CS 4170 : INTRODUCTION TO PARALLEL COMPUTING

Semester Hours: 3.0
Contact Hours: 3
Coordinator: Robert Green
Text: An Introduction to Parallel Programming
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Year: 2011

SPECIFIC COURSE INFORMATION

Catalog Description:
Principles and practice of parallel computing. Parallel program design, implementation and evaluation of parallel programs for shared memory, local memory and vector architectures. Prerequisite: CS 3270 or CS 3080.

Course type: ELECTIVE

SPECIFIC COURSE GOALS

• I can design, implement, test and debug a parallel application program using MPI.
• I can design, implement, test and debug a parallel application program using OpenMP.
• I can parallelize an existing application using an appropriate parallel programming paradigm.
• I can develop and analyze a parallel algorithm using the PRAM model.

LIST OF TOPICS COVERED

• Introduction and overview of parallel programming
• Performance measures
• Parallel architectures
• Programs amenable to parallel programming solution
• Programming languages for parallel programming
- Program portability issues
- Operating system issues
- Tools for parallel programming
- Parallel Algorithms
- Parallelizing serial programs