

Glassboro State College Senate Curriculum Committee

# Approval Form

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Proposal Title: Computer Organization

Sponsor(s) Jianning Xu Dept.: Computer Science Ext. 5038

Check one:  Course  Specialization  Concentration  Minor  Achievement Certificate  
 Certification Program  Major Program  Minor Change (please name deletion or credit/title/catalog change)

Undergraduate  Graduate  Credit Hours

<p><b>Step 1 (Department)</b></p> <p><input checked="" type="checkbox"/> Approved <u>1/27/93</u> Date</p> <p><input type="checkbox"/> Not Approved</p> <p><u>A. Michael Berner</u> Dept. CC Chairperson</p> <p><input checked="" type="checkbox"/> Reviewed <u>2/2/93</u> Date</p> <p><u>Don C. Smith</u> Dept. Chairperson</p>	<p><b>Step 2 (Receipt)</b></p> <p><input type="checkbox"/> SCC# <u>482 93 61</u></p> <p>Proposal Received _____ Date</p> <p><u>Mary A. Putman</u> SCC Chairperson</p>	<p><b>Step 3 (School CC)</b></p> <p>Reviewed <u>4-28-93</u></p> <p><input checked="" type="checkbox"/> Approved <input type="checkbox"/> Not Approved</p> <p><b>Comments:</b></p> <p><u>J. Caldwell</u> School Curr Comm Chairperson</p>
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**Step 4 (Academic Dean)** **Comments:**

Recommend  
 Not Recommend  
 Conditionally Recommend (see comments)

Reviewed \_\_\_\_\_  
Date

\_\_\_\_\_  
Signature, Dean of School

**Step 5 (SCC)**

Open Hearing 11/17/94  Approved by Senate Curriculum Committee 11/17/94  
Date Date

Returned to sponsor(s) for the following reasons:

**Step 6 (Senate)**

Presented to Senate 11/23/94  Approved  Not Approved  
Date

Notification to Executive Vice-President/Provost \_\_\_\_\_  
Date

\_\_\_\_\_  
Signature SCC Chairperson

**Step 7 (Executive V.P./Provost)**

Received 12/9/94  
Date

Approved  Yes  No

If no, reasons are as follows:

Student credit hours 3

Faculty load hours 3

Equalized credit hours \_\_\_\_\_

Official copy and approval sheet filed 12/9/94  
Date

[Signature]  
Signature, Executive Vice-President/Provost

**Registrar**

Approved course description received 7 Dec. 94  
Date

Hegis Taxonomy and Course Number assigned C706-205

[Signature]  
Signature, Registrar

7 Dec 94  
Date

**Notification forwarded:**

- Senate Curriculum Committee Chairperson
- Department Chairperson(s)
- Academic Dean(s)
- Registrar
- Sponsor(s)

**Rowan College of New Jersey  
Department of Computer Science**

**Course Proposal**

**Computer Organization**

0706-205

1. Details

- a. Course Title: Computer Organization
- b. Sponsor: Jianning Xu, Computer Science Department
- c. Credit Hours: 3
- d. Course Level: Freshmen/Sophomore
- e. Curricular Effect: Major requirement
- f. Prerequisites: Computer Science and Programming (0704.103) and Discrete Mathematics (1703.150)
- g. Suggested Time: One or two sections each semester.
- h. Resources: Faculty and lab facilities are adequate.

2. Rationale

This course is intended to replace Assembly Language Programming as a required course for computer science majors. Traditionally, Assembly Language provides students with important machine level programming skills and exposes them to the structure and functions of modern computers. However, the computer science field is changing rapidly. Nowadays, few people need the skill of assembly language programming. Therefore, the emphasis on programming skills in this course should be reduced. Now the main purpose of teaching assembly level programming should be to convey where the software stops and the hardware begins. The emphasis should be on what is being accomplished in the execution of an instruction rather than the details of its specification. The proposed course will require a more balanced approach to this topic and it will also incorporate certain materials currently covered in the Computer Architecture course.

A proposal will be submitted to delete Assembly Language Programming from the catalog as soon as this proposal is approved. Students who are under the current program and have not taken the Assembly Language Programming will be asked to take Computer Organization.

3. Essence of the course

a. Objectives in relation to student outcome

Students will have a basic understanding of register level architecture of a modern computer and its assembly language. They will learn what kinds of operations are possible at the machine language level, how different data and control structures are implemented at this level, and how instructions are specified and translated. They will also learn how

a computer is structured to implement machine level instructions, how memory is organized, and how input/output operations are performed.

b. Topic outline

- Computer organization and instruction fetch/execute cycle
- Basic assembly programming
- Number systems and data representation
- Implementing data structures
- Implementing procedures
- The assembly process
- Input/output and interrupts

c. Evaluation and grading procedure of students

Students will be evaluated based on homework, programming assignments, one or more in-term examinations, and a final examination.

d. Course evaluation

This course will be evaluated as part of the curriculum review for our next departmental Self-Study scheduled for 1996-97.

4. Results of consultation

This proposal is part of the effort to revise computer science curriculum, as recommended by the Computer Science Self-Study conducted in the Spring of 1992. (See page 43 of the Self-Study Report.) Dr. John Beidler of University of Scranton, consultant for the Self-Study, made following comments on the proposed changes to the hardware oriented courses, including this one: "This restructuring is a must. It will help balance the coverage of the core component of your new curriculum." (See page 5 of Dr. Beidler's report.) No students from other majors are required to take this or Assembly Language Programming course.

5. Additional Information

Catalog Description of Assembly Language Programming (to be replaced):

0704.204 Assembly Language Programming 3 s.h.  
(Prerequisites: 0704.103 Structured Programming in Pascal and 1703.150 Discrete Mathematics)

This course is a continuation of the study of digital computers and programming begun in Introduction to Programming. The topics include computer architecture, machine language, addressing techniques and the elements of assembly language programming. The student is expected to run successfully at least five assembly language programs.

6. Catalog Description:

0706.2## Computer Organization 3 s.h.

(Prerequisites: 0704.103 Computer Science and Programming and 1703.150 Discrete Mathematics)

This course provides an introduction to computer organization. Students are exposed to the register level architecture of a modern computer and its assembly language. The topics include machine level data representation, Von Neumann architecture and instruction execution cycle, memory hierarchy, I/O and interrupts, instruction sets and types, addressing modes, instruction formats and translation. This course is not open to students who have taken 0704.204 Assembly Language Programming.