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 150. OBJECT ORIENTED PROGRAMMING (4)

Four hours of lecture in the lab per week.
Prerequisite: Programming experience.
Introduction to algorithms, their representation, design, structuring, analysis and optimization. The course introduces the concept of object paradigm, design and implementation of algorithms as structured programs in a high level language.
GenEd: B4

2. **Mode of Instruction.**

	Units	Hours per Unit	Benchmark Enrollment
Lecture	___4_____	___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]*

The course is a required course for Computer Science majors according to accreditation guidelines.

Through this course, students will be able to

- Apply the core concepts of the object oriented programming.
- Analyze, design, implement and test programs, organized around the Central idea of the Object.
- Discuss the central idea of programming
- Use Object oriented analysis and design)methodology to build models of the simple objects
- Discuss code Encapsulation as the engineering tool for ensuring code reuse, and stability..
- Participate in the programming activities, as a team member.
- Discuss their ideas on the proposed solutions of the assignments.
- Write English language comments in the source code
- Realize similiarities and differences between programming and natural languages.
- Use diagrams and charts as powerful form of the the pre-language level modeling.
- Organize and express ideas clearly and convincingly in oral and written forms.

This course is not designed to satisfy the University Writing or Language requirements.

4. **Is this a General Education Course** **YES**
If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Mathematics & Sciences)	**B4**
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]*

- Introduction to IDE, and a first program.
- Testing as a programming activity. Client use of the Object's Api, first use of Objects.
- Variables and assignments. Data typing. Primitive data types.
- Flow of the execution. Variables, Boolean conditions and control structures. Automation of the repetitious task and selfreferencing.
- Block structure of the code. Scope of the name.
- Objects as statefull, dynamic models. Member variables and methods as modeling ingredients. Classes. Constructors. Programming as modeling state and behavior of the Entity.
- Object Encapsulation and implementation hiding, role of the api. OO structure of the code.
- Method's definitions and calls. Chaining. Overloading. More on Constructors.
- Indexed data types, arrays.
- Object view on the "smart" date structures. Lists.
- OOD: from the requirement to the api. Separation of the api and the implementation. Programming for the contract.
- Engineering benefits of OOAD.
- Sublasses. Inheritance as the refinement, and enhancement of the functionality. Thin wrappers.
- Inheritance and polymorpism of the behavior as the enrichment of the data type. Casting.
- Sorting algorithms.
- Binary searches. Recurssion.

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

1) JAVA, An Intro to Computer Science and Programming by Walter Savitch : (current edit.) Prent ceHall, ISBN 0-13-031697-0
2) Programming.Java: An Introduction to Programming Using Java by Rick Decker, Stuart Hirshfield , Brooks/Cole Pub Co; ISBN: 0534371094 ; 2 edition (1999)
3) Java Software Solutions: Foundations of Program Design, Update JavaPlace
by John Lewis , William Loftus, Addison-Wesley Publishing; ISBN: 0201781298 ; 3rd edition (2002)

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 ___X__

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.

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Proposer of Course Date