

EGN 2213 – COMPUTER APPLICATIONS IN ENGINEERING I  
Common Course Syllabus

Catalog Data: 3 CREDITS. An introduction to programming in MATLAB, this course includes some matrix concepts, input/output statements, for and while loops, if and else if statements, built in functions, self written functions, some built in solvers, and projects illustrating applications to engineering topics.

Corequisite:

1. Calculus for Engineers II – MAC 2282 or equivalent (MAC 2312)

Goals:

1. To teach students the basic building blocks in writing a computer program, which are: the arithmetic statement, input/output statements, matrices, for and while loops, if and if-else-if statements, the switch statement, built-in functions, and user defined functions.
2. To teach students to write computer programs in MATLAB that can be used to solve simple engineering type problems.
3. To teach students to document their programs and write interactive program.

Topics:

1. Computer Organization
2. Building blocks in writing a computer program
3. Programming in MATLAB
  - a. matlab interface
  - b. Variables, arrays and commonly used math functions
  - c. Statements and functions
  - d. Constructs: for, if, switch and while
  - e. Interactive programming
  - f. 2D and 3D Plotting
  - g. Input from a file and output to a file
  - h. User defined functions

Course Outcomes: (numbers in parentheses indicate correlation of the outcome with the appropriate ABET program outcomes 1-7)

1. Students should be able to use the following constructs: *for* and *while* loops, *if* and *if else*, and *switch*. (1)
2. Students should be able to use *real*, *complex* and *string* variable as well as *arrays*. (1)
3. Students should be able to use build in functions and write user defined functions. (1)
4. Students should be able to present results from MATLAB programs in a clear manner, including the use of tables when appropriate. (3)
5. Students should be able to document their programs.(1)
6. Students should be able to write an interactive program in which the user input data and the program verifies the input and responds accordingly. (1)

7. Students should be able to create 2D and 3D plots in MATLAB. (1)

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