ISE790 – AI Planning and Reasoning in Manufacturing      Spring 03/04

Course:
ISE 790 AI Planning and Reasoning in Manufacturing - 3 credit hours, Call number: 03616

Catalog Description:
Special topics in industrial and manufacturing systems engineering.

Sessions:
MW 9:10-10:30, Grover W131

Instructor:
Dr. Dusan Sormaz, Room 277, Stocker Center
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Office Hours:
M 11:00-12:30, W 12:30-2:00pm or by appointment

Textbook:
The set of journal papers in the area of AI planning, Case-based reasoning, and their applications in manufacturing.

The Course Objective:
The course objective is to enable students to learn modern theories and techniques for AI planning and case-based reasoning and gain the knowledge necessary for their application in advanced manufacturing.

Computer usage:
Students will use Jess (Java Expert System Shell) and/or other AI and CBR tools

Requirements:
Readings – Students will be assigned to read 3-4 papers from the list of papers and present them to the classroom. All students are expected to read all the papers.
Class Discussion – Students are expected to engage in class discussions related to presentation of the papers
Projects – Two programming projects will be assigned related to implementation of AI planning and Case-based reasoning
Final project – An individual project in which students will implement AI related system of their choice with the approval of the instructor

Grading Policy:
Readings and presentations 30%
Discussions 10%
Projects 30%
Final project 30%
Attendance Policy:
Attendance to all sessions is required. No enforcement policy will be in effect, but students are responsible for all material covered in the class.

Tentative Schedule:
1. Introduction
2. Review of rule-based systems and tools (Chapter 2), Jess
3. AI planning algorithms
4. Case-based reasoning
5. Applications in manufacturing

List of papers:
1. Thomas Dean Brown, Subbarao Kambhampati, Planning and Scheduling
10. Agnar Aamodt, Enric Plaza, Case-Based Reasoning: Foundational Issues, Methodological Variations, and System Approaches, AI COM Vol. 7, No.1