Course Outline

School:	Eng. Tech. & Applied Science
Department:	Information and Communication Engineering Technology (ICET)
Course Title:	Unix/Linux Operating Systems
Course Code:	COMP 301
Course Hours/Credits:	56
Prerequisites:	COMP 100
Co-requisites:	N/A
Eligible for Prior Learning, Assessment and Recognition:	Yes
Originated by:	Roy Leslie, Ilia Nika
Creation Date:	Fall 2004
Revised by:	Patrick Gignac
Revision Date:	Fall 2013
Current Semester:	Winter 2016
Approved by:	ppesikan c/o

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Chairperson/Dean

Students are expected to review and understand all areas of the course outline.

Retain this course outline for future transfer credit applications. A fee may be charged for additional copies.

This course outline is available in alternative formats upon request.

Course Description

This course covers basic operating system concepts using UNIX/Linux. Coursework emphasizes Unix File management, UNIX utilities and developing UNIX scripts. Students will be introduced to basic system administration, BASH scripting, and PHP scripting development in a UNIX/Linux system.

Program Outcomes

Successful completion of this and other courses in the program culminates in the achievement of the Vocational Learning Outcomes (program outcomes) set by the Ministry of Training, Colleges and Universities in the Program Standard. The VLOs express the learning a student must reliably demonstrate before graduation. To ensure a meaningful learning experience and to better understand how this course and program prepare graduates for success, students are encouraged to review the Program Standard by visiting http://www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/. For apprenticeship-based programs, visit http://www.collegeoftrades.ca/training-standards.

Course Learning Outcomes

The student will reliably demonstrate the ability to:

1. Have a good understanding of operating system functions.
2. Have a good understanding of UNIX-like operating systems.
3. Use file management, file processing and basic system administration UNIX commands.
4. Manage ownership and permissions in a UNIX-like system.
5. Design, code and test Unix Scripts in a Unix/Linux environment.
6. Install and configure an httpd and database server in a Unix/Linux environment.
7. Design, code and test PHP Scripts in a Unix/Linux environment.
8. Execute SQL queries in a Unix/Linux environment.
9. Design code and test simple web pages with PHP in a Unix/Linux environment.

Essential Employability Skills (EES)

The student will reliably demonstrate the ability to*:

1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.
3. Execute mathematical operations accurately.
4. Apply a systematic approach to solve problems.
5. Use a variety of thinking skills to anticipate and solve problems.
6. Locate, select, organize, and document information using appropriate technology and information systems.
7. Analyze, evaluate, and apply relevant information from a variety of sources.
8. Show respect for diverse opinions, values belief systems, and contributions of others.
9. Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals.
10. Manage the use of time and other resources to complete projects.
11. Take responsibility for one's own actions, decisions, and consequences.

There are 11 Essential Employability Skills outcomes as per the Ministry Program Standard. Of these 11 outcomes, the following will be assessed in this course.

Global Citizenship and Equity (GC&E) Outcomes
N/A

Text and other Instructional/Learning Materials
Text Book(s):

Palmer, P. 2008. Guide to UNIX Using Linux, 4th Edition. Boston: Course Technology.
ISBN 10: 1418837237
ISBN 13: 978-1418837235

Evaluation Scheme
- ⇨ Assignment 1: File Processing
- ⇨ Assignment 2: Shell Scripting
- ⇨ Test 1: Chapters 1,2 and 3
- ⇨ Assignment 3: Advanced Shell Scripting
- ⇨ Assignment 4: Linux
  Utilities
  C/C++ programming
- ⇨ Test 2: Chapters 4,5,6 and 7
- ⇨ Project: Project
- ⇨ Final Test: Final test on Chapters 8,9,10 and 11 and PHP.

Evaluation Name	CLO(s)	EES Outcome(s)	GCE Outcome(s)	Weight/100
Assignment 1	3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11		10
Assignment 2	5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11		10
Test 1	1, 2, 3, 4, 5	3, 4, 5		15
Assignment 3	5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11		10
Assignment 4	3, 4, 5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11		10
Test 2	5, 6, 7, 8, 9	3, 4, 5		15
Project	6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11		15
Final Test	5, 6, 7, 8, 9			15
Total				100%

If students are unable to write a test they should immediately contact their professor or program Chair for advice. In exceptional and well documented circumstances (e.g. unforeseen family problems, serious illness, or death of a close family member), students may be able to write a make-up test.

All submitted work may be reviewed for authenticity and originality utilizing Turnitin®. Students who do not wish to have their work submitted to Turnitin® must, by the end of the second week of class,

communicate this in writing to the instructor and make mutually agreeable alternate arrangements.

When writing tests, students must be able to produce official College photo identification or they may be refused the right to take the test or test results will be void.

Student Accommodation

It is College Policy to provide accommodation based on grounds defined in the Ontario Human Rights Code. Accommodation may include modifications to standard practices. Students with disabilities who require academic accommodations must register with the Centre for Students with Disabilities. Students requiring accommodation based on other human rights grounds should talk with their professors as early as possible. Please see the Student Accommodation Policy.

Use of Dictionaries

- Any dictionary (hard copy or electronic) may be used in regular class work.

Program or School Policies

N/A

Course Policies

N/A

College Policies

Students should familiarize themselves with all College Policies that cover academic matters and student conduct.

All students and employees have the right to study and work in an environment that is free from discrimination and harassment and promotes respect and equity. Centennial policies ensure all incidents of harassment, discrimination, bullying and violence will be addressed and responded to accordingly.

Academic honesty is integral to the learning process and a necessary ingredient of academic integrity. Academic dishonesty includes cheating, plagiarism, and impersonation. All of these occur when the work of others is presented by a student as their own and/or without citing sources of information. Breaches of academic honesty may result in a failing grade on the assignment/course, suspension or expulsion from the college.

For more information on these and other policies, please visit www.centennialcollege.ca/about-centennial/college-overview/college-policies.

Students enrolled in a joint or collaborative program are subject to the partner institution's academic policies.

PLAR Process

This course is eligible for Prior Learning Assessment and Recognition (PLAR). PLAR is a process by which course credit may be granted for past learning acquired through work or other life experiences. The PLAR process involves completing an assessment (portfolio, test, assignment, etc.) that reliably demonstrates achievement of the course learning outcomes. Contact the academic school to obtain information on the PLAR process and the required assessment.

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Semester:	Winter 2016	Professor Name:	Patrick Gignac
Section Code:	001, 002, 003, 004	Contact Information:	Extension 8217
Meeting Time & Location:	See schedule		

Topical Outline (subject to change):

Week	Topics	Readings/Materials	Weekly Learning Outcome(s)	Instructional Strategies	Evaluation Name	Evaluation Date
1	Overview of Operating System concepts Introduction to Unix. Operating System	Chapter 1	Upon completion of this work, the learner will have a good understanding of operating system functions, and will be able to identify the elements of UNIX architecture: Kernel, Shell, Utilities and Applications	Lecture Demonstration Lab Session		
2	UNIX File system File management in UNIX UNIX Editors Basic UNIX commands	Chapter 2,3	Upon completion of this work, the student will have a good understanding of UNIX File system, and UNIX directories. The student will be able to apply basic UNIX commands, such as: ls, date, clear, man, ctrll-D, pwd, cat, mv, mkdir, cd, cp, rm, rmdir.	Lecture Demonstration Lab Session		
3	Ownership and Permissions in UNIX/Linux systems	Chapter 2,3	Upon completion of this work, the learner will have a good understanding of UNIX security features. The student will be able to identify permission settings (read, write, execute), the ownership (owner, group, others), and also change the permissions using chmod command	Lecture Demonstration Lab Session		
4	File processing utilities	Chapter 4	Upon completion of this work, the learner will be able to use selection and manipulation file processing commands. The student will practice the use of comm, diff, cmp, tr, pr, cut, paste, join, and sed.	Lecture Demonstration Lab Session	Test 1	
5	Advance file processing utilities	Chapter 5	Upon completion of this work, the learner will have a good understanding of UNIX utilities for power users and the concept of pipes. The student will be able to use various wildcards, input/output and redirection tools, and other powerful UNIX	Lecture Demonstration Lab Session	Assignment 1 Due	

Week	Topics	Readings/Materials	Weekly Learning Outcome(s)	Instructional Strategies	Evaluation Name	Evaluation Date
6	UNIX Shells and Shell Scripting Customizing the UNIX session Creating and executing UNIX scripts	Chapter 6	Upon completion of this work, the learner will have a good understanding of UNIX Shell scripting. The student will be able to write BASH scripts that use variables, functions, arrays, and simple control structures.	Lecture Demonstration Lab Session		
7	Advanced BASH Scripting	Chapters 7	Upon completion of this work, the learner will be able to write advanced BASH script that use quotation marks, directory /file, string or numerical comparison expressions, arguments, and arithmetic expressions. The student will also practice with other BASH control structures, such as case, select, etc.	Lecture Demonstration Lab Session	Assignment 2 Due	
8	Linux Utilities and Process Management	Chapter 8 Online material	Upon completion of this work, the learner will have a good understanding about managing the processes in a Unix/Linux system. The student will be able to use ctrl-z, fg, ps, nice, renice, top, kill, jobs and free commands	Lecture Demonstration Lab Session		
9	Installing and configuring services in the Linux environment	Chapter 9 Online material	Upon completion of this work, the learner will have a good understanding of how to install and configure an httpd server and MYSQL server and under stand the interaction of the httpd server with other scripts and services.	Lecture Demonstration Lab Session	Test 2 Assignment 3 Due	
10	Developing Applications in C / C++	Chapter 10 and online material	The student will practice compiling source code with the use of gcc compiler and the make utility. Upon completion of this work, the students will have a good understanding of creating and executing software applications in C / C++.	Lecture Demonstration Lab Session		
11	Introduction to PHP Using PHP in a UNIX environment	Lecture Online material	Upon completion of this work, the learner will have a good understanding of the PHP scripting language. The student will be write simple PHP scripts that use variables, control structures, and functions.	Lecture Demonstration Lab Session	Assignment 4 Due	

Week	Topics	Readings/Materials	Weekly Learning Outcome(s)	Instructional Strategies	Evaluation Name	Evaluation Date
12	Developing PHP Web pages in a Linux environment Connecting PHP programs with MySQL server	Lecture Online Material	Upon completion of this work, the learner will have a good understanding of the PHP Web scripts. The student will be introduced to MySQL database server in a UNIX/Linux environment, and write simple PHP web pages that access MySQL databases.	Lecture Demonstration Lab Session		
13	The X Windows system and running services on Linux.	Chapter 11 Lecture and online materials.	The learner will be introduced to features of X Windows and administering and troubleshooting services on a Linux system.	Lecture Demonstration Lab Session	Project Due	
14	Review and Final Test				Final Test	