

Department: ENGR (General Engineering)  
Course Number: 104  
Title: Computer Aided Engineering

Designation: required course

Course Description: An introduction to engineering numeric computations using the MATLAB software package. Structured programming via script and function files are used for numeric and symbolic algebraic and calculus for both scalar and matrix quantities. The class will be conducted in a “learning-laboratory” style in which students exercise a self-paced individual learning experience through the completion of assignments and quizzes. 2  
Credit Hours

Prerequisites: none

Textbook: Moore, H., MATLAB for Engineers, 4th Edition, Prentice Hall

Software: MATLAB Student Version

Course Learning Outcomes: see ABET documentation : a, d, e, k

Grading: Assignments and quizzes

Topics:

- 1) Introduction to Matlab
- 2) Built-In Matlab functions
- 3) Manipulating Matlab matrices
- 4) Plotting
- 5) User Defined Functions
- 6) User Controlled Input and Output
- 7) Logical Functions and Control Structures
- 8) Matrix Algebra

Class/Laboratory: 1 studio per week (1 hour and 50 minutes)

Contribution of course to meeting curriculum requirements:

- introduction of basic concepts of matrix operations and algorithmic quantification for problems.
- practice in algorithm development

Relationship of course to program outcomes:

- mathematics (matrix manipulations) and engineering (development of applied problems)
- multidisciplinary teamwork (team program modules)
- formulation and solution of engineering problems (technical problems in engineering) via algorithm development
- ability to perform analysis with modern engineering tools (matrix programming application)

Prepared by:

W. B. Carlson

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