Engineering Computer Applications
3 units
LEC 6:00PM - 6:50 TTh   E-212
LAB 7:00PM - 8:15 TTh   E-212
(#5255)

INSTRUCTOR: Robert Furry

E-Mail: bob.furry@gcccd.edu

Cuyamaca College Home Page: http://www.cuyamaca.edu/people/bob-furry/

OFFICE HOURS: (by appointment)

CATALOG DESCRIPTION: Use of computerized mathematical analysis,
      computer programming and graphics as tools for solving
      engineering problems utilizing MATLAB computer language.

COURSE PREREQUISITES: "C" grade or higher or "Pass" in MATH 180 or
      equivalent or concurrent enrollment

Course Materials:

  Required: textbook, MATLAB An Introduction with Applications,
      Fifth Edition, Amos Gilat.

  Recommended: MATLAB & Simulink programming software, **Student
      Version.** If this is your first computer programming class, I
      highly recommend to buy this software so as to be able to
      continue working on your assignment (off campus) and completing
      them by the required due dates. You can buy the complete
      software for the cheapest price from college bookstore.

  Recommended: TI scientific or graphing calculator.

HOMEWORK: Homework will be assigned from each section of the text
      covered in class.

**TESTS AND QUIZZES: There will be periodic quizzes and a final exam.
      Quizzes cannot be made up. The quiz with the lowest letter grade
      will be dropped.**

GRADES: Final grades will be based on the quizzes, midterm test, lab
     work, class work, and the final exam weighted approximately as
     follows:

               Quizzes   50%
               Final Exam, project   30%
               Class attendance and participation   20%

     A grade of C or better must be achieved to receive a grade of P
     (pass). Below a C average will result in an NP (no pass)(P/NP).

OTHER: More than four absences (two weeks of class) may result in the
     student being dropped from the class.

     Incomplete will be given only if the student is passing the class
     and is unable to take the final exam due to an emergency.

     Please turn off cell phones before coming to class.

     No cell phones nor other listening devices during class, tests,
     quizzes.

     You cannot share calculators during class and cannot use a cell
     phone as a calculator.

Engr Department Web Site:
     http://www.cuyamaca.edu/academics/departments/sciences/engr/

Open Computer Lab: http://www.cuyamaca.edu/techmall/ Room E-121
     Hours: Mon - Thurs 7:30am – 7:30pm
     Fri: - 8:00am – 1:00pm
     Sat, Sun: Closed

Some Info at:
     MathWorks (http://www.mathworks.com/products/?s_tid=gn_ps)
        (MathWorks is the developer of MATLAB.)

     MATLAB   (http://www.mathworks.com/products/matlab/)

     You Tube (Dozens of lessons on all topics in several languages)
http://www.youtube.com/results?search_query=matlab+lecture+1&sm=1

        MATLAB on Wikipedia http://en.wikipedia.org/wiki/MATLAB

        National Engineers Week 2016   February 21-27, 2016
               http://www.new-sandiego.org/home.html

Course Objectives (Expected Student Learning Outcomes)

Upon successful completion of the course the student will be able to:

1) Design and write efficient computer programs using top-down design techniques and pseudocode for program development.
2) Apply various data types including single, double, integer, complex, and logical in conjunction with constants, variables and multi-dimensional arrays in the computer analysis of engineering problems.
3) Apply relational and logical operators in conjunction with branching structures.
4) Apply appropriate loop structures including nested loop structures and recursive operations.
5) Apply input and output functions, formatted I/O, and communication with data files.
6) Apply general intrinsic functions, and design and write callable functions.
7) Apply basic computer graphics techniques to produce simple xy plots, multiple plots, and simple enhanced control of plotted lines.
8) Apply advanced computer graphics to the display of multi-dimensional data and images, and use of advanced graphical controls
9) Design and write computer programs to solve engineering problems using numerical techniques and/or intrinsic functions including a) polynomial operations, b) statistical operations, c) matrix operations, d) symbolic operations, e) curve fitting, f) linear interpolation, and g) integration and differentiation.

Three outcomes for a student in this course, in increasing order of importance, are:

        An introduction to MATLAB

        Some understanding of programming concepts

        Improvement in problem solving skills

ENGR 120 TENTATIVE SCHEDULE (subject to change)

Date	Chapt/Sec	Date	Chapt/Sec
1/26	Intro, 1.1	3/29	Chapter
1/28	Chapter 1	3/31	Chapter
2/2	Chapter	4/5	Chapter
2/4	Chapter	4/7	
2/9	Chapter	4/12	Chapter
2/11	Review	4/14	Chapter
2/16	Quiz (closed & open)	4/19	Chapter
2/18	Chapter	4/21	Chapter
2/23	Chapter	4/26	Chapter
2/25	Chapter	4/28	Chapter
3/1	Chapter	5/3	Chapter
3/3	Chapter	5/5	
3/8	Chapter	5/10	Quiz
3/10	Quiz	5/12	Review
3/15	Chapter	5/17	Review
3/17	Chapter	5/19	Review (Project?)
3/22	Spring Recess	5/24	No Class (finals)
3/24	" "	5/26	Final 6:00pm – 8:00 (Th)

OTHER IMPORTANT DATES:Jan. 25 – Regular classes begin.
Feb. 26 – Last day to apply for P/NP
Apr. 22 – Last day to drop classes.
May 26 – FINAL EXAM, 6:00pm – 8:00 (Th)