



APPROVAL FORM

- 1) An approval form must accompany each proposal.
- 2) A proposed catalogue description of the course must accompany the proposal as a separate page.
- 3) Results of all consultations must be attached to the proposal.

Proposal Title COMPILER DESIGN
 Sponsor(s) SETH BERGMAN Dept. MATH/COMP. SCIENCE
 Check One { Course Credit/Level/Title Change or deletion Other
 Concentration Specialization Major Program Certification
 Graduate Undergraduate No. of Credits 3

REVIEWS

Reviewed [Signature] 11-17-80
 Dept. Chair. Date
 Department Curr. Comm.
 Reviewed 11-17-80
 Date
 Approved
 Not Approved 11-17-80
 Date

Division Curr. Comm.
 Reviewed [Signature]
 Date
 Approved
 Not Approved [Signature]
 Date

Dean of Division
 Reviewed 3/1/81
 Date

~~Chairperson~~ [Signature]
 Chairperson, Dept., Curr. Comm.

[Signature]
 Chairperson Div. Curr. Comm.

[Signature]
 Signature

SENATE CURRICULUM COMMITTEE

SCC # 1687 Proposal Received 11/17/80 Open Hearing Held 4/1/81
 Returned to the department for the following reason(s): Dept. curr. comm.
 Approved by the Curriculum Committee: Date 4/1/81
 Presented to Executive Committee of the Faculty Senate as information: Date 5/21
 Notifications forwarded: Vice President for Academic Affairs: Date _____
[Signature]
 Signature: Chairperson, Senate Curriculum Committee

VICE PRESIDENT FOR ACADEMIC AFFAIRS

Official copy and approval sheet filled

5-7-91
Date

J. [Signature]
Signature

Course approved Yes No

If no, reasons are as follows:

- 1.
- 2.
- 3.

*It is understood that
the course is
an elective in
the Computer
Applied program.
JYB*

Student credit hours assigned 3

Faculty load hours 7

Equalized credit hours 3

REGISTRAR

Approved course description received and Hegis Taxonomy Number assigned

by Registrar Yes No

Hegis Taxonomy Number 100000000

Signature: Registrar _____

_____ Date

ACADEMIC DEAN

Yes Budget, faculty library allocations and Academic Support Services are adequate for immediate implementation.

No Constraints do not permit implementation. The earliest the proposal might be implemented would be _____

Signature: Academic Dean _____

_____ Date

Copies forwarded: Senate Curriculum Committee Chairperson, Department Chairperson, Registrar



State of New Jersey

GLASSBORO STATE COLLEGE
GLASSBORO, NEW JERSEY 08028

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
Robinson Building
609-445-6044

COURSE PROPOSAL

1. TITLE: Compiler Design
 - a. Offered by the department of Mathematics and Computer Science.
 - b. Sponsored by Seth Bergmann, Assistant Professor of Mathematics and Computer Science and by the department.
 - c. Administrative Responsibility: Dr. Fran Masat, Chairperson, Department of Mathematics and Computer Science.
2. ESSENCE
 - a. This course will be available to upper level undergraduate students.
 - b. Credits: Three semester hours.
 - c. This course is aimed upper level undergraduate students who are concentrating or majoring in Computer Science. Suggested course number: 0704.410
 - d. Prerequisites: Programming Languages (0704.315) and Data Structures (0704.322), or permission of instructor.
 - e. This course will be a related elective for undergraduate Mathematics and Computer Science majors.
 - f. This course will be implemented for the Fall 1981 term.
3. DETAILS:
 - a. The sponsor has studied Compiler Design at Rensselaer Polytechnic Institute and at the University of Pennsylvania. He has extensive experience with a PASCAL compiler and has designed and implemented an APL interpreter. The existing computer resources are sufficient for this course. The reference texts have been ordered for the library.



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- b. There are presently no courses on compiler design. The course on programming languages introduces the student to the purpose of a compiler and to the concept of formal languages.
- c. After completing this course, students will be able to assume job positions as systems programmers who design compilers. Consequently they must demonstrate an understanding of the three parts of a compiler: the lexical box, the syntax box, and the code generator. The student will use syntax-directed translation to implement the syntax box. The student who completes this course will demonstrate an understanding of the following theoretical areas (as preparation for graduate work in Computer Science): finite-state machines, context-free grammars, and context-free languages. The main outcome of this course is that all students will have designed and implemented a compiler for a subset of BASIC.

4. TOPICS:

- a. The course will follow many of the topics in Compiler Design Theory, by Lewis, Rosenkrantz, and Stearns (Addison-Wesley).
- b. Introduction and rationale for compilers. The three parts of a compiler; the lexical box, the syntax box, and the code generator.
- c. Finite state machines and the lexical box.
- d. Pushdown machines and the syntax box.
- e. Context-free grammars and languages.
- f. Code generation.
- g. Syntax-directed translation.
- h. A compiler for a subset of BASIC.

5. RATIONALE:

- a. This course will be helpful to prepare our computer science majors for jobs in industry and for graduate school. There is a sizeable amount of material in the text not covered in section 4 above. If there is enough interest, this could easily become a two-semester course.

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- b. The department of Mathematics and Computer Science is currently in the process of establishing a Computer Science Major; the proposed course will be of great value to most students majoring in Computer Science.
- c. The proposed course will enhance the curricular offerings of the college by giving students (from any department) interested in computer software an opportunity for greater sophistication in this area.

6. CONSULTATIONS

Responses were received from the following professors and are appended to this proposal:

William L. Enlin	Administrative Studies
Oliver H. Winn	Administrative Studies
Michael Guerard	Industrial Technology

No off-college consultations were solicited; however, the following college catalogs were checked. They all contain at least one course in compiler design at the undergraduate level.

Vanderbilt University	(1973)
Lehigh University	(1975)
Fairleigh Dickinson University	(1978)
Rutgers University	(1978)
University of Pennsylvania	(1977)

7. ADDITIONAL INFORMATION

a. Possible texts include:

Aho, A. V. and Ullman, J. D., Principles of Compiler Design, Addison-Wesley, 1976.

Lewis, P. M., Rosenkrantz, D. J., and Stearns, R. E., Compiler Design Theory, Addison-Wesley, 1976.

b. Possible reference texts include:

Hopcroft, J. E. and Ullman, J. D., Formal Languages and their Relation to Automata, Addison-Wesley, 1969.



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Hopgood, F. R. A., Compiling Techniques, MacDonal/Elsevier, 1971.

Kohavi, Z., Switching and Finite Automata Theory, McGraw-Hill, 1970.

Pollack, B. W., ed., Compiler Techniques, Auerbach, 1972.

CATALOG DESCRIPTION .

Compiler Design (Prerequisites: 0704.315 and 0704.322 or permission of the instructor)

The topics covered in this course include: theory of compiler design, finite-state recognizers, pushdown machines, context-free grammars and languages, and syntax-directed translations. Students will study the three parts of a compiler: the lexical box, the syntax box, and the code generator. Students will design a compiler for a subset of BASIC.



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(609) 445-6025

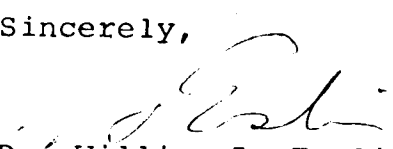
November 21, 1980

Professor Seth Bergmann
Department of Math/Computer Science
Robinson Building

Dear Professor Bergmann:

In reviewing your prospectus for a course in Computer Design, we felt that this course would be important for your computer science majors. We wish you good success with this course.

Sincerely,


Dr. William L. Enslin
Chairperson, Management
Administrative Studies

WLE/meh



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ADMINISTRATIVE STUDIES DEPARTMENT
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January 28, 1981

Dr. Francis E. Masat
Department of Mathematics and Computer Science
Robinson

Dear Fran,

This will confirm our telephone conversation regarding the proposed course title change for course 0701.102 and the proposed new course, Compiler Design.

The Administrative Studies Department and I endorse these proposals enthusiastically. I understand you do not plan to add this course as a requirement for the Concentration in Computer Science now offered by the Mathematics and Computer Science Department. We endorse this position because we judge the course as being more technical than would be required for most of the applicants for the Concentration. We believe, however, that the course would be a desirable elective for those students interested in this depth and direction.

Sincerely yours,

A handwritten signature in cursive script that reads "Oliver H. Winn".

Dr. Oliver H. Winn

PS As a matter of general practice, we are advising all of our MIS majors to work toward meeting the requirements of the Concentration in Computer Science.

Copy: Seth Bergmann, William Enslin



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INDUSTRIAL EDUCATION AND TECHNOLOGY

November 24, 1980

*Professor Seth Bergman
Mathematics/Computer Science
Glassboro State College
Glassboro, NJ 08028*

Dear Professor Bergman:

I have received your proposal for the new course, Compiler Design, and support it without reservation.

With computing and computer systems becoming more and more user-oriented, it is reasonable to expect that user-oriented high-level languages will continue to be developed. Compilers for these languages will of course be needed also. A course such as you propose would prepare individuals who should be highly employable in the computing industry.

Sincerely,

A handwritten signature in cursive script, appearing to read "Mike".

*Michael P. Guerard
Associate Professor*

MPG/jlh

cc: Dr. Fran Masat