CS/IS172 : Unix/Linux Operating System

General Information

Author:	• Tony Biehl
Course Code (CB01) :	CS/IS172
Course Title (CB02) :	Unix/Linux Operating System
Department:	CSIS
Proposal Start:	Fall 2024
TOP Code (CB03) :	(0708.00) Computer Infrastructure and Support
CIP Code:	(11.1003) Computer and Information Systems Security/Auditing/Information Assurance.
SAM Code (CB09) :	Clearly Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	Yes
Course Control Number (CB00) :	CCC000215566
Curriculum Committee Approval Date:	05/08/2024
Board of Trustees Approval Date:	06/18/2024
Last Cyclical Review Date:	05/08/2024
Course Description and Course Note:	CS/IS 172 discusses the various features of the UNIX and Linux operating systems. These operating systems are industry standard in modern computer systems. This course will be taught using current Linux distributions on Glendale Community College computers and on student home computers.
Justification:	Mandatory Revision
Academic Career:	• Credit
Author:	• Tony Biehl

Academic Senate Discipline

Primary Discipline:	• Computer Information Systems (Computer network installation, microcomputer technology, computer applications)
Alternate Discipline:	No value
Alternate Discipline:	No value

Course Development

Basic Skill Status (CB08)

Course is not a basic skills course.

☐ Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

Not applicable.

Grading Basis

• Grade with Pass / No-Pass Option

Course Support Course Status (CB26)

Course is not a support course

Transferability & Gen. Ed. Options

General Education Status (CB25)

Not Applicable

Transferability

Transferable to both UC and CSU

Transferability Status

Approved

Units and Hours

Summary

Minimum Credit Units (CB07) 4

Maximum Credit Units (CB06) 4

Total Course In-Class (Contact) Hours 72

Total Course Out-of-Class Hours 144

Total Student Learning Hours 216

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

☐ Variable Credit Course

Funding Agency Category (CB23)

Not Applicable.

☐ Cooperative Work Experience Education Status (CB10)

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	4	8
Laboratory Hours	0	0
Studio Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	54
Course In-Class (Contact) Hours	
Lecture	72
Laboratory	0
Studio	0
Total	72
Course Out-of-Class Hours	
Lecture	144
Laboratory	0
Studio	0
Total	144

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Pre-requisites, Co-requisites, Anti-requisites and Advisories

Advisory

CS/IS135 - Programming In C/C++

OR

Advisory

CS/IS139 - Java (in-development)

Objectives
- Create Java programs using the current Java Development Kit.
- Test programs on multiple computer platforms and across a network.

Entry Standards

Entry Standards

Course Limitations

Cross Listed or Equivalent Course

Specifications

Methods of Instruction

Methods of Instruction	Lecture

Methods of Instruction	Multimedia

Methods of Instruction	Demonstrations

Out of Class Assignments

- Projects (e.g. creating and maintaining individual file systems and shell programs within UNIX or Linux)

Methods of Evaluation	Rationale
Exam/Quiz/Test	Final examination
Exam/Quiz/Test	Quizzes
Exam/Quiz/Test	Midterm examinations

Textbook Rationale

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
Kochan, Wood	Shell Programming in Unix, Linux and OS X: The Fourth Edition of Unix Shell Programming	Addison Wesley	2017	978-0134496009

Other Instructional Materials (i.e. OER, handouts)

No Value

Materials Fee

No value

Learning Outcomes and Objectives

Course Objectives

Create and maintain individual file systems and shell programs within UNIX.

Set up and maintain file systems for high-level UNIX system administration.

Evaluate the UNIX operating system for business and production programming applications.

Design software using UNIX runtime facilities.

Write Bourne shell and C shell applications.

SLOs

Describe the file system layout of UNIX.   Expected Outcome Performance: 70.0

ILOs Core ILOs	Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication.
CSIS Information Technology Certificate	Demonstrate installing, configuring and maintaining computer and mobile devices, including diagnosing, resolving and documenting common hardware and software.
CSIS Information Technology - A.S. Degree Major	Demonstrate installing, configuring, and maintaining computer and mobile devices, including diagnosing, resolving, and documenting common hardware and software.
CSIS Computer Science - Certificate	Prepare a software project to implement a single scientific, mathematical, business, or technical function.
CSIS Computer Science - A.S. Degree Major	Prepare a software project to implement a single scientific, mathematical, business, or technical function.
CSIS Computer Information Systems	analyze simple business or technical problems relevant to programming, and prepare solutions to them demonstrate an understanding of the operations and processes of a computer relevant to programming.
CSIS Computer Support Technician	demonstrate an understanding of computer structure and operations possess a basic knowledge of computer operation and capabilities with the skills to troubleshoot problems or aid in user support.
CSIS Computer Software Technician	demonstrate the ability to independently create, save, modify and print a document using a word processing program and appropriate assistive technology
CSIS Unix/Linux System Administrator	install, configure and maintain and industry standard computer with the Unix/Linux operating that is connected to the Internet

CSIS Web Development - A.S. Degree Major	use industry standard tools and techniques to produce, publish and maintain Web sites and Web content.	
CSIS Web Development - Certificate	use industry standard tools and techniques to produce, publish and maintain Web sites and Web content.	

Describe shell programs and be able to use Bourne shell and C-shell.　　　　　　　Expected Outcome Performance: 70.0

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CSIS Computer Information Systems	analyze simple business or technical problems relevant to programming, and prepare solutions to them
	demonstrate an understanding of the operations and processes of a computer relevant to programming.
ILOs General Education	apply techniques of analysis and critical thinking to critique real world and theoretical topics and issues
CSIS Computer Support Technician	demonstrate an understanding of computer structure and operations
	possess a basic knowledge of computer operation and capabilities with the skills to troubleshoot problems or aid in user support.
CSIS Computer Software Technician	demonstrate the ability to independently create, save, modify and print a document using a word processing program and appropriate assistive technology
CSIS Unix/Linux System Administrator	install, configure and maintain and industry standard computer with the Unix/Linux operating that is connected to the Internet
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Explain the advantages and disadvantages of UNIX for organizations.　　　　　　　Expected Outcome Performance: 70.0

ILOs Core ILOs	Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication.
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CSIS Computer Science - A.S. Degree Major	Prepare a software project to implement a single scientific, mathematical, business, or technical function.
CSIS Computer Information Systems	analyze simple business or technical problems relevant to programming, and prepare solutions to them
	demonstrate an understanding of the operations and processes of a computer relevant to programming.
ILOs General Education	communicate clearly and logically in writing, speech, and other media as appropriate
CSIS Computer Support Technician	demonstrate an understanding of computer structure and operations
	possess a basic knowledge of computer operation and capabilities with the skills to troubleshoot problems or aid in user support.
CSIS Computer Software Technician	demonstrate the ability to independently create, save, modify and print a document using a word processing program and appropriate assistive technology
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Additional SLO Information

Does this proposal include revisions that might improve student attainment of course learning outcomes?

No

Is this proposal submitted in response to learning outcomes assessment data?

No

If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.

No Value

SLO Evidence

No Value

Course Content

Lecture Content

Introduction (10 hours)
- Hardware environment
- Overall perspective of UNIX
- Summary of features
- History of UNIX
- The UNIX philosophy

Using UNIX (10 hours)
- Accessing the computer
- Logging on and off
- Passwords

- Basic units
- The shell

Basic Command and Files (12 hours)
- File types
- Related file commands
- File system commands
- Pathnames
- File editing with VI
- I/O connections and command lines
- File access permission

Shell Procedures (16 hours)
- What are they and why use them
- Shell variables and commands
- The alias mechanism
- Conditional constructs
- Internation constructs
- Expressions and branching
- Inheritance of environment Interrupt processing

Background Processes (12 hours)
- Process ID
- Foreground/background constructions
- Commands for background processing
- Special process ID variables

Miscellaneous (12 hours)
- History substitutions and variables
- Advanced editing with VI
- File name generation
- Command substitution
- Set up files
- Other commands
- Efficiency considerations

Total hours: 72

Additional Information

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

Yes

GCC Major Requirements

No Value

GCC General Education Graduation Requirements

Communication and Analytical Thinking

Repeatability

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Resources

Did you contact your departmental library liaison?

No

If yes, who is your departmental library liason?

No Value

Did you contact the DEIA liaison?

No

Were there any DEIA changes made to this outline?

No

If yes, in what areas were these changes made:

No Value

Will any additional resources be needed for this course? (Click all that apply)

- No

If additional resources are needed, add a brief description and cost in the box provided.

No Value