Course Number: 3460:660
Course Name: Expert Systems
Course Credits: 3.0
Schedule:

Syllabus Date: Fall, 2003
Prepared By: C.-C. Chan

Prerequisites: 3460:460/560 or maturity in mathematics.


Bulletin Description:
Architecture of expert systems, knowledge representation and acquisition, inference mechanisms for expert systems, uncertainty management, expert system tools and applications.

Detailed Description:

Course Goals:
1. Study issues and methods in building expert systems.
2. Study knowledge-based systems, schemes for knowledge representation, inference mechanisms, uncertainty management, and methods for automated knowledge acquisition.
3. Develop expert system prototypes using CLIPS.

Topics:
1. Overview of expert systems
   - knowledge-based systems
   - knowledge representational schemes
   - knowledge acquisition
   - knowledge base maintenance and validation
2. Rule-based Systems
   - Forward and backward chaining
3. CLIPS/JESS
4. Uncertainty in expert systems
   - Certainty Factor
   - Bayesian belief networks
   - Dempster-Shafer theory
   - Rough sets Theory
   - Fuzzy sets theory
5. Automated knowledge acquisition
   - Machine learning and its applications
Computer Usage:
There will be team programming projects. Programs will be developed and run on PC or Linux workstations.

References:
Journal reprints and on-line resources and documents.