COMP 5330, Parallel and Distributed Computing

Credit hours: 3 lecture
Contact hours: 3 lecture

Catalog Description: Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, parallel applications.

Prerequisites: COMP 3500 or COMP 3510
Corequisites: None

Selected Elective Course (CSCI, SWEN, WIRS)

Instructor or Course Coordinator: Dr. Xiao Qin

Required Textbook

Reference Materials
Selected current conference and journal articles.

Course Outcomes
The student will be able to
• systematically partition a program for parallel computing.
• match problem at hand to a parallel computing environment.
• program in a parallel programming language.
• analyze issues in the design of a distributed system.

Topics Covered
• Introduction & Discrete Event Simulation (2 hours)
• Parallel Discrete Event Simulation, Null Messages, Lookahead (3 hours)
• Deadlock Detection and Recovery (2 hours)
• Synchronous Execution (3 hours)
• Global Virtual Time (3 hours)
• Time Warp and its Memory management (4 hours)
• HLA, HLA Time management and libsynk (4 hours)
• Time Parallel Simulation (3 hours)
• Distributed Virtual Environment and Dead Reckoning (3 hours)
• Data Distribution (2 hours)
• Cloud Computing (6 hours)
• Multi-core Computing (2 hours)

Course Requirements
• Homework Assignments (30%)
• Midterm Exam (20%)
• Paper Presentation (10%)
• Project (40%)

Syllabus prepared: Spring 2016