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Glassboro State College Senate Curriculum Committee

Approval Form

Proposal Title: Artificial Intelligence

Sponsor(s) Harold Kollmeier
Don Stone Dept.: Math/Computer Science Ext. 6047

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

Undergraduate Graduate 3 Credit Hours

<p>Step 1 (Department)</p> <p><input checked="" type="checkbox"/> Approved <u>10/19/87</u> Date</p> <p><input type="checkbox"/> Not Approved</p> <p><u>Ronald J. Gocher</u> Dept. CC Chairperson</p> <p><input checked="" type="checkbox"/> Reviewed <u>10/21/87</u> Date</p> <p><u>[Signature]</u> Dept. Chairperson</p>	<p>Step 2 (Receipt)</p> <p><input type="checkbox"/> SCC# <u>87-88-23</u></p> <p>Proposal Received <u>11/18/87</u> Date</p> <p><u>Brenda A. Bolay</u> SCC Chairperson</p>	<p>Step 3 (School CC)</p> <p>Reviewed <u>2/9/88</u></p> <p><input checked="" type="checkbox"/> Approved <input type="checkbox"/> Not Approved</p> <p>Comments:</p> <p><u>[Signature]</u> School Curr. Comm. Chairperson</p>
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Step 4 (Academic Dean) **Comments:**

Recommend
 Not Recommend
 Conditionally Recommend (see comments)

Reviewed 2-10-88
Date

[Signature]
Signature, Dean of School

Step 5 (SCC)

Open Hearing 3/8/88 Approved by Senate Curriculum Committee 3/8/88
Date Date

Returned to sponsor(s) for the following reasons:
Please see req from Col Deac. OK 3/24

Step 6 (Senate)

Presented to Senate [Signature] Approved Not Approved
Date

Notification to Vice-President for Academic Affairs [Signature] [Signature]
Date Signature, SCC Chairperson

Step 6 (Senate)

Received 4/7/08
Date

Approved YES No


If no, reasons are as follows:

Student credit hours 3

Faculty load hours 3

Equalized credit hours 3

Official copy and approval sheet filed 5/12/08
Date



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

Course Proposal

Artificial Intelligence

I. Details

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|-----------------------------------|---|
| a. Course Title | Artificial Intelligence |
| b. Sponsors | Harold Kollmeier, Don Stone, Department of Mathematics and Computer Science |
| c. Credit Hours | 3 |
| d. Course Level | Senior |
| e. Curricular Effect | A restricted elective for Computer Science majors |
| f. Prerequisites | 1703.150, Discrete Mathematics, 1701.210, Linear Algebra, 0704.315, Programming Languages |
| g. Suggested Time, Implementation | One section of the course offered each year starting in 1988-89 |
| h. Resources | Faculty, equipment, and library resources are adequate |

2. Rationale

Artificial intelligence (AI) encompasses many of the new developments in computer science, and because these developments are becoming more and more widely used in computer applications, they should be of great interest and value to our majors. Its three chief areas are vision, natural language processing, and expert systems. As a field it constitutes a coherent body of ideas about data representation, search, logic, deduction and learning. It extends students' experience in programming, in that the course will include projects in Lisp, the language of the AI community. The course was suggested as a valuable addition to the curriculum by the computer science faculty during the self-study undertaken last year, and this suggestion was reinforced by the external consultant in his report on the self-study.

3. Essence of the course

a. Objectives in relation to student outcome:

Students will gain an understanding of the major areas of artificial intelligence research and their applications. The research areas include problems of internal representation, image representation and recognition, natural language understanding and speech recognition, decision-making structures, and search and learning. The application areas include robotics, speech recognizing systems, and expert systems. Students will do several programming projects in Lisp, which will not only enhance their knowledge of a language they learned in the prerequisite course in Programming Languages, but will also reinforce their knowledge of the logic behind AI processing.

b. Topical outline:

1. Definitions of Artificial Intelligence
Survey of the fields of investigation within AI
2. Internal representation
Linear structures
Hierarchical structures
Graphic structures
3. Lisp
Review
Lisp and recursion
4. Vision
Manipulation of gray-level images
Edge detection
Primal sketch
Shape and shading
Recognition
5. Natural Language Processing
Linguistics and language
Syntax, context-free grammars
Parsing
Speech recognition
6. Expert systems
Data reporting and decision-making
Data representation and algorithms
Major expert system case studies
7. Search
The use of search in AI
Data structures for search
8. Learning
Human knowledge and machine knowledge
Knowledge representation and the world-view problem
Limited domain

4. Consultants
- Elliot Koffman, Computer Science Dept., Temple University
(see attached comments from the 86-87 Academic Program Review)
John Frisone, Psychology Department, G.S.C.

5. Additional information

Proposed text:

Eugene Charniak and Drew McDermott, *Introduction to Artificial Intelligence*. Reading, MA: Addison-Wesley Publishing Company, 1985.

Proposed HEGIS number: 0704.350

6. Catalog description:

0704.350

Artificial Intelligence

(Prerequisites: 1703.150, 1701.210 and 0704.315)

Artificial intelligence (AI) encompasses many of the new developments in computer science. The course will survey its three chief research areas - vision, natural language processing, and expert systems, as well as its use of data representation, search, logic, deduction and learning. In addition to readings, discussion, and problem solving in AI, students will be expected to program in Lisp, the language of the AI community. Students will be responsible for homework assignments, a midterm and final, and a research project and presentation.

Review of Computer Science Program at Glassboro State College
Submitted by Elliot B. Koffman
Date: March 1, 1987

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and systems software (e.g. operating systems) in the required courses. The department seems to be moving in this direction. To make room for the extra course requirements, it may be desirable to remove the programming languages course from the core and replace it with courses in these areas. The current students also expressed a desire to have additional instruction in architecture and systems software.

It may be desirable to reorganize the elective subcategories slightly. Category 1 contains courses related to theory, category 2 contains course related to business applications, and category 3 appears to be a mixture of elective courses in a variety of computer science topic areas. I would recommend adding a course in artificial intelligence to category 3 and perhaps listing the data base course in both category 2 and category 3. If the programming languages course is taken out of the core, it should be placed in category 3.

D. Departmental Affairs

There is a good sense of collegiality in the department. The department chair does an excellent job of task delegation and seems to get good cooperation from the department members. The department members have a strong sense of participation in the decision-making process.