FLORIDA GULF COAST UNIVERSITY

Department of Environmental and Civil Engineering
U.A. Whitaker College of Engineering

EGN 1041C COMPUTATIONAL TOOLS FOR ENGINEERS

SPRING 2019 (CRN 10365)

TWO (2) CREDIT HOURS

Professor: Munir R. Al-Suleh, MSEE, PE
Phone Number: 239-233-0005
E-mail: msuleh@fgcu.edu
Office Location: Holmes Hall Room 402 (Classroom)

I. COURSE CATALOG DESCRIPTION:

Computational Tools is a course that introduces problem solving strategies (logical thinking) and computational tools used in the process of engineering. Our "languages" are *Microsoft EXCEL*, the most commonly used spreadsheet program, and *MATLAB*, a high-level computer programming language especially suited to math, science and engineering. Mastery of these programs will allow you to use any typical software package for data analysis, modeling and graphical presentation and interpretation.

II. MEETING INFORMATION:

Type	Time	Days	Where	Date Range
Class	**5:45 PM – 8:30 PM**	**M**	**Holmes Hall Room 402**	**January 7, 2019 – April 25, 2019**
Office Hours	**8:30 PM – 9:30 PM BY APPOINTMENT**	**M**	**Holmes Hall Room 402**	**January 7, 2019 – April 25, 2019**
Final Exam	**5:45 PM – 7:45 PM**	**M**	**Holmes Hall Room 402**	**Monday April 29, 2019**

III. ATTENDANCE POLICY:

Class attendance is in accordance with the published university course schedule. You are responsible for materials identified in the readings and covered in class, even if absent from class for authorized activities. Any absence should be coordinated before the absence, if possible. Graded or evaluated materials will not be accepted as late after an absence unless the absence is coordinated with the instructor in advance. Therefore, be advised to come to each class on time and prepared.

IV. PREREQUISITES FOR THIS COURSE:

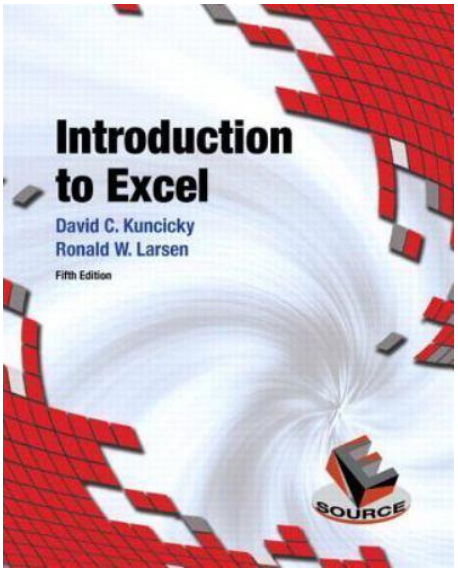
Undergraduate level MAC 2311 with a minimum grade of "C" or higher and undergraduate EGN 1006L/EGS 1006L with a minimum grade of "C".

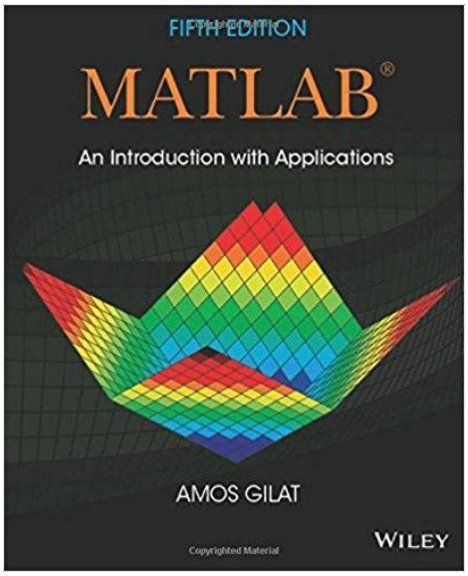
V. REQUIRED COURSE MATERIALS:

Two books are required (e-book versions are fine):

- Kuncicky, C. & Larsen, R. (2013), *Introduction to Excel* (5th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall (ISBN: 978-0133083637).

- Gilat, A. (2014), *MATLAB: An Introduction with Applications* (5th ed.). Hoboken, NJ: John Wiley & Sons, Inc. (ISBN: 978-1118629864).





VI. REFERENCE MATERIALS FOR THE COURSE:

None

VII. ADDITIONAL COURSE MATERIALS:

Additional course materials will be posted on Canvas. The EXCEL and MATLAB programs are loaded onto the computers in Seidler Hall Room 127 and the student computer lab in Holmes Hall. MATLAB is also available on "Virtual Machines". Student versions/licenses can also be purchased if desired.

VIII. LEARNING OUTCOMES:

- Use Excel to create spreadsheets, define and use functions, and display and analyze data and trends including 2-D plots.
- Use Excel and MATLAB to solve systems of equations and to optimize solutions to problems given constraints.
- Use Excel and MATLAB to set up and solve a variety of fundamental engineering problems in a variety of disciplines.
- Use MATLAB to visualize solutions to engineering problems by using 2-D and 3-D graphics.
- Demonstrate introductory level engineering technical communication skills.

IX. GRADING POLICY

100.00% - 90.00%	A
89.99% - 86.67%	B+
86.66% - 83.34%	B
83.33% - 80.00%	B-
79.99% - 76.67%	C+
76.66% - 73.34%	C
73.33% - 70.00%	C-
69.99% - 60.00%	D
Below 60%	F

- **Please note that a "C" grade in this course (EGN 1041C) is the minimum acceptable grade to satisfy the prerequisite requirement for several engineering courses.**

- **Failure to progress from this course with a grade of "C" or higher acts as a roadblock to upper level courses. It is your responsibility to make sure you achieve this goal.**

Discussion	10%	10 Discussions (In-Class Exercises)
Assignments	10%	5 Assignments
Quizzes	10%	3 Quizzes
Test 1 (EXCEL)	25%	1 Test
Test 2 (MATLAB)	20%	1 Test
Final Exam (MATLAB)	25%	1 Exam
Total	**100%**	

Notes:

- Last Day to Drop/Withdraw via GULFLINE (100% Refund) is Friday January 11, 2019.
- Last Day to Drop/Withdraw without Academic Penalty is Friday March 29, 2019.
- Last class meeting is on Monday April 22, 2019.
- Final Exam is on Monday April 29, 2019 from 5:45 PM – 7:45 PM.
- See the Academic Calendar on FGCU website: https://www.fgcu.edu/academics/academiccalendar/terminfo.aspx?termid=80

X. REQUIREMENTS FOR THE STUDENTS:

- You are expected to come to all classes and to be prepared and on time. This course contains numerous lab activities and in-class exercises. Your class attendance is of the utmost importance.
- All university policies regarding students will be enforced.
- All students must have access to the FGCU computing system. All electronic course communication will be through Canvas.
- You are encouraged to read the textbook and practice with available computer resources.
- Quizzes and testes will be given throughout the course. If a student is absent for some reason, the student will receive no credit for that particular quiz or test.

- EXCEL and MATLAB are computer programs that require a lot of practice to master the commands and techniques to complete successful drawings. Extensive assignments will be assigned in this course.
- Students are expected to submit all submissions electronically by their due dates. Assignments turned in or sent after the required due date will be panelized 30%. Assignments not submitted by the following week will receive a grade of zero.
- It is your responsibility to complete and turn in all assigned work by the given due date and time.
- Heavy emphasis will be placed on the clarity, organization, and readability of your work. The presentation is an integral part of your grade. Ten percent (10%) of your grade on every submission will be based on the presentation of your work.
- The grade for the course will be assigned on an individual and team basis. Homework, quizzes, and exams are graded based on individual efforts.
- Respect: It is expected that all students in this class will be respectful of their classmates and the instructor. This means arriving on time, staying focused and attentive throughout the entire class session, as well as refraining from any unnecessary distractions.

XI. PROCEDURES AND POLICIES:

Academic Behavior Standards and Academic Dishonesty:
All students are expected to demonstrate honesty in their academic pursuits. The university policies regarding issues of honesty can be found in the FGCU Student Guidebook under the Student Code of Conduct and Policies and Procedures sections. All students are expected to study this document, which outlines their responsibilities and consequences for violations of the policy. The FGCU Student Guidebook is available online at http://studentservices.fgcu.edu/judicialaffairs/new.html

We expect you to maintain the highest standards of academic honesty and integrity while in this course and as a student at Florida Gulf Coast University. In addition to standard definitions of honesty, integrity, and plagiarism, this policy also prohibits you from using previous work products created for this course by other students & allowing persons outside your team to contribute to the creation of your team's work.

Disability Accommodations Services:
Florida Gulf Coast University, in accordance with the Americans with Disabilities Act and the university's guiding principles, will provide classroom and academic accommodations to students with documented disabilities. If you need to request an accommodation in this class due to a disability, or you suspect that your academic performance is affected by a disability, please contact the Office of Adaptive Services. The Office of Adaptive Services is located in Howard Hall 137. The phone number is 239-590-7956 or TTY 239-590-7930. Please review University Policies concerning Disability Accommodations Services at the following address: http://www.fgcu.edu/adaptive/

Student Observance of Religious Holidays:
All students at Florida Gulf Coast University have a right to expect that the University will reasonably accommodate their religious observances, practices, and beliefs. Students, upon prior notification to their instructors, shall be excused from class or other scheduled academic activity to observe a religious holyday of their faith. Students shall be permitted a reasonable amount of time to make up the material or activities covered in their absence. Students shall not be penalized due to absence from class or other scheduled academic activity because of religious observances.

Please review FGCU policies concerning student observance of religious holidays at the following address: https://www2.fgcu.edu/generalcounsel/files/policies/Policy4.005%20Student%20Observance%20of%20Religious%20Holidays_09242008_ada.pdf

XII. TENTATIVE CLASS SCHEDULE:

EGN 1041C Computational Tools for Engineers
Spring 2019 (CRN 10365)

Holmes Hall Room 402
(Please, no food or drink in the computer classroom)
Monday 5:45 PM – 8:30 PM

From time to time, this syllabus may need to be amended/adjusted. The instructor will notify students via classroom announcement, e-mail, or FGCU Canvas (Canvas Login: http://canvas.fgcu.edu/) of any changes, additions, and/or deletions to the syllabus.

WEEK	DATE	ACTIVITIES	ITEMS DUE	DUE DATE
1	January 7, 2019	EXCEL - Chapter 1: *Microsoft Excel Basics* EXCEL - Chapter 2: *Entering and Formatting Data*		
2	January 14, 2019	EXCEL - Chapter 3: *Formulas and Functions* EXCEL - Chapter 4: *Working with Charts*	Assignment 1	**Sunday 1/20 @ 11:59 PM**
3	**January 21, 2019**	**Martin Luther King Holiday Observed (No Classes)**		
4	January 28, 2019	EXCEL - Chapter 5: *Performing Data Analysis*	Assignment 2	**Monday 1/28 @ 11:59 PM**
5	February 4, 2019	EXCEL - Review for Test 1	**Quiz 1 (In-Class)**	**Monday 2/4 @ 7:30 PM**
6	**February 11, 2019**	**Test 1: *EXCEL Chapters 1 to 5*** **(From 5:45 PM - 7:45 PM in Holmes Hall 402)**	**Test 1 (In-Class)**	**Monday 2/11 @ 5:45 PM**
7	February 18, 2019	MATLAB - Chapter 1: *Starting with MATLAB* MATLAB - Chapter 2: *Creating Arrays*		
8	February 25, 2019	MATLAB - Chapter 2: *Creating Arrays*	Assignment 3	**Monday 2/25 @ 11:59 PM**
9	**March 4, 2019**	**Spring Break (No Classes)**		

10	March 11, 2019	MATLAB - Chapter 3: *Mathematical Operations with Arrays*		
11	March 18, 2019	MATLAB - Chapter 4: *Using Script Files and Managing Data*	Assignment 4	**Monday 3/18 @ 11:59 PM**
12	March 25, 2019	MATLAB - Chapter 5: *Two-Dimensional Plots*	**Quiz 2 (In-Class)**	**Monday 3/25 @ 7:30 PM**
13	**April 1, 2019**	**Test 2: *MATLAB Chapters 1 to 5* (From 5:45 PM - 7:45 PM in Holmes Hall 402)**	**Test 2 (In-Class)**	**Monday 4/1 @ 5:45 PM**
14	April 8, 2019	MATLAB - Chapter 6: *Programing in MATLAB*		
15	April 15, 2019	MATLAB - Chapter 7: *User-Defined Functions and Function Files*	Assignment 5	**Sunday 4/15 @ 11:59 PM**
16	April 22, 2019	MATLAB - Chapter 10: *Three-Dimensional Plots*	**Quiz 3 (In-Class)**	**Monday 4/22 @ 7:30 PM**
17	**April 29, 2019**	**Final Exam: *MATLAB Chapters 1 to 7, & Chapter 10* (From 5:45 PM - 7:45 PM in Holmes Hall 402)**	**Final Exam (In-Class)**	**Monday 4/29 @ 5:45 PM**

Disclaimer:

This syllabus is an agreement between the instructor and the students registered in the course. It should be noted, however, that in any questions or problems involving official policy or procedure, information and explanations as stated in the FGCU Student guidebook are always considered to override the language of a course syllabus. From time to time, this syllabus may need to be amended/adjusted. The instructor will notify students via classroom announcement, e-mail, or FGCU Canvas (Canvas Login: http://canvas.fgcu.edu/) of any changes, additions, and/or deletions to the syllabus.