LSC Use Only No: 07-16j	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date: AP-10/30/07	Senate Action App-12/4/07
		Date:		

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person **SOUNDARARAJAN EZEKIEL**	Email Address **EZEKIEL**
Proposing Department/Unit **COMPUTER SCIENCE**	Phone **7-6102**

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

1. Course Proposals (check all that apply)

_____New Course _____Course Prefix Change _____Course Deletion

__X__Course Revision _____Course Number and/or Title Change _____Catalog Description Change

***Current* Course prefix, number and full title**	***Proposed* course prefix, number and full title, if changing**
COSC405 ARTIFICIAL INTELLIGENCE	

2. Additional Course Designations: check if appropriate

_____ This course is also proposed as a Liberal Studies Course.

_____ This course is also proposed as an Honors College Course.

_____ Other: (e.g., Women's Studies, Pan-African)

3. Program Proposals

_____Catalog Description Change _____Program Revision

_____New Degree Program _____Program Title Change _____Other

_____New Minor Program _____New Track

***Current* program name**	***Proposed* program name, if changing**

4. Approvals

		Date
Department Curriculum Committee Chair(s)		5 Dec 06
Department Chair(s)	Wm. Oz.	12/7/06
College Curriculum Committee Chair		05/17/07
College Dean	Gerard Bloch	9/24/07
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs	Gail S Seidt	10/30/07

* where applicable

Received
SEP 25 2007

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_____Catalog Description Change _____Program Revision

_____New Degree Program _____Program Title Change _____Other

_____New Minor Program _____New Track

***Current* program name**	***Proposed* program name, if changing**

4. Approvals		**Date**
Department Curriculum Committee Chair(s)		5 Dec 06
Department Chair(s)	Wm. Ogden	12/7/06
College Curriculum Committee Chair		05/17/07
College Dean	Gerard Buckley	9/24/07
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs	Gail S Sechrist	10/30/07

* where applicable

Part-II Description of the Curriculum Change

1. New Syllabus of Record

I. Catalog Description

COSC 405 Artificial Intelligence 3c-0l-3cr

Prerequisite: COSC 310
An introduction to the field of artificial intelligence, i.e., the study of ideas that enable computers to process data in a more intelligent way than conventional practice allows. Covers many information representation and information processing techniques. Explores the underlying theory including matching, goal reduction, constraint exploration, search, control, problem solving, and logic.

II. Course Outcomes

Upon successful completion of this course, the student should be able to

- Discuss AI terminology, progress and issues
- Assess strength and weakness of blind search algorithms.
- Assess strength and weakness of heuristic search algorithms.
- Solve problems regarding knowledge and reasoning.
- Formulate and solve simple problems in logic inference.
- Assess strength and weakness in game searching algorithms.
- Assess strength and weakness in AI algorithms in planning.
- Formulate and solve problems in machine learning.
- Formulate and solve problems in vision or natural language processing.
- Understand the basics of robotics or expert systems.
- Write programs in functional or logical paradigms.
- Implement software solutions to AI problems.

III. Detail Course Outline

A. Introduction 3 hours
   a. What is AI
   b. The foundations of AI
   c. The History of AI
   d. Intelligent agents
   e. Agent based system

B. Search 6 hours
   a. Searching for solution
   b. Uninformed/Blind search
   c. Informed/ Heuristic search
   d. A* search
   e. Hill-climbing search
   f. Genetic algorithms
   g. Constraint satisfaction problems

C. Game 5 hours
   a. Games
   b. Optical decision in games
   c. Minimax algorithm
   d. Alpha-Beta pruning
   e. Imperfect real time decision
   f. Games that include an element of chance

D. Logic 6 hours
   a. Knowledge based agents
   b. Syntax of First Order Logic

c. Semantics of First Order Logic
d. Reasoning patterns in propositional logic
e. First order logic
f. Inference in first order logic
g. Unification and lifting
h. Forward and backward chaining
i. Resolution

E. Planning — 5 hours
a. The planning problem
b. Planning with state space search
c. Partial order search
d. Planning with proportional logic
e. Planning and acting in the real world

F. Learning — 5 hours
a. Learning from observation
b. Knowledge in learning
c. Statistical learning methods
d. Reinforcement learning

Choose any two of the following:

G. Robotics — 5 hours
a. Robotics hardware
b. Perception
c. Planning to move and moving
d. Software architecture

H. Vision — 5 hours
a. Digitization
b. Low-level processing
c. Noise removal
d. Feature detection
e. Segmentation and the Hough transformation
f. Recovering 3d information
g. The waltz algorithm
h. Active vision
i. Object recognition
j. Scene recognition

I. Natural Languages — 5 hours
a. Signal processing
b. Syntax
c. Parsing
d. Semantics
e. Meaning
f. Pragmatics
g. Natural language generation

J. Expert Systems — 5 hours
a. Examples
b. History
c. Advantages of expert system
d. AI as an experimental discipline

Midterm Exams — 2 hours

Total = **42 hours**

Final Exam **During Final Exam Week**

IV. Evaluation Methods

The final grade for the course is determined as follows:

Midterm exam	15%
Final Exam	25%
Homework	10%
Projects	30%
Quizzes	20%

V. Grading Scale: 90-100% A, 80-89% B, 70-79% C, 60-69% D, 0-59% F

VI. Attendance:-

The attendance policy will conform to the University wide attendance criteria.

VII. Required Textbook

Stuart Russell and Peter Norvig. Artificial Intelligence: A Modern Approach. 2nd Edition. Prentice Hall, Jan 2003, ISBN 0130803022.

VIII. Special Resource Requirements

None.

IX. Bibliography

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Turing, Alan, 'Computing Machinery and Intelligence', in John Haugeland, Mind Design II, MIT Press, Cambridge 1997.

Yanushkevich, Svetlana N., Artificial Intelligence in Logic Design, Springer, 2004.

2. Summary of the proposed revisions

None

3. Justification/rationale for the revision

Department could not find any old syllabus of record. Hence, it is required that we make a new syllabus of record because it is an elective course for Language and System track (LAS) to meet the ABET criteria.

4. The old syllabus of record

Does not exist. We are applying under the provision of Syllabus of Record Amnesty for expedited review.

Part-III Letters of Support or Acknowledgement

Not applicable