CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS
COURSE MODIFICATION PROPOSAL

Courses must be submitted by November 3, 2008, to make the next catalog (2009-2010) production

DATE (CHANGE DATE EACH TIME REVISED): OCTOBER 9, 2008 REV 11.18.08
PROGRAM AREA(S): COMPUTER SCIENCE

Directions: All of sections of this form must be completed for course modifications. All documents are stand alone sources of course information.

1. Course Information.
(Follow accepted catalog format.) (Add additional prefixes if cross-listed)

<table>
<thead>
<tr>
<th>OLD</th>
<th>NEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefix COMP</td>
<td>Course# 451 Title Advanced Object-oriented Programming Units (3)</td>
</tr>
<tr>
<td>3 hours lecture per week</td>
<td>3 hours lecture per week</td>
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<tr>
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</table>

Prerequisites: Comp 350

Consent of Instructor Required for Enrollment

Corequisites:

Catalog Description (Do not use any symbols):
Principles of object-oriented design and programming based on languages such as Java, C++ and Smalltalk will be presented. Understanding of the role of objects, methods, message passing, encapsulation and inheritance for effective programming will be stressed. Language structure versus particular engineering objectives will be analyzed. Design Pattern techniques will be a unifying theme.

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Principles of object-oriented design and programming based on languages such as Java, C++ and Smalltalk will be presented. Understanding of the role of objects, methods, message passing, encapsulation and inheritance for effective programming will be stressed. Language structure versus particular engineering objectives will be analyzed. Design Pattern techniques will be a unifying theme.

Gen Ed Categories CR/NC Repeatable for up to units Total Completions

Lab Fee Requested A - F

Course Level: Undergraduate Optional (Student’s choice) Multiple Enrollment in same semester

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2. Mode of Instruction (Hours per Unit are defaulted)

<table>
<thead>
<tr>
<th>Existing</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>Units</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Seminar</td>
<td></td>
</tr>
<tr>
<td>Lab</td>
<td></td>
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<tr>
<td>Activity</td>
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</tr>
<tr>
<td>Field Studies</td>
<td></td>
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<tr>
<td>Indep Study</td>
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<tr>
<td>Other blank</td>
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</table>
3. Course Attributes:

General Education Categories: All courses with GE category notations (including deletions) must be submitted to 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 (Approval from the Center for Community Engagement must be received before you can request this course attribute).

4. Justification and Requirements for the Course. [Make a brief statement to justify the need for the course]

OLD
This course is an elective course for Computer Science majors.

NEW
This course is an elective course for Computer Science majors.

- Requirement for the Major/Minor
- Elective for the Major/Minor

Submit Program Modification if this course changes your program.

5. Learning Objectives. (List in numerical order)
Upon completion of the course, the student will be able to:

OLD
1. Design object-oriented algorithms in a high-level language
2. Explain optimization problems and performance tradeoffs
3. Implement algorithms
4. Use and cultivate sound engineering practices
5. Use OOAD methodology to solve software engineering problems
6. Use Rational Approach to carry on OOAD
7. Think and express design in the "design patterns"
8. Use testing strategies and modern refactoring techniques to provide flexible and robust software solutions
9. Write test plans and documentation.
10. Design and implement a comprehensive selfstanding software solution - final project
11. Organize and express ideas clearly and convincingly in oral

NEW
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7. Create designs using "design patterns"
8. Use testing strategies and modern refactoring techniques to provide flexible and robust software solutions
9. Write test plans and documentation.
10. Design and implement a comprehensive selfstanding software solution - final project
11. Organize and express ideas clearly and convincingly in oral
6. Course Content in Outline Form. (Be as brief as possible, but use as much space as necessary)

**OLD**
1. Introduction to OO, UML, Rational Process
2. Software Design Principles I
3. Software Design Principles II: Introduction to Design Patterns
4. Creational Design Patterns
5. Structural Design Patterns
6. Behavioral Design Patterns
7. Introduction to Object Components and Data Objects
8. Refactoring and testing
9. Introduction to the EAI

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Does this course content overlap with a course offered in your academic program? ☐ Yes ☒ No
If YES, what course(s) and provide a justification of the overlap.

Does this course content overlap a course offered in another academic area? ☐ Yes ☒ No
If YES, what course(s) and provide a justification of the overlap.

Overlapping courses require Chairs’ signatures.

7. Cross-listed Courses (Please note each prefix in item No. 1)
   A. List cross-listed courses (Signature of Academic Chair(s) of the other academic area(s) is required).
   B. List each cross-listed prefix for the course:
   C. Program responsible for staffing:

8. References. [Provide 3-5 references]

   Design Patterns: Elements of Reusable Object-oriented Software by Gamma, Helm, Johnson, Vlissides, Addison-Wesley (1998)
   Refactoring, M. Fowler, Addison-Wesley (1999)

   Design Patterns: Elements of Reusable Object-oriented Software by Gamma, Helm, Johnson, Vlissides, Addison-Wesley (1998)
   Refactoring, M. Fowler, Addison-Wesley (1999)

9. Tenure Track Faculty qualified to teach this course.
   All Computer Science faculty

10. Requested Effective Date or First Semester offered: Fall 2009

11. New Resource Requested: ☐ Yes ☒ No
    If YES, list the resources needed.
    A. Computer Needs (data processing, audio visual, broadcasting, other equipment, etc.)
    B. Library Needs (streaming media, video hosting, databases, exhibit space, etc.)
    C. Facility/Space/Transportation Needs:
    D. Lab Fee Requested: ☐ Yes ☐ No. Refer to the Dean’s Office for additional processing
E. Other.

12. Indicate Changes and Justification for Each. [Check all that apply and follow with justification. Be as brief as possible but, use as much space as necessary.]

| □ Course title            | □ Course Content                     |
| □ Prefix/suffix           | □ Course Learning Objectives         |
| □ Course number           | □ References                         |
| □ Units                   | □ GE                                 |
| □ Staffing formula and enrollment limits | □ Other cross listing                |
| ☑ Prerequisites/Corequisites | □ Reactivate Course                  |
| □ Catalog description     |                                      |
| □ Mode of Instruction     |                                      |

**Justification:** Students need a background in Operating Systems to get the full benefit of this course.

13. Will this course modification alter any degree, credential, certificate, or minor in your program? YES ☐ NO ☑

If YES attach a program update or program modification form for all programs affected.
Priority deadline for New Minors and Programs: **October 6, 2008** of preceding year.
Priority deadline for Course Proposals and Modifications: **November 3, 2008**.
Last day to submit forms to be considered during the current academic year: **April 15th**.

William J. Wolfe 10/9/08

<table>
<thead>
<tr>
<th>Proposer(s) of Course Modification</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type in name. Signatures will be collected after Curriculum approval.</td>
<td></td>
</tr>
</tbody>
</table>
Course: Comp 451

If your course has a General Education Component or involves Center affiliation, the Center will also sign off during the approval process.

Multiple Chair fields are available for cross-listed courses.

Program Chair

Signature     Date

Program Chair

Signature     Date

Program Chair

Signature     Date

General Education Chair

Signature     Date

Center for Intl Affairs Director

Signature     Date

Center for Integrative Studies Director

Signature     Date

Center for Multicultural Engagement Director

Signature     Date

Center for Civic Engagement and Service Learning Director

Signature     Date

Curriculum Chair

Signature     Date

Dean of Faculty

Signature     Date