GENN004
Computers for Engineers
(Using MATLAB)

Instructors and Classes Info on Board

GENN004: Computers for Engineers

- Credit Hours: 2
- Contact Hours: 1 hr lecture + 10 min break + 1 h 40 min lab including quizzes
- Textbook:
  - David M. Smith, “Engineering Computation with MATLAB”, 3/E, Prentice Hall, 2013.
  - Stormy Attaway, “MATLAB: A practical Introduction to Programming and Problem Solving”, Elsevier, 2011.
- Programming Language:
  - MATLAB (2006 or newer, 2016 is preferred)
  - Or scilab (open source science lab)

Course Material

http://scholar.cu.edu.eg/?q=eldeib/classes/genn004-computers-engineers

- **Print** the course schedule, slides and **lab assignments**. You should **bring these material to all GENN004 classes**.
- Sample exams, problem solutions, extra exercises, self test for practicing at home are posted in the course site.
- **Your grades** will be posted there as well

Helpful Material

- **Interactive MATLAB Tutorial from MathWorks**

http://www.mathworks.com/academia/student_center/tutorials/register.html

- **YouTube Videos**
  - Elsayed Hemayed Channel
  - Learn MATLAB in Arabic (Dr Seif Fateen)
  - MATLAB Tutorial

Course Objectives

(1) Develop skills in algorithmic thinking by preparing computer programs to analyze and present engineering data

(2) Properly evaluate and interpret the results of programming work

(3) Learn to write (in MATLAB) the types of programs needed for engineering problem solving

Course Intended Learning Outcomes ILO's

After completing the course, students will be able to:

1. Evaluate the results of programming work.
2. Create pseudo code algorithm that illustrate algorithmic thinking. Use the algorithm in preparing to write matlab programs.
3. Follow and document each step in the Problem Solving Method (input, output, solve by hand, scientific principles, convert to code, test code).
4. Use the programming language MATLAB to write computer programs that solve engineering problems.
5. Use data types, input/output commands, loops, control structures, functions, arrays, and other programming language constructs in matlab computer programs.

Grading

- 40 Final Exam – after week 14
- 20 Midterm Exam –week 8 or 9
- 15 Final Lab Exam – week 13
- 15 Two Quizzes (best 2 out of 3) week 5, 10, 12
- 10 Lab Assignments and Homework – Weekly (best 10 out of 13)
- Bonus point for each lab if you solve all problems of lab assignment in the lab.
  - Max 9 Points in 9 labs
  - You **have to get at least 4 Points** to add your bonus points to your grade
  - Effectively, Bonus can add up to **2 points to your Midterm grade and 2 points to your Classwork grade**
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- Makeup exam out of 12 for midterm grade < 12 or Lab exam < 10. Week 14

- **STUDENTS ARE RESPONSIBLE OF FOLLOWING THE ANNOUNCED DEADLINES IN THE ONLINE SCHEDULE (UNLESS OTHERWISE ANNOUNCED)**

Topics

1. Introduction and MATLAB Basics
2. Arithmetic Operations
3. Input and Output
4. Selection Statements (Control)
5. Looping
6. MATLAB Programs
7. Matrices and Vectorized Code

See the Excel sheet for a detailed schedule

Thank You

Course Site:

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Computers for Engineers – GENN004