**OREGON INSTITUTE OF TECHNOLOGY**

**COMPUTER SYSTEMS ENGINEERING TECHNOLOGY DEPARTMENT**

**COURSE :** **Linux Programming ( CST-240)**

4 Credit Hours (3 Class Hours, 3 Lab Hours)

Class meetings: MWF, 1-2, PV 120

Lab: Tues 8-11 PV 120

Professor: Philip Howard Ph.D.

Office Phone: x51604

Office Hours: MWF 11-1

(and any other time I’m in my office)

Office: Room PV 165

Email: [phil.howard@oit.edu](mailto:sherry.yang@oit.edu)

**TEXTBOOK:**

None is required. As an optional resource, you might want to consider:

*The Linux Programming Interface*, Michael Kerrisk, No Starch Press, 2010, ISBN: 9781593272203

**SPECIFIC COURSE INFORMATION**:

**Catalog Description**

Students will study the structure of the UNIX/Linux Operating System, including: file structure, input/output processing, commands and utilities, shell configuration, communications and script programming languages. Emphasis will be placed on lab work done within the UNIX/Linux environment.

**Prerequisite:** CST 126 with a C or better

**Required, Elective or Selective:** Required

**Brief list of topics covered:**

1. Using a command shell
2. Shell script programming
3. Programming in C (not C++)
4. Makefiles
5. git source code control
6. Using the gdb debugger and valgrind memory checker
7. Process management with fork, wait, and exec
8. Pipes
9. File system and file processing
10. Client/Server programming using sockets
11. Multithreaded programming using pthreads and locks

**SPECIFIC GOALS OF THE COURSE:**

**Specific Outcomes of Instruction**

This course is intended to get students comfortable working and developing software in a Linux environment. The development process will be taught and practiced: editing source code, compiling, linking, debugging, profiling, and source code control. In addition, various features of the Linux system will be explored including: the file system, processes, threads, pipes, and sockets.

**ABET Outcomes Addressed By Course**

2) An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;

4) An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes an ability to identify, analyze, and solve broadly-defined engineering technology problems;

**GRADING PROCEDURE**:

Labs 45%

In-class work/Quizzes 30%

Midterm 10%

Final 15%

**GRADING SCALE**:

90%+ = A

80%+ = B

70%+ = C

60%+ = D

60%- = F

**CLASSROOM POLICIES**:

1. Every student is expected to attend class on TIME and is responsible for ALL work missed during any absences.
2. Plagiarism and other forms of cheating will not be tolerated. Please refer to OIT policy on Student Academic Integrity for more information. All academic dishonesty cases will be reported to the Vice President for Student Affairs as required by OIT policies.
3. There are no make-up exams or quizzes so please make arrangements with the instructor ahead of time if there is a schedule conflict.
4. In-class assignments that consist of short programs or the demonstration of some skill must be completed either in the class period in which it is assigned or the following class period. In-class assignments will not be accepted after this.
5. Short quizzes (<10 minutes) can be given at any time. When given, they will cover content from the previous couple of class sessions and homework assignments.
6. You are expected to check your OIT supplied email and the Canvas shell for this class regularly for course updates and announcements.
7. I am willing to make exceptions to my policies under extenuating circumstances. You have a better chance of being granted an exception if you contact me ahead of time instead of after the fact. Just because someone else was granted an exception does not mean you are automatically entitled to one.

**OTHER IMPORTANT INFORMATION**

You should be familiar with OIT policies as they relate to student conduct in an academic setting.

If you need a course adaptation or academic accommodation because of a disability, or if you need special arrangements in case the room or building must be evacuated, you need to contact Disability Services to determine what accommodations are available and appropriate. Please also see me as soon as possible so we can make arrangements to best accommodate your needs.

Some students may be granted permission to record this class. You are not allowed to record the class without permission, and if you are granted permission, the recordings are for your own personal use and may not be shared or distributed.