

# CSE 4251 (Approved): The UNIX Programming Environment

## Course Description

Introduction to the UNIX programming environment including: shell programming (csh); regular expressions; makefiles; grep, sed, and awk programming languages.

**Prior Course Number:** CSE 459.11

**Transcript Abbreviation:** UNIX Prgrmg Env

**Grading Plan:** Satisfactory/Unsatisfactory

**Course Deliveries:** Classroom

**Course Levels:** Undergrad

**Student Ranks:** Junior, Senior

**Course Offerings:** Autumn

**Flex Scheduled Course:** Never

**Course Frequency:** Every Year

**Course Length:** 14 Week

**Credits:** 1.0

**Repeatable:** No

**Time Distribution:** 1.0 hr Lec

**Expected out-of-class hours per week:** 2.0

**Graded Component:** Lecture

**Credit by Examination:** No

**Admission Condition:** No

**Off Campus:** Never

**Campus Locations:** Columbus

**Prerequisites and Co-requisites:** CSE 2231 or CSE 321

**Exclusions:** Not open to students with credit for CSE 459.11

**Cross-Listings:**

**The course is required for this unit's degrees, majors, and/or minors:** No

**The course is a GEC:** No

**The course is an elective (for this or other units) or is a service course for other units:** Yes

**Subject/CIP Code:** 14.0901

**Subsidy Level:** Baccalaureate Course

## Programs

Abbreviation	Description
BS CSE	BS Computer Science and Engineering

## Course Goals

Be familiar with csh programming.
Be familiar with UNIX regular expressions.
Be familiar with using basic sed commands.
Be familiar with using awk commands to filter through data files.

## Course Topics

Topic	Lec	Rec	Lab	Cli	IS	Sem	FE	Wor
Introduction	1.0							
C Shell: filename metacharacters, i/o redirection, command history, building complex command, job/process control, directory control	3.0							
C Shell programming: script introduction, script examples, debugging scripts	4.0							
Regular expressions in Unix (grep)	3.0							
make, sed, awk	3.0							

## Representative Assignments

Working with environment variables, command history
Simulating the "trash" basket of Windows/Mac
Cleaning up the "trash basket"
Use grep, sed and awk to process some text files
Lab using make

## Grades

Aspect	Percent
Lab 1	20%
Lab 2	20%
Lab 3	20%
Lab 4	20%
Lab 5	20%

## Representative Textbooks and Other Course Materials

Title	Author
<i>UNIX in a Nutshell, A Desktop Quick Reference for SVR4 and Solaris 7, 3rd Edition</i>	Arnold Robbins
<i>UNIX SHELLS by Example, 3rd Edition</i>	Ellie Quigley

## ABET-EAC Criterion 3 Outcomes

Course Contribution	College Outcome
*	a An ability to apply knowledge of mathematics, science, and engineering.
	b An ability to design and conduct experiments, as well as to analyze and interpret data.
**	c An ability to design a system, component, or process to meet desired needs.
	d An ability to function on multi-disciplinary teams.
*	e An ability to identify, formulate, and solve engineering problems.
	f An understanding of professional and ethical responsibility.
	g An ability to communicate effectively.
	h The broad education necessary to understand the impact of engineering solutions in a global and societal context.
*	i A recognition of the need for, and an ability to engage in life-long learning.
	j A knowledge of contemporary issues.

Course Contribution		College Outcome
**	k	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

## BS CSE Program Outcomes

Course Contribution		Program Outcome
*	a	an ability to apply knowledge of computing, mathematics including discrete mathematics as well as probability and statistics, science, and engineering;
	b	an ability to design and conduct experiments, as well as to analyze and interpret data;
**	c	an ability to design, implement, and evaluate a software or a software/hardware system, component, or process to meet desired needs within realistic constraints such as memory, runtime efficiency, as well as appropriate constraints related to economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability considerations;
	d	an ability to function on multi-disciplinary teams;
*	e	an ability to identify, formulate, and solve engineering problems;
	f	an understanding of professional, ethical, legal, security and social issues and responsibilities;
	g	an ability to communicate effectively with a range of audiences;
	h	an ability to analyze the local and global impact of computing on individuals, organizations, and society;
*	i	a recognition of the need for, and an ability to engage in life-long learning and continuing professional development;
	j	a knowledge of contemporary issues;
**	k	an ability to use the techniques, skills, and modern engineering tools necessary for practice as a CSE professional;
	l	an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;
	m	an ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;
	n	an ability to apply design and development principles in the construction of software systems of varying complexity.

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