THE OHIO STATE UNIVERSITY

COLLEGE OF ENGINEERING

Introduction to Computer Programming in MATLAB for Engineers and Scientists

CSE 1221

Credit Hours:
2.00

Course Levels:
Undergraduate (1000-5000 level)

Course Components:
Lecture
Lab

Course Description:
Introduction to computer programming and problem solving techniques with applications in engineering and the physical sciences; algorithm development; programming lab experience.

Prerequisites and Co-requisites:
Prereq: Engr 1181, 1281, Math 151, or Physics 131.

Course Goals / Objectives:
- Be competent with writing simple MATLAB programs performing numerical calculations
- Be competent with use of basic constructs provided by high-level imperative programming languages: sequencing, selection, and iteration
- Be familiar with algorithmic thinking
- Be familiar with use of computational approaches to solving problems in science and engineering
- Be familiar with using basic data structures such as arrays
- Be familiar with procedural composition
- Be exposed to computational science concepts, including simulation, optimization, and data analysis

Course Topics:
- Introduction to computation, concept of algorithm
- Variables, expressions and assignment
- Selection statements: if, switch
- Booleans, strings
- Matrices and indexing
- Loops: for and while; use of arrays
- Graphing, input/output with files, scripts
- Functions
- Higher order operators on matrices
- Review/exams

Designation:
Elective