**CSC 453 - Parallel Processing, 3 credits**

**Instructor:**

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**Description:**

*Introduction to parallel processing. Models of parallel machines. Parallel programming paradigms and models. Performance analysis of parallel systems. Parallel programming languages and frameworks.*

**Prerequisite**:

*CSC 227 and 220*
*CSC 281*

**Texts**:

-- *Introduction to Parallel Processing: Algorithms and Architectures, By Behrooz Parhami, 2002*

**Course Objectives:**

*The course objectives are to expose the students, starting with introductory topics and progressing to advanced topics, to: (1) paradigms of parallel computation and measures of efficiency, (2) most important parallel computing architectures, (3) most important parallel programming models, languages and frameworks.*

**Expected Performance Criteria:**

*The student is expected to complete several assignments dealing with the topics covered by the course, and to pass three written examinations and to implement some parallel algorithms.*

**Topics**:

1. *Introduction to Parallelism*
2. *Examples of Simple Parallel Algorithms*
3. *Parallel Algorithm Complexity*
4. *Models of Parallel Processing*
5. *Shared-Memory Algorithms*
6. *Distributed-Memory Algorithms*
7. *Parallel Programming frameworks*

**Grades:**

*20% Homework*
*25% Midterm*
*5% Quizzes*
*10% Project*
*40% Final*