

BOROUGH OF MANHATTAN COMMUNITY COLLEGE

City University of New York

Department of Science

Title of Course Computer Aided Analysis for Engineering

ESC 113 Section _____

Credits 2

Class hours 1

Lab hours 3

Instructor Information

Name:

Office:

Room:

Email:

Course Description

This course introduces topics important for engineers computer aided analysis techniques are introduced and used for the design, and modeling of engineering systems such as electrical circuits, pipelines, signal and image processing, aircraft engines, orbits and trajectories, protein molecules, and sewer treatment.

Prerequisites/Co-requisites

Prerequisite: MAT 206

Corequisite: CHE 210 or PHY 215 or permission of the department

Student Learning Outcomes

- Students will be able to get an introduction to MATLAB
- Students will be able to illustrate the use of MATLAB in Engineering design
- Students will be able to get an introduction to the mathematical and computer analysis of the problem solving process through a variety of examples and applications.

Required Text & Readings

Author: Etter, D.

Title: Engineering Problem Solving with Matlab®

Ediiton: 2nd

Publisher: Prentice Hall (1997)

Other Resources

Use of Technology (if applicable)

Evaluation & Requirements of Students

Examination 50%

Design presentations 50%

Outline of Topics

| <i>WEEK</i> | <i>TOPIC</i> |
|-------------|---|
| 1 | MATLAB Analysis |
| 2 | MATLAB Analysis |
| 3 | MATLAB Analysis |
| 4 | Review and Exam 1 |
| 5 | Functions of Real Variable and their graphs |

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|----|--|
| 6 | Applications to simple circuits |
| 7 | Complex Numbers and Phasors |
| 8 | Interference of Phasors; Signal Representation |
| 9 | Multiphase Circuits |
| 10 | Review and Exam 2 |
| 11 | Pumps and Pipeline flow analysis |
| 12 | Protein Molecule and Sewer discharge treatment |
| 13 | Aircraft Engine, Trajectoriesn and Orbits |
| 14 | Review and Final Examination |

College Attendance Policy

At BMCC, the maximum number of absences is limited to one more hour than the number of hours a class meets in one week. For example, you may be enrolled in a three-hour class. In that class, you would be allowed 4 hours of absence (not 4 days). In the case of excessive absences, the instructor has the option to lower the grade or assign an F or WU grade.

Academic Adjustments for Students with Disabilities

Students with disabilities who require reasonable accommodations or academic adjustments for this course must contact the Office of Services for Students with Disabilities. BMCC is committed to providing equal access to all programs and curricula to all students.

BMCC Policy on Plagiarism and Academic Integrity Statement

Plagiarism is the presentation of someone else's ideas, words or artistic, scientific, or technical work as one's own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism.

Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC's web side, www.bmcc.cuny.edu. For further information on integrity and behavior, please consult the college bulletin (also available online).