

**FLORIDA INTERNATIONAL UNIVERSITY**  
**Department of Civil and Environmental Engineering**  
**CGN 2420 – Computer Tools in Engineering**  
**Summer 2012 – Course Syllabus**

**Instructor:** Cora Martinez-Franklin, Ph.D.  
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**Office Hours:** Room EC2760, Monday and Wednesday 11:30-1:30 p.m. For other time, please make an appointment at the Advising Center or view day schedule at <https://web2.eng.fiu.edu/advising2>

**Course Objectives:** The primary objective of this course is to introduce students to two computer software commonly used as tools to carry out mathematical calculations in the context of the engineering profession.

By the end of the course, students will be able to demonstrate a reasonably proficient use of Excel and Mathcad, and the application of this software to the solution of common engineering calculations.

**Prerequisites:** Calculus II and Physics I.

**Course contents:** Part - I

- Basic operations in Excel, formulas and functions.
- Formatting worksheets using Excel's Ribbon.
- Graphing with Excel.
- Matrix operations in Excel.
- Optimization in Excel.
- Macros and written functions for Excel.

Part - II

- Mathcad fundamentals.
- Mathcad functions.
- Working with matrices.
- Programming in Mathcad.
- Solving engineering equations.
- Mathcad's symbolic capabilities.

**Textbooks:** **Engineering with Excel**, 3rd Edition, Ronald W. Larsen.  
**Introduction to Mathcad 15**, 3rd Edition, Ronald W. Larsen.

**Graded Assignments:**

There will be a total of 6 graded assignments and they will be submitted as follows

- Work is to be submitted in paper as well as a file e-mailed as an attachment to: [cgn2420.section1@gmail.com](mailto:cgn2420.section1@gmail.com)
- Homework is due at the beginning of the class; late assignments will not be graded.
- Assignment's files e-mailed to the instructor personal account will be automatically deleted; therefore, they will not be graded.
- In order to obtain full credit, your homework in paper must contain the following information in the first page: (a) Course name and section. (b) Student's name and panther ID. (c) Assignment number and name. (d) Date.  
Your e-mailed file must be named with your name and the assignment number and name.  
Ex. Cora\_Martinez\_Homework\_1.xlsx
- No assignments will be reviewed at the end of the course with the intention of a grade change. Reviews can be done immediately after work is returned to the student.
- Mathcad software will be required for some homework problems. You can access this software package through: [www.eic.fiu.edu](http://www.eic.fiu.edu) (Citrix Portal)

**Exams:**

There will be two exams to evaluate student's mastery of the fundamental practical aspects of each of the two software, Excel and Mathcad.

**Evaluation, and Grading:**

Home and class work: 60%  
Exam 1: 20 %  
Exam 2: 20 %

- A make-up for a missing assignment or exam will only be possible with a certified medical excuse or legitimate emergency, or if the specific circumstance is discussed with the instructor prior to the exam.
- Grades for borderline percentages will strongly depend on attendance, class participation and overall performance in the course.
- On unscheduled occasions, the instructor can request submission of class work via e-mail or printout. These will count as part of your grade.
- Letter grades in this course will be assigned based on the following scale:

Score (%)	Grade
90-100	A
85-89	A <sup>-</sup>
80-84	B <sup>+</sup>
75-79	B
70-74	B <sup>-</sup>
65-69	C <sup>+</sup>
60-64	C
55-59	C <sup>-</sup>
50-54	D <sup>+</sup>
45-49	D
40-44	D <sup>-</sup>
0-39	F

**Web site:** All class material can be accessed through the following website:

[web.eng.fiu.edu/cmartine](http://web.eng.fiu.edu/cmartine)

**Academic Misconduct:** Students are expected to uphold the standards of academic integrity and the policies of the University regarding conduct. Cheating and plagiarism will not be tolerated; these offenses can result in failing the course, suspension or expulsion from the University.

Refer to FIU Student Handbook for full details on what constitutes academic dishonesty and misconduct, as well as the procedures for resolution of pertaining matters within the University judiciary procedures.

**ABET Outcomes:** The objectives of this course are related with the following ABET outcomes

- Technical Proficiency: Our students will have ability to **3k.** utilize the techniques, skills, and modern scientific and engineering tools necessary for civil engineering practice.
- Communication: Our students will have an acceptable level of proficiency in **3g.** written, oral, and graphical communication.
- Lifelong Learning: Our students will **3i.2** recognize the need for lifelong learning to maintain and enhance their professional practice of civil engineering.