EML 2538 – COMPUTER APPLICATIONS IN MECHANICAL 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 ME topics.

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

Topics:
1. Numerical modeling for engineers
2. Computer Organization
3. Building blocks in writing a computer program
4. Some matrix concepts
5. Programming in MATLAB
   a. Starting a program
   b. Several elementary commands
   c. Input from key board and output to screen
   d. Sample program
   e. Input from a file and output to a file
   f. Sample program
   g. Arithmetic statement
   h. Math operations
   i. Commonly used math functions
   j. Sample program
   k. The basic component in MATLAB
   l. The colon operator
   m. Loops
   n. Sample program
   o. if and else if statements
   p. Sample program
   q. Block diagrams
   r. Functions
   s. Sample Program
   t. Plot commands
   u. Sample program
   v. Use of MATLAB built in functions

Course Outcomes: (letters in parentheses indicate correlation of the outcome with the appropriate program outcomes a-k)
1. Students should be able to write simple engineering type programs in MATLAB, using *for* and *while* loops, *if* and *if else* statements, the *switch* statement, matrices, and user defined functions. (a,e,k)
2. Students should be able to present results from MATLAB programs in a neat and clear manner, including the use of tables when appropriate. (g)

3. Students should be able to document their programs and write an interactive program. (e,k)
4. Students should be able to use MATLAB in interactive mode. (e,k)
5. Students should be able to create plots in MATLAB. (g,k)

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