

COT 6421 – Theory of Computation II, Fall 2010

T & Th 9:30 – 10:45 am, ECS 138

Dr. Xudong He

ECS 318, Tel. 348-1831, Email. Hex@cs.fiu.edu

Office Hours: T & Th 11:00 – 12:00 noon

Overview

COT 6421 is a graduate-level course on theory of computer science. Students will learn the fundamental concepts in computability and complexity. Students will learn the major techniques to show (un)decidability and complexity.

Prerequisites

Students need to know discrete mathematics such as set, functions, and logic; and abstract computational models such as finite automata and Turing machines.

Books

The textbook is *Introduction to the Theory of Computation* (2nd edition) by Michael Sipser, 2006. Various supplemental materials will be used in the course.

Homework

There will be 5 homework assignments. Homework will be assigned every 2 weeks. Each homework assignment should be turned in at the end of class on the due date. Late homework turned in before the next lecture will receive partial credit.

Exams

There will be two exams on Oct. 7 and Dec. 2.

Grading

Homework (50%) + Exams (50%)

Tentative Schedule

Part I (Weeks 1 – 7) – Computability Theory

- Abstract Computation Models Revisited
- The Church-Turing Thesis
- Decidability & Reducibility
- Advanced Topics in Computability

Part II (Weeks 8 – 15) – Complexity Theory

- Time Complexity
- Space Complexity
- Intractability
- Advanced Topics in Complexity