CS 4170: INTRODUCTION TO PARALLEL COMPUTING

Semester Hours: 3.0

Coordinator: Robert Green

Text: Parallel Programming

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Year: 2005

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