



APPROVAL FORM

Rev: 5/82

Proposal Title: Change to Computer Science Major

Sponsor(s): Scott Bergman Dept.: Math & Computer Science
From Math

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

Certification Program Undergraduate Graduate Credit Hours

Step 1 (Department)

Step 2 (Receipt)

Step 3 (Division CC)

Approved 2-15-84
date
 Not Approved.
Paula J. Jones
Dept. CC Chairperson
 Reviewed 2-15-84
date
D. E. Must
Chairperson, Dept.

SCC# 83-84-60
Proposal Received 2/20/84
date
Shirley G. Day
Chairperson, SCC

Reviewed 3/1/84
date
 Approved
 Not Approved
Comments:
Jim O'Leary
Chairperson, Div. Curr. Comm.

Step 4 (Academic Dean)

Comments:

Reviewed 3/6/84
date

Alan Brown
Signature, Dean of Division

Step 5 (SCC)

Open Hearing Date: 4/6/84 Approved by Senate Curriculum Committee 4/6/84 (date)

Returned to sponsor(s) for the following reasons:

Step 6 (Faculty Senate)

Presented to Faculty Senate (date): 4/13/84

4/2/84 Approved
Not Approved

Notification to Vice-President Academic Affairs (date): 4/16/84

Shirley G. Day
Signature: SCC Chairperson

Step 7 (Vice-President for Academic Affairs)

REV. PROGRAM
~~Course~~ received 7/25/04 (date)

REV. PROGRAM
~~Course~~ approved Yes No

If no, reasons are as follows:

Student credit hours NA

Faculty load hours NA

Equalized credit hours NA

Official copy and approval sheet filed 7/11/04 (date)

Signature [Signature]
(Vice-President for Academic Affairs)

Registrar

Approved course description received _____ (date)

Hegis Taxonomy and Course Number assigned _____

Signature _____ (Registrar) _____ (Date)

Notification forwarded: Senate Curriculum Committee Chairperson, Department Chairperson(s), Academic Dean(s), Registrar, Sponsor(s)

GLASSBORO STATE COLLEGE
Department of Mathematics and Computer Science

This major consists of 120 semester hours and follows the Bachelor of Science degree model. Prerequisites are shown in brackets ().

1. General Education and Physical Education - 56 S.H.
2. Free Electives - 11 S.H.
3. Major Courses - 53 S.H.

a. Required Courses - 38 S.H.

1703.150 Discrete Mathematics for Computer Scientists (701.102 & 1701.121)
1701.130 Calculus I (1701.122)
1701.131 Calculus II (1701.130)
1702.360 Probability & Statistics I (or 1703.260 Statistics I) (1701.131)
1701.210 Linear Algebra (1701.131)

0701.102 Introduction to Computer Science (1701.121)
0704.204 Computer Architecture & Assembly Language Programming (701.102 & 1703.150)
0704.322 Data Structures & Algorithms (1703.150 & 704.204)
0704.315 Programming Languages (704.204, 704.322 & 704.333)
0704.370 Principles of Digital Computer Design (704.204 & 1703.150)
0704.302 Advanced Computer Programming (704.315 & 704.322)
0704.401 Compiler Design (704.315 & 704.322)

b. Restricted Electives - 15 S.H. (minimum)

Must take at least one course from each of three categories:

- (i) 1701.230 Calculus III (1701.131)
1701.332 Numerical Analysis (701.102 & 1701.131)
1701.340 Modern Algebra I (1701.210)
1702.361 Probability & Statistics II (or 1703.261 Statistics II) (1702.360)
1902.200 Physics I (1701.130)
- (ii) 0502.210 Accounting I
0702.322 Principles of System Design I (701.102)
0507.430 Principles of Management Science (1703.202)
0702.338 Design of Data Base Systems (702.322)
0704.300 Computer Field Experience (permission of instructor)
0704.333 Structured Design & Programming Using COBOL (701.102)
0704.334 Advanced Structured Design & Programming Using COBOL (704.333)
- (iii) 4901.265 Computers & Society (701.102)
0839.498 Industrial Ed. Workshop (by Department approval)
2206.306 Computer Cartography
0704.390 Operating Systems (704.322 & 704.204)

(Prerequisites are shown in brackets)

SEE YOUR ADVISOR BEFORE PRE-REGISTERING FOR COURSES

Note: A 2.5 average in the required and restricted elective courses is required for graduation.

GLASSBORO STATE COLLEGE
Department of Mathematics and Computer Science

This major consists of 120 semester hours and follows the Bachelor of Science degree model. Pre-requisites are shown in brackets [].

1. General Education and Physical Education - 56 S.H.
2. Free Electives - 18 S.H.
3. Major Courses - 46 S.H.
 - a. Required Courses - 31 S.H.

1703.150 Discrete Mathematics for Computer Scientists [701.102 & 1701.121]
 1701.130 Calculus I (or 1703.302) [1701.122]
 1702.360 Probability & Statistics I (or 1702.100 Elementary Stat.) [1701.131]
 1701.210 Linear Algebra [1701.131]

0701.102 Introduction to Computer Science [1701.121]
 0704.322 Data Structures & Algorithms [1703.150 & 704.204]
 0704.315 Programming Languages [704.204, 704.322 & 704.333]
 0704.301 Principles of Digital Computer Design [704.204 & 1703.150]
 0704.302 Advanced Computer Programming [704.315 & 704.322]
 0704.401 Compiler Design [704.315 & 704.322]

- b. Restricted Electives - 15 S.H. (minimum)

Must take at least one course from each of three categories:

- (i) 1701.131 Calculus II [1701.130]
 1702.361 Probability & Statistics II (or 1701.102 Elementary Stat. II [1702.100]) [1702.360]
 1902.200 Physics I [1701.130]
 1701.332 Numerical Analysis [701.102 & 1701.131]
 1701.340 Modern Algebra I [1701.210]
- (ii) 0502.210 Accounting I
 0702.322 Principles of System Design I [701.102]
 0507.430 Principles of Management Science [1703.202]
 0702.338 Design of Data Base Systems [702.322]
 0704.300 Computer Field Experience [permission of instructor]
 0704.333 Structured Design & Programming Using COBOL [701.102]
 0704.334 Advanced Structured Design & Programming Using COBOL [704.333]
- (iii) 4901.265 Computers & Society [701.102]
 0839.498 Industrial Ed. Workshop (Graphics)
 2206.306 Computer Cartography
 0704.204 Computer Architecture & Assembly Language Programming [701.102 & 1703.201]

[Pre-requisites are shown in brackets]
 SEE YOUR ADVISOR BEFORE PRE-REGISTERING FOR COURSES

Note: A 2.5 average in the required and restricted elective courses is required for graduation.

ADJUSTMENTS TO THE COMPUTER SCIENCE MAJOR

1. Details

- a. Delete Elementary Statistics (1702.100) and Calculus: Techniques and Applications (1703.302) from the list of required courses for the B.S. in Computer Science.
- b. Add Data Structures and Algorithms (0704.322) as a prerequisite to Programming Languages (0704.315).
- c. Move Calculus II (1701.131) and Computer Architecture and Assembly Language Programming (0704.204) from the category of restricted electives to that of required courses for the B.S. in Computer Science.
- d. Add Calculus III (1701.230) to the list of category i restricted electives for the B.S. in Computer Science.
- e. Add the proposed course Operating Systems (0704.390) to the list of category iii restricted electives for the B.S. in Computer Science.

Sponsors: Seth Bergmann, Mathematics and Computer Science
Fran Masat, Mathematics and Computer Science

2. Rationale for part:

- a. The content (and titles) of these courses has changed since the Computer Science major was approved. They are now designed for a more general student population and contain little in the way of rigorous mathematical proof. These courses were originally included as alternates to Probability and Statistics I and Calculus I which are the courses that we prefer our Computer Science students take because of their stronger mathematical content. In addition, Calculus II is a prerequisite for Linear Algebra which is required for the Computer Science degree.
- b. Students presently are advised to follow this sequence of courses, since an understanding of various Data Structures is assumed in the Programming Languages course. In addition, those students who follow such a sequence tend to do better than those who do not.
- c. Calculus II is a prerequisite for Linear Algebra (1701.210), a required course for Computer Science majors. Making Calculus II a required course thus clarifies the requirements for the Computer Science major.

Computer Architecture and Assembly Language Programming is a prerequisite for three required courses for the Computer Science major (0704.322--Data Structures and Algorithms, 0704.315--Programming Languages, and 0704.301--Principles of Digital Computer Design) and, in addition, is a required course for the Computer Science concentration. Making this a required course for the Computer Science major thus clarifies the requirements.

- d. Adding Calculus III to the list of restricted electives encourages majors to further pursue advanced mathematical topics, in particular those related to computer graphics and scientific and engineering applications of calculus. In addition, it fills the void left by making Calculus II a required course.
- e. Operating Systems is a new course, developed as an elective for Computer Science majors.

3. Effect of changes:

The above changes will move the Computer Science major closer to conforming to the B.S. degree model in that the major courses will increase to 53 semester hours and the free electives will decrease to 11 semester hours. The number of general education semester hours remains the same at 56. The number of semester hours required for graduation remains at 120.

These changes will affect only Computer Science majors. Further, the anticipated effect is small, since the additional courses to be required are already prerequisites for required courses.

4. Consultations are internal to the department.