



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Automata and Formal Languages

CSE 3321

Credit Hours:

3.00

Course Levels:

Undergraduate (1000-5000 level)

Course Components:

Lecture

Course Description:

Machine-based and grammatical models of computation; finite automata and regular languages, pushdown automata and context-free languages, Turing machines; non-determinism; Church's Thesis.

Prerequisites and Co-requisites:

Prereq: 2231, 2421, 2331, and Math 3345; and enrollment in CSE, CIS, ECE, or Math majors.

Course Goals / Objectives:

- Be competent with using regular expressions and finite state machines
 - Be competent with using context-free languages, context-free grammars, and push-down automata
 - Be competent with proving by contradiction, by ordinary induction and by strong induction
 - Be familiar with non-determinism
 - Be familiar with Turing machines
 - Be exposed to reductions
 - Be exposed to decidability and recursive enumerability
 - Be exposed to Church's Thesis
 - Be exposed to theory of parsing
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Course Topics:

- Formal languages
 - Regular languages and finite automata
 - Grammars
 - Context-free languages and pushdown automata
 - Recursively enumerable languages and Turing machines
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Designation:

Elective