THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Foundations II: Data Structures and Algorithms

CSE 5331

Credit Hours:
2.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate

Course Components:
Lecture

Course Description:
Design/analysis of algorithms and data structures; divide-and-conquer; sorting and selection, search trees, hashing, graph algorithms, string matching; probabilistic analysis; randomized algorithms; NP-completeness.

Prerequisites and Co-requisites:
Prereq: 2231 or 321, and 2321 or Math 366, and 2566 (566), and Stat 3470 (427).

Course Goals / Objectives:
- Be competent with using asymptotic notation
- Be familiar with designing graph algorithms
- Be familiar with designing and analyzing divide-and-conquer algorithms
- Be familiar with the use of balanced trees
- Be familiar with hashing
- Be familiar with heaps
- Be familiar with designing backtracking algorithms
- Be familiar with string matching
- Be exposed to selection algorithms
- Be exposed to probabilistic algorithms
- Be exposed to formal languages and finite automata
- Be exposed to NP-completeness

Course Topics:
- Design and analysis of recursive algorithms.
- Balanced trees and heaps.
- Hashing.
- Graph algorithms.
- Backtracking algorithms.
- Sorting and selection.

Designation:
Elective