CSIT 144: INTRODUCTION TO OPERATING SYSTEM USING UNIX

1. Course Information

Subject
CSIT - Computer Science/ Information Technology

Course Number
144

School
Science, Technology, Engineering, Mathematics

Course Title
Introduction to Operating System Using Unix

2. Hours

Semester Hours
3.00000

Lecture
3

Lab
0

Practicum
0

3. Catalog Description

For display in the online catalog
This course is designed to enable the student to use the UNIX operating system. Topics include basic commands, compilers, editors, text processors, shell and awk programming, file system organization and basic system administration. Students will have access to the Mac computers and a UNIX server housed in the Technology building. Open lab time required.

4. Requisites

Prerequisites
Prior programming experience suggested

Corequisites
None

5. Course Type

Course Fee Code
3

Course Type for Perkins Reporting
vocational (approved for Perkins funding)

6. Justification

Describe the need for this course
This is a program-specific requirement in the AS Computer Science Degree with Cyber Security Option.

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?

No

If the course does not satisfy a general education requirement, which of the following does it satisfy:

Program-specific requirement

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:

	Add item
1	Offer comprehensive educational programs that develop intentional learners of all ages and ensure the full assessment of student learning in these programs. (Mission Statement)
2	Foster educational innovation through effective teaching-learning strategies, designed to develop and nurture intentional learners who are informed and empowered. (Vision Statement)
3	Employ technology and learning outcomes assessment to ensure student success in an increasingly diverse and complex world. (Vision Statement)
4	Prepare students for entrance into the workforce and/or for successful transfer to other educational institutions. (Academic Master Plan)
5	Seek to empower students through the mastery of intellectual and Practical Skills. (Academic Master Plan)
6	Challenge students to transfer information into knowledge and knowledge into action. (Academic Master Plan)

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Institution

Brookdale CC

Course Title

Introduction to UNIX

Course Number

COMP 145

Number of Credits

3

Institution

Middlesex County College

Course Title

Unix and Shell Programming

Course Number

CSC 145

Number of Credits

3

Institution

Mercer County CC

Course Title

Mastering Linux

Course Number
NET 214

Number of Credits
3

Institution
Raritan Valley CC

Course Title
Unix and Linux

Course Number
CISY 237

Number of Credits
3

Institution
Atlantic Cape CC

Course Title
Using PC Operating Systems

Course Number
CISM130

Number of Credits
3

Comments
This course addresses the Unix Operating System although not exclusively

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Institution
Bergen CC

Course Title
Unix/Linux Network Administration

Course Number
INF-254

Number of Credits
3

Institution
Camden County College

Course Title
Linux/UNIX Essentials

Course Number
CIS-181

Number of Credits
3

Institution
Essex County College

Course Title
Intro to Linux/Unix Operating System

Course Number
CSC 113

Number of Credits
4

Institution
County College of Morris

Course Title
Introduction to UNIX

Course Number
CMP-209

Number of Credits
3

Institution
Warren County CC

Course Title
Operating Systems Fundamentals: UNIX

Course Number
CSC 150

Number of Credits
3

Transferability of Course

Georgian Court University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
Elective Credit EC 3 cr.	Elective	

Kean University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CPSX1003, Computer Science Elective, 3 cr.	Computer Science Elective	

Monmouth University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CS001 100 Level Comp, Computer Science Elective 3 cr.	100 Level Computer Science Elective	

Rowan University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CS01102 Intro to Programming 3 cr.	Major, Gen. Ed.	

Rutgers - New Brunswick, Mason Gross School of the Arts

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
Elective Credit EC 3 cr.	Elective	

Stockton University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CSISEC, Computer Science & Info Sys Elective 3 cr.	Computer Science Elective	

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	Describe the UNIX system and how it works.
CLO2	Communicate electronically with users.
CLO3	Discuss the current use of UNIX and its advantages.
CLO4	Describe and use the UNIX file system.
CLO5	Describe and use filters and pattern matching.
CLO6	Describe and use Shell programming.
CLO7	Describe and use compilers, linkers and awk programming.
CLO8	Describe and use processes (scheduling, monitoring, prioritizing and canceling).
CLO9	Describe and use system administration.
CLO10	Compare the Unix system with other similar operating systems.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
TO1	Introduction to the UNIX system 1) Components of the UNIX operating system 2) History of UNIX 3) Current uses and applications of the UNIX operating system 4) Login/logout process 5) Establishing passwords	Hands-on; In-class & Lab exercises, Programing Projects	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 6, 8, 10
TO2	Communication 1) Determining users on 2) Chat 3) Mail 4) Broadcast 5) Preventing user messages	Hands-on; In-class & Lab exercises, Programing Projects	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 6, 8, 9
TO3	Popular tools 1) Obtaining help 2) Switching accounts 3) Disk utilization 4) Date and calendar	Hands-on; In-class & Lab exercises, Programing Projects	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 6, 8

TO4	File system structure 1) File types 2) Directory structure a) Paths: absolute and relative b) Creating files and directories c) Copy, Move and Link files d) Mounting and unmounting file systems e) Default and home directories f) Hard and symbolic links 3) Permissions a) Changing user, group and others b) Set user id, group id and sticky bit c) umask 4) Listing files a) Wildcards and metacharacters b) File types c) File substitutions d) Redirection and pipes	Hands-on; In-class & Lab exercises, Programing Projects	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 4, 5, 6, 8, 9
TO5	Editor (vi vs. IDEs) 1) Basic commands 2) Searching, changing and replacement 3) Inputting and saving text in vi 4) Macros, abbreviations, set options and shell escapes	Hands-on; In-class & Lab exercises, Programing Projects	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 5, 6, 8, 9
TO6	Compiling (JAVA vs. C++) 1) Compilers 2) Linking	Hands-on; In-class & Lab exercises, Programing Projects	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 6, 7, 8, 9
TO7	Process Control 1) Monitoring processes 2) Background and foreground 3) Timing 4) Prioritizing 5) Killing	Hands-on; In-class & Lab exercises, Programing Projects	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 6, 8, 9
TO8	Performance tuning 1) Scheduling (at and cron)	Hands-on; In-class & Lab exercises, Programing Projects	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 6, 7, 8, 9
TO9	Filters 1) Sorting 2) Differences between files 3) Pattern matching 4) Stream editor	Hands-on; In-class & Lab exercises, Programing Projects	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 5, 6, 8, 9
TO10	Shell programming 1) Kernel and Shell 2) Functions of Shell 3) Bourne Shell a) Variables b) Expressions c) Quoting d) Command line parameters e) Customizing 4) Shell programming a) Looping b) Decision making c) Functions d) Validating input e) Calling shell scripts		Quizzes; Exams, Programing Projects	CLO1, 2, 3, 4, 5, 6, 8, 9

TO11	Awk programming 1) Syntax 2) Joining files using cut and paste 3) Creating program 4) Running program	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 4, 6, 7, 8, 9
TO12	Comparisons to other operating systems 1) Linux 2) Various versions of UNIX 3) Mobile UNIX-based	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 6, 8, 9, 10
TO13	Basic system administration 1) Establishing users and groups 2) Establishing environments 3) Backup and restores 4) System monitoring tools 5) System accounting tools	Quizzes; Exams, Programing Projects	CLO1, 2, 3, 4, 5, 6, 8, 9

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized?
Class lecture, discussion, demonstrations, lab assignments, programs and online presentations.

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

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Technological Competency
Yes

Related Course Learning Outcome
All

Related Outline Component
All

Assessment of General Education Goal (Recommended but not limited to)
Quizzes; Exams, Programing Projects

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Independent/Critical Thinking
Yes

Related Course Learning Outcome
All

Related Outline Component

All

Assessment of General Education Goal (Recommended but not limited to)

Quizzes; Exams, Programing Projects

14. Needs

Instructional Materials (text etc.):

An appropriate text and/or open educational resource will be selected. Assembly Language Programming Software, Logic Gate Simulation Software and/or actual Integrated Circuits. Contact the department for Current adoptions. Class notes, presentations, and online materials.

Technology Needs:

College portal and/or college distance learning platform and/or textbook or instructor website. Computer lab equipped with necessary software to accommodate each student.

Human Resource Needs (Presently Employed vs. New Faculty):

Faculty (Fulltime, Adjunct and Lecturers)

Facility Needs:

Computer lab equipped with necessary software to accommodate each student. Ideally a computer-equipped podium with a connect projector (for demonstrations)

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

16. Board Approval

History of Board approval dates

Revised: December 1990; February 27, 1996; April 30, 1996; December 1998; May 4, 2004; Feb. 28, 2006; March 8, 2006
Board of Trustees Approval Date: December 11, 2006
Board of Trustees Approval Date: March 26, 2012
PLT Approval of Form: May 22, 2012
Board of Trustees Approval Date: November 3, 2014
PLT Approval of Form: October 28, 2014
Approval of Form: September 2017
Board of Trustees Approval Date: March 26, 2020