COURSE OUTLINE: CSD111 - COMPUTING ENVIRONMEN

Prepared: Bazlur Rasheed
Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	CSD111: COMPUTING ENVIRONMENTS AND TOOLING
Program Number: Name	2095: COMPUTER PROGRAMMING
Department:	COMPUTER STUDIES
Academic Year:	2022-2023
Course Description:	It is important for programmers to have proficiency with the software environments and tools they use. Students in this course learn how to navigate and administer both Windows and Unix-style operating systems using industry tools. Topics may include file permissions, network file transfer, web and DNS server configuration, virtual machines, container systems, and others depending on program needs and student interest. The use of Git and distributed version control systems to track changes in software code files will receive specific focus. Students gain hands-on experience using command line shells like Bash and PowerShell, and use virtual machines and container systems such as Docker.
Total Credits:	3
Hours/Week:	3
Total Hours:	42
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course: Please refer to program web page for a complete listing of program outcomes where applicable.	**2095 - COMPUTER PROGRAMMING** VLO 1 Identify, analyze, develop, implement, verify and document the requirements for a computing environment. VLO 2 Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools. VLO 3 Implement and maintain secure computing environments.
Essential Employability Skills (EES) addressed in this course:	EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	To successfully pass this course, the student must receive passing grades for both the Test portion of the class AND the Laboratory portion. Grade

Definition Grade Point Equivalent
A+ 90 - 100% 4.00
A 80 - 89%
B 70 - 79% 3.00
C 60 - 69% 2.00
D 50 - 59% 1.00
F (Fail) 49% and below 0.00

CR (Credit) Credit for diploma requirements has been awarded.
S Satisfactory achievement in field /clinical placement or non-graded subject area.
U Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR Grade not reported to Registrar`s office.
W Student has withdrawn from the course without academic penalty.

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Interact with computers via a command shell	1.1 Describe what a shell is, and why it is important to be familiar with shell environments 1.2 Adjust command behaviour using flags and options 1.3 Locate command documentation 1.4 Navigate and manipulate file systems using typical commands such as cd, ls, pwd, cp, mv, rm, etc 1.5 Explain file paths and distinguish between absolute and relative paths 1.6 Modify file permissions using chmod 1.7 Set environment variables and understand their use 1.8 Use pipes to make the output of one command the input for another 1.9 Redirect command output to a file 1.10 Use a command line text editor such as nano to edit text files 1.11 Discuss other popular command line text editors such as emacs and vi 1.12 Connect to a remote shell using ssh 1.13 Use a command line shell to set file permissions, transfer files, configure a web server, etc
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Describe an use Git and distributed version control systems	2.1 Explain what a distributed version control system is and why it is useful 2.2 Install and configure Git 2.3 Initialize a repository 2.4 Explain what the working tree is, and track files in the working tree 2.5 Distinguish between the working tree, the index, and the repository history 2.6 Stage changes to the index 2.7 Commit changes to the repository history 2.8 Retrieve the id for a specific commit 2.9 Label a commit using a tag 2.10 View the commit history for a repository

	2.11 View changes using diff 2.12 Undo staged and committed changes 2.13 Configure Git to ignore specific files 2.14 Explain what a branch is in a version control system 2.15 Create branches in a repository, and switch between branches 2.16 Merge branches 2.17 Resolve conflicts in branch merges 2.18 Configure a remote for a repository 2.19 Synchronize a local repository with a remote 2.20 Clone a repository, and understand the difference between cloning and copying a repository 2.21 Create and synchronize with a remote repository on a host such as GitHub or GitLab 2.22 Use a GUI to perform Git operations
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Search for patterns in text using regular expressions	3.1 Discuss the purpose and nature of regular expressions 3.2 Create regular expressions involving booleans, groups, quantifiers, character classes, and boundary markers 3.3 Describe the patterns matched by a given regular expression 3.4 Use flags to alter the default matching behaviour of a regular expression 3.5 Use the grep command to search for documents containing specific text patterns 3.6 Use the sed command to change the contents of a file using a regular expression
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Use virtual machines and container systems	4.1 Explain what a virtual machine is and why it is useful 4.2 Highlight popular open source and commercial virtualization technology 4.3 Distinguish between a guest and host operating system 4.4 Install an operating system on a virtual machine 4.5 Explain what a container system is and why it is useful 4.6 Highlight popular open source and commercial container systems 4.7 Use a container system to install a container image 4.8 Use version control to configure a new container image 4.6 Discuss how to decide whether to use virtualization, containerization, or neither

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Lab Assignments	40%
Quizzes	10%
Test 1	16%
Test 2	17%
Test 3	17%

Date:	June 1, 2022
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.