

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)*

**OLD**

**NEW**

Prefix COMP Course# 451 Title Advanced Object-oriented Programming Units (3)  
 3 hours lecture per week  
 hours blank per week

Prefix COMP Course# 451 Title Advanced Object-oriented Programming Units (3)  
 3 hours lecture per week  
 hours blank per week

- Prerequisites: Comp 350
- Consent of Instructor Required for Enrollment
- Corequisites:

- Prerequisites: Comp 350 and Comp 362
- 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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- Gen Ed Categories
- Lab Fee Requested
- Course Level:
  - Undergraduate
  - Post-bac/Credential
  - Graduate
- Graded
  - CR/NC
  - A - F
- Repeatable for up to units Total Completions
  - Multiple Enrollment in same semester
- Optional (Student's choice)

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

**Hegis Code(s)** \_\_\_\_\_  
(Provided by the Dean)

Existing

Proposed

	Units	Hours Per Unit	Benchmark Enrollment	Graded		Units	Hours Per Unit	Benchmark Enrollment	Graded	CS No. (filled out by Dean)
Lecture	<u>3</u>	<u>1</u>	<u>24</u>	<input checked="" type="checkbox"/>	Lecture	<u>3</u>	<u>1</u>	<u>24</u>	<input checked="" type="checkbox"/>	_____
Seminar	_____	_____	_____	<input type="checkbox"/>	Seminar	_____	_____	_____	<input type="checkbox"/>	_____
Lab	_____	_____	_____	<input type="checkbox"/>	Lab	_____	_____	_____	<input type="checkbox"/>	_____
Activity	_____	_____	_____	<input type="checkbox"/>	Activity	_____	_____	_____	<input type="checkbox"/>	_____
Field Studies	_____	_____	_____	<input type="checkbox"/>	Field Studies	_____	_____	_____	<input type="checkbox"/>	_____
Indep Study	_____	_____	_____	<input type="checkbox"/>	Indep Study	_____	_____	_____	<input type="checkbox"/>	_____
Other blank	_____	_____	_____	<input type="checkbox"/>	Other blank	_____	_____	_____	<input type="checkbox"/>	_____

### 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

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- 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

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

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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

and written forms.

and written forms.

**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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8. Refactoring and testing
9. Introduction to the EAI

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]

**OLD** Component Software: Beyond Object-oriented Programming, C. Szyperski, Addison-Wesley Professional (2000)  
Design Patterns: Elements of Reusable Object-oriented Software by Gamma, Helm, Johnson, Vlissides, Addison-Wesley (1998)  
Refactoring, M. Fowler, Addison-Wesley (1999)

**NEW** Component Software: Beyond Object-oriented Programming, C. Szyperski, Addison-Wesley Professional (2000)  
Design Patterns: Elements of Reusable Object-oriented Software by Gamma, Helm, Johnson, Vlissides, Addison-Wesley (1998)  
Refactoring, M. Fowler, Addison-Wesley (1999)s

**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.]*

- |   |   |
|---|---|
| <input type="checkbox"/> Course title                           | <input type="checkbox"/> Course Content             |
| <input type="checkbox"/> Prefix/suffix                          | <input type="checkbox"/> Course Learning Objectives |
| <input type="checkbox"/> Course number                          | <input type="checkbox"/> References                 |
| <input type="checkbox"/> Units                                  | <input type="checkbox"/> GE                         |
| <input type="checkbox"/> Staffing formula and enrollment limits | <input type="checkbox"/> Other cross listing        |
| <input checked="" type="checkbox"/> Prerequisites/Corequisites  | <input type="checkbox"/> Reactivate Course          |
| <input type="checkbox"/> Catalog description                    |   |
| <input type="checkbox"/> 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 15<sup>th</sup>.**

William J. Wolfe

10/9/08

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Proposer(s) of Course Modification

Date

Type in name. Signatures will be collected after Curriculum approval.

# Approval Sheet

**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		
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Signature

Date

Program Chair		
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Signature

Date

Program Chair		
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Signature

Date

General Education Chair		
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Signature

Date

Center for Intl Affairs Director		
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Signature

Date

Center for Integrative Studies Director		
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Signature

Date

Center for Multicultural Engagement Director		
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Signature

Date

Center for Civic Engagement and Service Learning Director		
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Signature

Date

Curriculum Chair		
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Signature

Date

Dean of Faculty		
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Signature

Date