



COURSE SYLLABUS

COT 4420 **Theory of Computation**

Prerequisites: MAD 3105

Fall Semester 2006

Course Objective:

The goal of this course is to provide students with an understanding of basic concepts in the theory of computation. At the end of this course students will:

- Be able to construct finite state machines and the equivalent regular expressions.
- Be able to prove the equivalence of languages described by finite state machines and regular expressions.
- Be able to construct pushdown automata and the equivalent context free grammars.
- Be able to prove the equivalence of languages described by pushdown automata and context free grammars.
- Be able to construct Turing machines and Post machines.
- Be able to prove the equivalence of languages described by Turing machines and Post machines

Students will learn about a variety of issues in the mathematical development of computer science theory, particularly finite representations for languages and machines, as well as gain a more formal understanding of algorithms and procedures.

Course Description:

Introduction to the theory of computation, including models of computation such as Turing machines; theory of programming languages, including grammars, parsing, syntax and semantics.

Instructor:

Sudhir Aggarwal
Room 263, Love Building
Office hours: TBA

Teaching Assistant:

TBA

Required Text:

1. [Lin2001] Peter Linz, **An Introduction to Formal Languages and Automata**, Third Edition, Jones and Bartlett, 2001. (required).

Class Schedule:

Lectures	Mondays and Wednesdays	3:35 pm – 4:50 pm	Love 301
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Lecture Notes and Information

Week #	Meeting Days	Reading Assignments & Information	Class Notes & Homework Assignments
1	August 28, 2005 August 30, 2005	Read Chapter 1	Notes handed out in class Lecture1-overview
2	September 4, 2005 September 6, 2005	Labor Day, No classes Read chapter 11, section 1.	Homework 1: due September 13, 2005
3	September 11, 2005 September 13, 2005	Read lecture notes 2	Lecture2-finite-state-machines
4	September 18, 2005 September 20, 2005	Read lecture notes 2	Homework 2: due September 27, 2005
5	September 25, 2005 September 27, 2005	Read Chapter 2 Start reading Lecture notes 3 Read Chapter 3.1	Lecture3-acceptors
6	October 2, 2005 October 4, 2005	Read Lecture note 3 through page 50 Read Chapter 3.2 and 3.3	Homework 3: due October 11, 2005
7	October 9, 2005 October 11, 2005	Exam 1 October 9, 2005	
8	October 16, 2005 October 18, 2005	Review Chapter 3 Read Chapter 4.1 and 4.2	Lecture4-properties-regular-languages Homework 4: Due October 30, 2005 You may need to wait until Monday's lecture to start some of the problems in this set
9	October 23, 2005 October 25, 2005	Read Chapter 4.3 Read Chapter 5	Lecture5-context-free-grammars-languages
10	October 30, 2005		Homework 5: Due

	November 1, 2005	Guest Lecture: Piyush Kumar	<u>November 6, 2005</u>
11	November 6, 2005 November 8, 2005	Review Exam 2 November 8, 2005	
12	November 13, 2005 November 14, 2005	Read Chapter 6	
13	November 20, 2005 November 22, 2005		
14	November 27, 2005 November 29, 2005	Read Chapter 7	
15	December 4, 2005 December 6, 2005		
16	December 11-15, 2005	FINAL EXAM WEEK Exam 3	

Grading:

1. There will be three tests (20%, 25%, 30%, respectively).
2. There will be about 7 problem sets during the semester (25%). It is very important to complete all problem sets. You may talk to me, the teaching assistant, or other students to help you get started on a problem, but you must do the problems by yourself.
3. The first test will be on October 9. The second test will be on November 8. The third test will be in December, during finals week. Tests may include materials covered in earlier tests.

Attendance:

Attendance at all lectures and recitations is required, and will be monitored. Each unexcused absence in excess of three will result in a one point deduction from your final average.

Missed Exams/Late Assignments:

Students will not be allowed to make up a missed exam due to an unexcused absence. Unexcused late assignments will receive a 25% per day (or part thereof) penalty.

COURSE POLICIES:

ACADEMIC HONOR CODE:

Students are expected to uphold the Academic Honor Code published in The Florida State University Bulletin and the Student Handbook. The Academic Honor System of The Florida State University is based on the premise that each student has the responsibility (1) to uphold the highest standards of academic integrity in the student's own work, (2) to refuse to tolerate violations of academic integrity in the university community, and (3) to foster a high sense of integrity and social responsibility on the part of the university community.

Please see the following web sites for a complete explanation of the Academic Honor Code.

<http://www.fsu.edu/Books/Student-Handbook/codes/honor.html>
<http://www.fsu.edu/Books/Student-Handbook/>

AMERICANS WITH DISABILITIES ACT:

Students with disabilities needing academic accommodation should:

- (1) register with and provide documentation to the Student Disability Resource Center;
- (2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class.

Please see the following web sites for more information.

SDRC@admin.fsu.edu
<http://www.fsu.edu/~staffair/dean/StudentDisability/>

This syllabus and other class materials are available in alternative format upon request.

SYLLABUS CHANGE POLICY:

This syllabus is a guide for the course and is subject to change