

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 262. COMPUTER ORGANIZATION AND ARCHITECTURE (3)

Three hours of lecture per week.

Prerequisite: COMP 151, COMP 162.

Extension of basic addressing concepts to more advanced addressability such as base register and self relative addressing. Topics include: comparative computer architecture focusing on such organizations as multiple register processors and stack machines; basics of virtual memory, input/output; introduction to the concept of microprogrammable systems.; low-level language translation process associated with assemblers.; system functions such as relocatable loading and memory management; application of data structure and hashing techniques to the above.

2. Mode of Instruction.

	Units	Hours per Unit	Benchmark Enrollment
Lecture	<u>3</u>	<u>1</u>	<u>24</u>
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

- Evaluate the architecture of a computer system
- Compare and contrast computer architectures
- Design circuits at the gate-level using and/or/not/multiplexors/decoders/encoders
- Design microcode sequences to implement machine level instructions
- 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 NO

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]

Multi-level machines, interpretation vs translation
Processor overview, RISC/CISC
Pipelining and other parallelism.
Memory: byte-ordering, error detection/correction, cache, secondary memory.
Gates and Boolean algebra
Microarchitecture, microinstructions, implementation of macroarchitecture
Instruction level architecture
Virtual memory and I/O: Paging, segmentation, virtual I/O, files
Assembly language level : macros, linking and loading

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

Tanenbaum, *Structured Computer Organization*, Prentice-Hall 4th edition, 1999 ISBN 0130959901
Stallings, *Computer Organization and Architecture*, MacMillan, 6th edition, 2002 ISBN 0130351199
Huering and Jordan *Computer Systems Design and Architecture*, Addison-Wesley, 1995 ISBN 080534330X

7. List Faculty Qualified to Teach This Course.

All Computer Science faculty

8. Frequency.

a. Projected semesters to be offered: Fall Spring 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.

Proposer of Course

Date