CS 5170 : INTRODUCTION TO PARALLEL COMPUTING

Semester Hours: 3.0
Contact Hours: 3
Coordinator: Hassan Rajaei
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: Full Admission to MS in CS or consent of department.

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.
- I can analyze relevant research and communicate my findings.

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