California Sate University Channel Islands

NEW COURSE PROPOSAL

Courses must be submitted by November 9, 2007, to make the next catalog production

DATE (*Change if modified*) 11/05/2007 REV 12.13.07 REV 2.20.08
PROGRAM AREA(S) COMPUTER SCIENCE

1. Catalog Description of the Course. *[Follow accepted catalog format.]*

Prefix(es) (Add additional prefixes if cross-listed) **COMP Course No. 221**
Title: INTRODUCTION TO UNIX AND C FOR PROGRAMMERS Units: 3

☒ Prerequisites COMP151
☐ Corequisites
☐ Consent of Instructor Required for Enrollment

Description (Do not use any symbols): **Fundamentals of the UNIX operating system, including the command line interface (CLI), shell commands and related utilities. C will be covered at an accelerated pace, appropriate for students who already know another programming language. Fundamental C libraries, and basic UNIX system calls, will be covered. Principles of the program development cycle as applied to a UNIX environment will also be presented.**

Grading Scheme:
☒ A-F Grades
☐ Credit/No Credit
☐ Optional (Student Choice)

Repeatability:
☐ Repeatable for a maximum of units
Total Completions Allowed
☐ Multiple Enrollment in Same Semester

Lab Fee Required: ☒

Mode of Instruction/Components (*Hours per Unit are defaulted*).

	Units	Hours per Unit	Benchmark Enrollment	Graded Component	CS & HEGIS # (Filled in by the Dean)
Lecture	3	1	20	☒	
Seminar		1		☐	
Laboratory		3		☐	
Activity		2		☐	
Field Studies				☐	
Indep Study				☐	
Other Blank				☐	

The following two lines will be filled out internally based on the Mode of Instruction data directly above.
3 hours lecture per week (*Use 2nd line only if necessary*)
hours blank per week

Course Attributes:

☐ **General Education Categories**: All courses with GE categories notations (including deletions) must be processed at the GE website: http://summit.csuci.edu/geapproval. Upon completion, the GE Committee will forward your documents to the Curriculum Committee for further processing.

A (English Language, Communication, Critical Thinking)
A-1 Oral Communication ☐
A-2 English Writing ☐
A-3 Critical Thinking ☐

B (Mathematics, Sciences & Technology)
B-1 Physical Sciences ☐
B-2 Life Sciences – Biology ☐
B-3 Mathematics – Mathematics and Applications ☐
B-4 Computers and Information Technology ☐

C (Fine Arts, Literature, Languages & Cultures)
C-1 Art ☐
C-2 Literature Courses ☐
C-3a Language ☐

C-3b Multicultural ☐
D (Social Perspectives) ☐
E (Human Psychological and Physiological Perspectives) ☐

UDIGE/INTD Interdisciplinary ☐
Meets University Writing Requirement ☐
Meets University Language Requirement ☐

☐ American Institutions, Title V Section 40404: ☐Government ☐US Constitution ☐US History
Refer to website, Exec Order 405, for more information: http://senate.csuci.edu/comm/curriculum/resources.htm
☐ Service Learning Course

3. Justification and Requirements for the Course. (Make a brief statement to justify the need for the course)

A. Justification: This course provides a path into C/UNIX programming for programmers who are already competent in another language, such as Java (hence the Comp 151 prereq). With Comp 221, these programmers can move into C/UNIX programming without having to go back to an introductory course in programming (such as Comp 105 or the newly proposed Comp 121). C/UNIX programming has become increasingly important in the sciences and in engineering, as many mathematical and scienctific applications are written in C and/or hosted on computers running the UNIX operating system. Comp 221 will provide the pace and level of instruction appropriate for scientists and programmers who need the skills necessary to to be effective in the C/UNIX environment.

B. Degree Requirement: ☐ Requirement for the Major/Minor ☒ Elective for the Major/Minor

Note: Submit Program Modification if this course changes your program.

4. Learning Objectives. (B*ullets, will occur upon carriage return*)

Upon completion of the course, the student will be able to:

- operate UNIX-based computer (such as Mac or Linux PC) using Command Line Interface (CLI)
- edit text files using character-based editors such as vi, nano, and emacs
- interact with UNIX shells such as sh, bash, etc.
- develop C programs that utilize all major programming techniques
- write programs that interact with UNIX and that can be used as UNIX utilities; i.e., they can be invoked from CLI as UNIX extensions
- organize programs in logical groups and compile them in a systematic and synchronized manner using UNIX make facilities

5. Course Content in Outline Form. *[Be as brief as possible, but use as much space as necessary]*

I. UNIX through the terminal window
II. Navigating files system
III. Editing text files
IV. Basic syntax of C
V. Primitive data types
VI. Pointers
VII. Fundamental system calls
VIII. C pre-processor
IX. Complex data structures
X. Building C programs with the UNIX make utility

Does this course overlap a course offered in your academic program? YES ☒ NO ☐
If YES, what course(s) and provide a justification of the overlap? There is some overlap between Comp 221 and the existing Comp 421 (UNIX for Programmers) but the differences are significant enough to warrant separate courses. UNIX and C have a very large collection of utilities and functions that cannot be covered in one course. Comp 221 focuses on C as a programming language in the UNIX environment, while Comp 421 is an advanced course that addresses utilization of the UNIX platform through a variety of means including shells (like bash, csh, sh), scripting languages (like awk, sed, Perl), and libraries of advanced C functions or system calls (such as fork() or exec()). Comp 421 is designed specifically for Computer Science majors (Major Elective) and requires a thorough knowledge of operating systems, as the Comp 362 (Operating Systems) prereq indicates.

Does this course overlap a course offered in another academic area? YES ☐ NO ☒
If YES, what course(s) and provide a justification of the overlap?
Signature of Academic Chair(s) of the other academic area(s) is required on the signature sheet below.

6. Cross-listed Courses (*Please fill out separate description in item 1 above, for each PREFIX)*

A. List Cross-listed Courses (Signature of Academic Chair(s) of the other academic area(s) is required).
Prefix for cross-listed discipline(s):

B. Department responsible for staffing:

7. References. *[Provide 3 - 5 references on which this course is based and/or support it.]*

- C for Java Programmers byTomasz Muldner
- Programming in C by Stephen Kochan
- C and Unix Programming: A Comprehensive Guide by N. S. Kutti
- The C/Unix Programmer's Guide by Jason W. Bacon

8. List Faculty Qualified to Teach This Course.

- ALL CS FACULTY
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9. Effective Date

A. First semester offered: FALL 2008

10. New Resources Required. YES ☐ NO ☒

If YES, list the resources needed and obtain signatures from the appropriate programs/units on the sheet below.

A. Computer (data processing), audio visual, broadcasting needs, other equipment)

B. Library needs

C. Facility/space needs

11. Will this new course alter any degree, credential, certificate, or minor in your program? YES ☐ NO ☒
If, YES attach a program modification form for all programs affected.
Catalog deadline for New Minors and Programs (including modifications): October 15, 2007, preceding year.
Catalog deadline for Course Proposals and Modifications: November 9, 2007, of preceding year.
Last day to submit any work to be considered for the academic year: April 15th.

Andrzej (AJ) Bieszczad	11/5/2007
Proposer of Course	Date

Approval Sheet

Program/Course:

_____

Program Chair(s) Date

_____

Program Chair(s) Date

_____

General Education Chair(s) Date

_____

Curriculum Committee Chair(s) Date

_____

Dean of Faculty Date