COURSE OUTLINE: CSD113 - COMPUTING ENV & TOOL

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Approved: Martha Irwin - Dean

Course Code: Title	CSD113: COMPUTING ENVIRONMENTS AND TOOLS
Program Number: Name	2095: COMPUTER PROGRAMMING
Department:	COMPUTER STUDIES
Academic Year:	2025-2026
Course Description:	Students will acquire the skills necessary to operate and manage industry-standard Windows and Unix-style operating systems. Topics may include file permissions, network file transfer, virtual machines, container systems, and others depending on program needs and student interest. Students will gain hands-on experience using command line and secure shells like Bash and PowerShell and will learn how to use version control systems like Git to track changes in software code files.
Total Credits:	4
Hours/Week:	4
Total Hours:	56
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:	Students are expected to be present to write all tests in class, unless otherwise specified. If a student is unable to write a test due to illness or a legitimate emergency, that student must contact the professor prior to class and provide reasoning. Should the student fail to contact the professor, the student shall receive a grade of zero on the test. If a student is not present 10 minutes after the test begins, the student will be considered absent and will not be given the privilege of writing the test.

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Students exhibiting academic dishonesty during a test will receive an automatic zero. Please refer to the College Academic Dishonesty Policy for further information.

In order to qualify to write a missed test, the student shall have:
a.) attended at least 75% of the classes to-date.
b.) provide the professor an acceptable explanation for his/her absence.
c.) be granted permission by the professor.

NOTE: The missed test that has met the above criteria will be an end-of-semester test.

Labs / assignments are due on the due date indicated by the professor. Notice by the professor will be written on the labs / assignments and verbally announced in advance, during class.

Labs and assignments that are deemed late will have a 10% reduction per academic day to a maximum of 5 academic days at 50% (excluding weekends and holidays). Example: 1 day late - 10% reduction, 2 days late, 20%, up to 50%. After 5 academic days, no late assignments and labs will be accepted. If you are going to miss a lab / assignment deadline due to circumstances beyond your control and seek an extension of time beyond the due date, you must contact your professor in advance of the deadline with a legitimate reason that is acceptable.

It is the responsibility of the student who has missed a class to contact the professor immediately to obtain the lab / assignment. Students are responsible for doing their own work. Labs / assignments that are handed in and are deemed identical or near identical in content may constitute academic dishonesty and result in a zero grade.

Students are expected to be present to write in-classroom quizzes. There are no make-up options for missed in-class quizzes.

Students have the right to learn in an environment that is distraction-free, therefore, everyone is expected to arrive on-time in class. Should lectures become distracted due to students walking in late, the professor may deny entry until the 1st break period, which can be up to 50 minutes after class starts or until that component of the lecture is complete.

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.

Late Assignments Policy

Labs / assignments are due on the due date indicated by the professor. Notice by the professor

will be written on the labs / assignments and verbally announced in advance, during class.

Labs and assignments that are deemed late will have a 10% reduction per academic day to a maximum of 5 academic days at 50% (excluding weekends and holidays). Example: 1 day late - 10% reduction, 2 days late, 20%, up to 50%. After 5 academic days, no late assignments and labs will be accepted. If you are going to miss a lab / assignment deadline due to circumstances beyond your control and seek an extension of time beyond the due date, you must contact your professor in advance of the deadline with a legitimate reason that is acceptable.

It is the responsibility of the student who has missed a class to contact the professor immediately to obtain the lab / assignment. Students are responsible for doing their own work. Labs / assignments that are handed in and are deemed identical or near identical in content may constitute academic dishonesty and result in a zero grade.

Books and Required Resources:	One Portable external 500GB SSD drive USB3/C or larger in size Two Thumb drives 128GB USB3.0 or larger in size ProGit online textbook by Scott Chacon and Ben Straub Publisher: https://git-scm.com/book/en/v2 Edition: 2nd Edition Progit online textbook Publisher: https://learn.microsoft.com/en-us/training/modules/introduction-to-powershell/ Learn RegEx step by step Publisher: https://regexlearn.com/ Containers vs. virtual machines Publisher: https://www.atlassian.com/microservices/cloud-computing/containers-vs-vms Oracle VirtualBox Publisher: https://docs.oracle.com/en/virtualization/virtualbox/7.1/user/index.html#externalkernelmodules Use containers to Build, Share and Run your applications Publisher: https://www.docker.com/resources/what-container/ VMware Workstation 17.6.3 Free Version Publisher: https://www.vmware.com/products/desktop-hypervisor/workstation-and-fusion

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 is an operating system and install an operating system on a physical drive. 1.2 Describe what a shell is, and why it is important to be familiar with shell environments 1.3 Adjust command behaviour using flags, options, pipes, and output redirection 1.4 Locate command documentation 1.5 Describe the filesystem layouts of popular operating systems 1.6 Navigate and manipulate files and permissions using typical commands such as cd, ls, pwd, cp, mv, rm, chmod, chown, etc 1.7 Set environment variables and explain their use

	1.8 Search and manipulate text files using nano, awk, sed, find, grep, etc. 1.9 Perform networking tasks using ssh, ftp, sftp, etc. 1.10 Use command line text editors such as nano, emacs and vi 1.11 Use DOS shell, bash shell and PowerShell. 1.12 Write and execute shell scripts in both bash and PowerShell
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Search for patterns in text using regular expressions	2.1 Discuss the purpose and nature of regular expressions 2.2 Create regular expressions involving Booleans, groups, quantifiers, character classes, and boundary markers 2.3 Describe the patterns matched by a given regular expression 2.4 Use the grep command to search for documents containing specific text patterns 2.5 Use the sed command to change the contents of a file using a regular expression 2.5 Use Python`s regular expression package re to work with Regular Expressions.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Use virtual machines and container systems	3.1 Explain what a virtual machine is and why it is useful 3.2 Highlight popular open source and commercial virtualization technology 3.3 Distinguish between a guest and host operating system 3.4 Install an operating system on a virtual machine 3.5 Explain what a container system is and why it is useful 3.6 Highlight popular open source and commercial container systems 3.7 Use a container system to install a container image 3.8 Discuss how to decide whether to use virtualization, containerization, or both
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Describe and use Git and distributed version control systems	4.1 Explain what a distributed version control system is and why it is useful 4.2 Install and configure Git 4.3 Track and review changes in a set of code files 4.4 Explain the nature of the working tree, the index, and the repository history 4.5 Track changes across multiple branches 4.6 Manage repositories in a distributed environment 4.7 Resolve conflicts in branch merges 4.8 Use repository hosting platforms such as GitHub 4.9 Use a GUI (VSCode) to perform Git operations 4.10 View the commit history for a repository 4.11 View changes using git diff 4.12 Undo staged and committed changes (git reset) 4.13 Configure Git to ignore specific files 4.14 Explain what a branch is in a version control system

	4.15 Create branches in a repository, and switch between branches 4.16 Merge/rebase branches 4.17 Resolve conflicts in branch merges 4.18 Configure a remote for a repository 4.19 Synchronize a local repository with a remote 4.20 Clone and fork a repository, and understand the difference between cloning and forking a repository

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Lab Assignments	40%
Quizzes	10%
Test 1	25%
Test 2	25%

Date: June 19, 2025

Addendum: Please refer to the course outline addendum on the Learning Management System for further information.