Test
	1	Subject: Lab: Reading	Brief History and Introduction of Variants and General Unix Architecture and Installation Lab #252-1: Installation of Fedora(20pt) Fedora Docs: Getting Started & Installation	Qz #252-1 25 pts
	2	Subject: Lab:	General Review and fundamental command line Lab #252-2: General Commands(25pts)	Qz #252-2 25 pts
	3	Subject: Labs:	More advanced use of the command line and File System Fundamentals Lab #252-3.1: Advanced command line use(22.5pt) Lab #252-3.2 : Simple file system permissions and references(22.5pt)	Qz #252-3 25 pts
	4	Subject: Lab:	Software Installation and Management Lab #252-4 : Software and Application Management(27.5pt)	Qz #252-4 25 pts
	5	Subject:	More advanced File, Quota and Partition Management	Qz #252-5

Date/Session			Notes	
		Lab:	Lab #252-5.1 : Partition Management(25pt) Lab #252-5.2 : Quota Development and Management(25pt)	25 pts
	6	Subject: Lab:	Real World User/Group and permission management and privileges distribution management Lab #252-6: User and Group Strategic Management(25pt)	Qz #252-6 25 pts
	7	Subject: Lab:	Networking Management Security and Monitoring including server management of Dynamic IPs Lab #252-7.1: Networking and Firewall management(27.5pt) Lab #252-7.2: Security management and Monitoring(20pt)	Qz #252-7 25 pts
	8	Subject: Lab:	Shell scripting, debugging and permission management, scheduled and time delayed tasks using the cron Lab #252-8: Shell scripting management(25pt)	Qz #252-8 25 pts
	9	Subject: Lab:	Virtual Machine Environments Management and Distribution Lab #252-9.1 : Virtual Machine Alternatives(22.5pt) Lab #252-9.2 :Installation of CentOS in VM (20pt)	Qz #252-9 25 pts
	10	Subject: Lab:	Print Management systems, Database Management Lab #252-10.1 : Print Management (22.5pt) Lab #252-10.2 : Database Management (22.5pt)	Qz #252-10 25 pts
	11	Subject: Lab:	Server Services installation and management of WEB servers Multiple "websites", CGI Lab #252-11.1: Installation and Management of HTTP Server(25pt) Lab #252-11.2: CGI scripting and management(22.5pt)	Qz #252-11 25 pts
	12	Subject: Lab:	MAIL and Other common server/Services Management (NIS, DNS, FTP, SAMBA, DHCP, etc) Lab #252-12.1: Installation and Management of Mail Services (25pt) Lab #252-12.2: Management of Additional Common services(25pt)	Qz #252-12 25 pts
	13	Subject: Lab:	Installation and Management of CPanel and website implications Lab #252-13: CPanel and multiple domain websites(25pt)	Qz #252-13 25 pts
	14	Subject:	Review and Lab Time	
	15	**Exam:**	**Final Exam**	FE 252 125pts