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**SENATE CURRICULUM COMMITTEE
MINOR CURRICULAR CHANGE FORM**

PROPOSAL TITLE: Changing Major Requirements for Computer Science Majors

UNDERGRADUATE

GRADUATE

CREDIT HOURS

SPONSOR(S): Ganesh Baliga
DEPARTMENT: Computer Science
TELEPHONE: 3896

CHECK:

CHANGES IN APPROVED MINORS, SPECIALIZATIONS, CONCENTRATIONS

CATALOG DESCRIPTIONS, TITLES, AND/OR PREREQUISITES

SMALL CHANGES IN COURSE CONTENT OF EXISTING COURSES WHICH DO NOT SUBSTANTIALLY VARY THE CURRICULUM

CHANGES IN HEGIS NUMBER

STEP #1 (DEPARTMENT)

Date Approved: 10/27/97

Date NOT Approved: _____

[Signature]
Dept. Curriculum Chairperson signature/date

[Signature]
Dept. Chairperson signature/date

STEP #2 (COLLEGE)

Recommend To Approve/date: 9/7/97

Recommend NOT To Approve/date: _____

Comments: _____

[Signature]
College Curriculum Chairperson Signature
/date

STEP #3 (ACADEMIC DEAN)

Recommended

NOT Recommended

[Signature]
Dean of College Signature/date

STEP #4 (CURRICULUM COMMITTEE)

SCC# 9798-104
10/27/97 CH 2/20/98

APPROVED:

NOT APPROVED:

[Signature] 2/25/98
Curriculum Committee Chairperson Signature/date

STEP #5 EXECUTIVE VP/PROVOST

Approved

NOT Approved

[Signature] 2/26/98
~~[Signature]~~
Signature /Date

REGISTRAR'S SIGNATURE/DATE: [Signature] 3/2/98

[Signature] 3/5/98

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

**Minor Curricular Change
Changing the Major Requirement for Computer Science Majors**

1. Details
 - a. Change requested: Change Major Requirements

From:

Major Requirements - 57 s.h.

Prerequisites are shown in brackets [like this].

A. Required Courses - 45 s.h.

- 1703.150 Discrete Mathematics [0701.102 & 1701.121]
- 1701.131 Calculus II [1701.130, 1703.150, & 0701.102] 4 s.h.
- 1701.210 Linear Algebra [1701.131]
- 1702.360 Probability & Statistics I [1701.131]
- 0704.103 Computer Science and Programming 4 s.h.
- 0704.222 Data Structures and Algorithms [0704.103 & 1703.150]
- 0706.205 Computer Organization [0704.103 & 1703.150; 0701.205 is a corequisite]
- 0701.205 Computer Laboratory Techniques [0704.103]
- 0707.210 Foundations of Computer Science [1701.122 & 1703.150; 0704.222 is corequisite]
- 0704.315 Programming Languages [0706.205 & 0704.222]
- 0706.310 Principles of Digital Computers [0706.205] 4 s.h.
- 0707.340 Design and Analysis of Algorithms [0704.222 & 0707.210]
- 0704.390 Operating Systems [0704.222 & 0706.205]
- 0704.400 Senior Project [0704.315]

B. Restricted Electives - 12 s.h.

1. Computer Courses - at least 9 s.h.

1a. Advanced Computer Science Courses - at least 6 s.h.

- 0707.360 Computer Graphics [1701.210 & 0704.315]
- 0706.410 Data Communications and Networking [0706.310 & 1702.360]
- 0707.422 Theory of Computing [0704.222, 0707.210, & 1701.131]
- 0707.450 Artificial Intelligence [1703.150, 0704.222, & 0707.210]
- 0704.401 Compiler Design [0707.210 & 0704.315]
- 0706.412 Advanced Computer Architecture [0706.310]
- 0701.395 Topics in Computer Science [permission of instructor]

1b. Other Computer Science Courses

- 0799.300 Computer Field Experience [permission of instructor]
- 0704.325 Programming in Ada [0704.222]
- 0704.233 Structured Design and Programming Using COBOL
- 0704.234 Advanced Structured Design and Programming Using COBOL [0704.233]
- 0702.338 Design of Data Base Systems [0704.233 & 0702.322]

2. Others

- 0502.210 Accounting I

0702.322 Principles of System Design [0502.210 & 0704.103]
0507.430 Principles of Management Science [0701.100, 1702.260, &
1703.125]
1701.230 Calculus III [1701.131] 4 s.h.
1701.332 Numerical Analysis [0701.102, 1701.210, & 1701.131]
1701.340 Modern Algebra [1701.210]
1701.320 Differential Equations [1701.230 & 1701.210]
1702.361 Probability & Statistics II [1702.360]
1703.400 Application of Mathematics [1701.230 & 1701.210]

To:

Major Requirements - 60 s.h.

Prerequisites are shown in brackets [like this].

A. Required Courses - 48 s.h.

1703.150 Discrete Mathematics [0701.102 & 1701.121]
1701.131 Calculus II [1701.130, 1703.150, & 0701.102] 4 s.h.
1701.210 Linear Algebra [1701.131]
1702.360 Probability & Statistics I [1701.131]
0704.103 Computer Science and Programming [0701.102 or equiv. prep.] 4 s.h.
0704.222 Data Structures and Algorithms [0704.103 & 1703.150]
0706.205 Computer Organization [0704.103 & 1703.150]
0701.205 Computer Laboratory Techniques [0704.103]
0707.210 Foundations of Computer Science [1701.122 & 1703.150; 0704.222 is
corequisite]
0707.3## Principles of Software Engineering [0704.222 or Digital II, 1506.202 &
1701.131]
0704.315 Programming Languages [0706.205 & 0704.222]
0706.310 Principles of Digital Computers [0706.205] 4 s.h.
0707.340 Design and Analysis of Algorithms [0704.222 & 0707.210]
0704.390 Operating Systems [0704.222 & 0706.205]
0704.400 Senior Project [0704.315]

B. Restricted Electives - 12 s.h.

1. Advanced Computer Science Courses - at least 6 s.h.

0704.3## Object Oriented Design [0704.222 & 0701.205]
0707.3## Software Engineering Practicum [0707.321 & 0701.205]
0707.360 Computer Graphics [1701.210 & 0704.315]
0706.410 Data Communications and Networking [0706.310 & 1702.360]
0707.422 Theory of Computing [0704.222, 0707.210, & 1701.131]
0707.450 Artificial Intelligence [1703.150, 0704.222, & 0707.210]
0704.401 Compiler Design [0707.210 & 0704.315]
0706.412 Advanced Computer Architecture [0706.310]
0701.395 Topics in Computer Science [permission of instructor]

2. Others

0704.3## System Programming and Operating System Internals
[0704.390 & 0701.205]
0799.300 Computer Field Experience [permission of instructor]
0704.325 Programming in Ada [0704.222]
0704.233 Structured Design and Programming Using COBOL [0701.102]

0704.234 Advanced Structured Design and Programming Using COBOL
[0704.233]
0702.338 Design of Data Base Systems [0704.233 & 0702.322]
0502.210 Accounting I
0702.322 Principles of System Design [0502.210 & 0704.103]
0507.430 Principles of Management Science [0701.100, 1702.260, &
1703.125]
1701.230 Calculus III [1701.131] 4 s.h.
1701.332 Numerical Analysis [0701.102, 1701.210, & 1701.131]
1701.340 Modern Algebra [1701.210]
1701.320 Differential Equations [1701.230 & 1701.210]
1702.361 Probability & Statistics II [1702.360]
1703.400 Application of Mathematics [1701.230 & 1701.210]

- b. Sponsor: Ganesh Baliga and Jianning Xu, Assistant Professor, Computer Science Department

2. Rationale

- a. Statement of "need" for such a change:

Many new courses are being proposed (please refer to their respective major curricular proposals for their respective rationales). These include Principles of Software Engineering (required course), Software Engineering Practicum (Advanced Computer Science restricted elective), System Programming and Operating System Internals (other Computer Science restricted elective) and Object Oriented Design (Advanced Computer Science restricted elective). The Principles of Software Engineering course, which deals with the software development lifecycle is an important proposed addition to the program, since a lot of computer science majors proceed to become Software Engineers. The Software Engineering Practicum will reinforce the concepts and techniques taught in the Principles in Software Engineering course to create "real-world" software products. The System Programming and Operating System Internals course concerns itself with the application of the theoretical concepts from the Operating Systems course to a real operating system. The course Object oriented design focuses on the most widely accepted design methodology (namely, object oriented design) that is used in the software design phase within the software development cycle. In short, all the four new courses that are being proposed address important aspects that are relevant within the software industry.

The prerequisites for several courses have been re-thought and several minor curricular proposals have been proposed in this regard.

Adding Principles of Software Engineering (3 s.h.) as a required course changes the semester hours for the computer science major to 60 semester hours, which is in compliance with the university's major requirements.

The restricted electives have been reorganized. The first sub-category of computer courses is now renamed Advanced Computer Science courses (from Computer Courses). All the other restricted electives have been moved to the "Others" sub-category. We propose this as a logical way to organized the restricted electives offered to our majors.

- c. Statement of curricular effect

All computer science majors will need to take Principles of Software Engineering as a required course. A larger selection of advanced computer science courses will be available.

3. Results of consultation.

The consultation is internal to the computer science department.