

Concurrent Programming

Session I: Course Overview

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What's the course about?

- The overall aim of this course is to provide the necessary knowledge in the core concepts and techniques for concurrent programming.
- It will study concurrent programming with threads and processes in:
 - Shared Memory Machines
 - MP/MP/GPU
 - Distributed Systems
 - MC



Course Assistants

Omid Kashefi



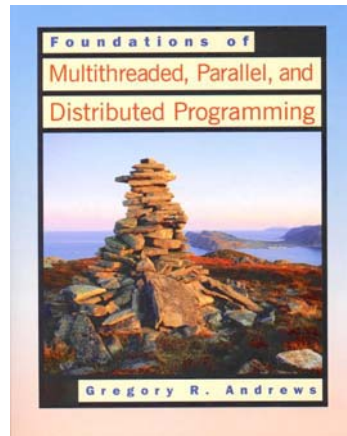
Nima Ghaemian



Course Outline (Tentative)

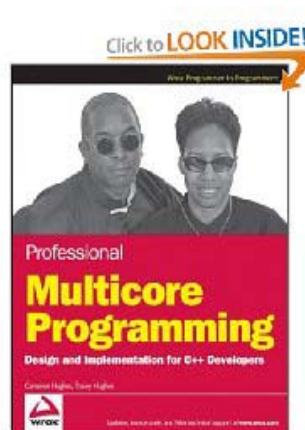
- Introduction to Parallel/Distributed Programming
- Parallel Programming Concepts
- Parallel Architectures (MP/MC/MC/GPU)
- Processes and Synchronization
 - Semaphores, Locks, Monitors, ...
- Shared Memory Parallel Programming
 - OpenMP, CILK, pThreads
- Multi-Computer Programming
 - Socket Programming, MPI, RPC, RMI,
- Parallel Algorithms
- Parallelizing Compilers

Textbooks



Gregory R. Andrews, *“Foundations of Multithreaded, Parallel, and Distributed Programming”*, Addison Wesley, 1999

Textbooks (Cont.)



Cameron Hughes , Tracey Hughes
“Professional Multicore Programming: Design and Implementation for C++ Developers”, Wrox Publications, 2008

Textbooks (Cont.)

- Other textbooks would be introduced later.



Evaluation

- Midterm Exam
- Final Exam
- Homework
- Programming Exercises
 - Our Cluster
- Final Project(s)
- Contribution to Class