THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Foundations I: Discrete Structures

CSE 5032

Credit Hours:
2.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
Propositional and first-order logic; basic proof techniques; graphs, trees; analysis of algorithms; asymptotic analysis; recurrence relations.

Prerequisites and Co-requisites:
Prereq: 5022 or equiv.

Course Goals / Objectives:
- Be competent with using propositional logic.
- Be familiar with first-order predicate logic.
- Be familiar with proving by contradiction, by ordinary induction and by strong induction.
- Be familiar with using asymptotic notation.
- Be familiar with analyzing running time of simple iterative algorithms.
- Be familiar with graph theory.
- Be exposed to analyzing running time of recursive algorithms.
- Be exposed to sorting and searching.
- Be exposed to designing graph algorithms.

Course Topics:
- Mathematical reasoning.
- Analysis of simple algorithms.
- Sorting and searching.
- Graph theory.
- Graph algorithms.

Designation:
Elective