CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREAS _____BIOLOGICAL AND PHYSICAL SCIENCES, MATH AND COMPUTER SCIENCE

1. **Catalog Description of the Course.** *[Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]*

COMP 550. OBJECT-ORIENTED SOFTWARE ENGINEERING (3)
Three hours of lecture in the lab per week.
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program and Consent of the Instructor
Fundamentals of Object-Oriented Design and Analysis. Designing systems with Unified Modeling Language (UML) and patterns. Applications to other fields.

2. **Mode of Instruction.**

	Units	**Hours per Unit**	**Benchmark Enrollment**
Lecture	___3_____	___1_____	__24______
Seminar	________	________	________
Laboratory	________	________	________
Activity	________	________	________

3. **Justification and Learning Objectives for the Course.** (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*

This course is an elective for graduate students in MS in Mathematics and MS in Computer Science programs.
Object-Oriented Analysis and Design is the most popular software engineering approach that every software engineer needs to be familiar with. Unified Modeling Language (UML) is a widely used standard for expressing various aspects of design at several levels. It has been incorporated in many tools and is a sought after skill. Patterns represent a modern approach to designing software based on well-understood templates. Software engineers are expected to understand and use patterns whenever applicable.

Through this course, students will be able to

- Understand all phases of software development process.
- Use UML diagrams to elicit requirements, analyze problems and design solutions.
- Apply design patterns.
- Design object-oriented systems and code.
- Develop test plans and design test cases.
- Manage documents and source code using software configuration tools.
- Manage projects in various fields.

4. **Is this a General Education Course** **YES** **<u>NO</u>**
If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Mathematics & Sciences)	
C (Fine Arts, Literature, Languages & Cultures)	
D (Social Perspectives)	
E (Human Psychological and Physiological Perspectives)	

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

1. Software Engineering
2. Modeling with UML diagrams
3. Requirements elicitation
4. Analysis
5. System design
6. Object design
7. Mapping models to code
8. Testing
9. Configuration management
10. Project management
11. Software life cycle
12. Design patterns

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

1. Bruegge and Dutoit, *Object-Oriented Software Engineering Using UML, Patterns and Java*, Pearson/Prentice Hall, 2002, ISBN 0-13-047110-0
2. Lethbridge and Laganière, *Practical Software Development using UML and Java*, McGraw-Hill, 2001, ISBN 0077097610

7. List Faculty Qualified to Teach This Course.

All Computer Science faculty.

8. Frequency.

a. Projected semesters to be offered: Fall ___X__ Spring _X____ Summer ____

9. New Resources Required.

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

Use of existing computer lab.

b. Library needs

none

c. Facility/space needs

none

10. Consultation.
Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

_AJ Bieszczad, P. Smith________________________10/31/03____________________________
Proposers of Course Date