1. CSC 231 Programming for Engineering Students

2. credit units  2  contact hours  2  

3. Course Coordinator: Kurt Voelker


5. a. Course Description: Programming techniques and procedures with applications to engineering problems. Introduction to numerical methods and simulation. Credit not allowed for CSC, Software Engineering or CPE majors. 2 activities.
   
   b. Prerequisite: MATH 142; PHYS 121 or PHYS 131 or PHYS 141.
   
   c. Required/Elective/Selective Elective for CPE, CSC, EE, SE

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6. a. Course Goals/Outcomes
This course will give the student experience in writing and running simple applications in the MATLAB environment using the built-in programming language. The student will rapidly progress from copying, compiling, and running simple programs, to modifying those programs to add features implemented using various branching and looping methods, to designing and running simple programs of their own design. Upon completing the course, the student will understand and be able to:

- Edit and run a program using the MATLAB programming language.
- Properly document a program and related functions using headers and comments.
- Use single-entry/single-exit structured programming constructs.
- Properly test a program and related functions.
- Implement modules to solve complex problems.

b. How Student Outcomes addressed
   (“B” = Basic level, “I” = Intermediate level, “A” = Advanced level)
   For non majors

7. Major Topics Covered: (number of lecture hours each)
   - Computers and the programming environment used (4)
- Data types, variables vs. constants, strings, arrays, and matrices (4)
- Branching with IF and/or SWITCH-CASE (6)
- Looping with WHILE and FOR (4)
- Functional decomposition and writing functions (6)
- Reading/writing simple text files and formatted output (2)