

**California State University Channel Islands
New Course Proposal**

Program Area: Computer Science

1. Catalog Description of the Course.

IT 469 ARTIFICIAL INTELLIGENCE/NEURAL NETWORKS FOR IT (3)

Three hours of lecture in the lab per week.

Prerequisites: IT 151 and MATH 300

An exploration of the use of computers to perform computations normally associated with intelligence, pattern formation and recognition using various computer algorithms and data structures. Including distributed processing models found in massively parallel systems such as the brain. Stacks, decision trees and other modern mining tools and computational models for knowledge representation will be covered. Other topics may include natural language and imaging.

2. Mode of Instruction.

	<u>Units</u>	<u>Hours per Unit</u>	<u>Benchmark Enrollment</u>
Lecture	3	1	24
Seminar	0	0	0
Laboratory	0	0	0
Activity	0	0	0

3. Justification and Learning Objectives.

Justification: BSIT elective.

Learning Objectives:

Students who successfully complete this course will:

1. Be able to identify the components of a computer vision system.
2. Be able to identify and explain the components of a speech recognition system.
3. Be able to explain the components and functionality of a robotic system.
4. Be able to explain the key difficulties in a Natural Language Processing System.
5. Be able to explain a simple model of a neuron.
6. Be able to build a simple simulation of an interactive neural system.
7. Be able to design an AI experiment and analyze the data.
8. Be able to program the backpropagation learning algorithm.

4. Is this a General Education Course?

No.

5. Course Content in Outline Form.

Topics:

1. Natural Language Processing.
2. Computer Vision.
3. Speech Recognition.
4. Robotics.
5. Neurons and Brains.
6. Massively Distributed Processing.
7. Algorithms for Learning.
8. Automated Problem Solving.

6. Cross-listed Courses.

None.

7. References.

<u>Title</u>	<u>Author</u>	<u>Publisher</u>	<u>Year</u>	<u>ISBN</u>
1. Artificial Intelligence	Rich and Knight	McGraw Hill	1991	0071008942
2. An Introduction to AI Robotics (Intelligent Robotics and Autonomous Agents)	Robin R. Murphy	MIT Press	2000	0262133830
3. Constructing Intelligent Agents Using Java: Professional Developer's Guide, 2nd Edition	Joseph Bigus	John Wiley & Sons	2001	047139601X
4. Artificial Intelligence: A Modern Approach	Russel, Norvig	Prentice Hall	2002	0137903952

8. Faculty Qualified to Teach This Course.

Qualified Faculty: Smith, Wolfe

9. Frequency.

Projected semesters to be offered: Fall, Spring

10. New Resources Required.

- a. New Equipment needs: Use of existing computer lab.
- b. New Library needs: none
- c. New Space/Facilities needs: none

11. Program Modifications.

None.

12. Proposer of Course.

Proposer: Smith, Wolfe Date: 7/13/2004