CSC 232 Computer Programming for Scientists and Engineers

1. CSC 232 Computer Programming for Scientists and Engineers

2. credit units          3    contact hours          5

3. Course Coordinator: Kurt Voelker


5. a. Course Description: Computer programming, with an emphasis on procedural programming, taught using a language hosted by applications commonly used in science and engineering. Credit not allowed for CSC, CPE or Software Engineering majors. 2 lectures, 1 activity.

   b. Prerequisite: MATH 118 or equivalent.

   c. Required/Elective/Selective Elective for CPE, CSC, EE, SE

For Non-majors

6. a. Course Goals/Outcomes
This course will give the student experience in writing and running simple applications in Excel using Visual Basic for Applications using a combination of equations and graphical Windows elements. 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 in Excel and Visual Basic.
   • 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.
   • Use functional growth and feature growth to incrementally build complex programs.

   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, and arrays (4)
   • Branching with IF and/or SWITCH-CASE (4)
   • Looping with WHILE and FOR (4)
   • Functional decomposition and writing functions (4)
   • Graphical elements in Visual Basic (6)