THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Automata and Formal Languages

CSE 5321

Credit Hours:
2.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate

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; halting problem.

Prerequisites and Co-requisites:
Prereq: 2231 or 321, and 2421 or 360, and 2331 or Math 566.

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

Course Topics:

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

Designation:

Elective