Knowledge-Based Systems in Engineering

CIVILEN 5390

Credit Hours:
2.00 - 2.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
Overview of biologically-inspired computing paradigms including symbolic processing, artificial intelligence, expert systems, machine learning, evolutionary computing/genetic algorithms, and neurocomputing with applications in engineering.

Prerequisites and Co-requisites:
Prereq: Grad standing, or permission of instructor.

Course Goals / Objectives:
- Familiarity with several biologically-inspired computing paradigms: symbolic processing, artificial intelligence, expert systems, machine learning, evolutionary computing/genetic algorithms, and neurocomputing with applications in engineering
- Exposure to engineering problems that can be addressed by each of these paradigms
- Mastery of the details of one student-chosen application problem and how to address it using one of these paradigms

Course Topics:
- Brain and Computational Intelligence
- Artificial intelligence and symbolic processing
- Artificial Life: Learning Through Emergent Behavior
- Neurocomputing
- Evolutionary Computing and Genetic Algorithms
- Machine learning
- Case-Based Reasoning
- Intelligent Agents

Designation:

Elective