

Master Syllabus

1. Course Information

College: College of Engineering and Computer Science
Department: College-Wide
Course Title: Introductory Mathematics for Engineering Applications
Course Designation and Number: EGR 101
GE Area(s): VI: College Component

Writing Intensive: Yes No

For WI Courses: All sections Selected Sections are WI

Method(s) of Instruction:

- Lecture
- Discussion
- Web-enhanced
- Web-only (some sections)
- Other
Recitation sections

Includes Lab: Yes No

The laboratory component requires completion of 8 regular laboratory assignments in weeks 2 through 9 of the course.

Prerequisites: EGR 199 or MPL 5 Plus Trig in HS or MTH 131

2. Objectives

GE Program Objectives:

- a. sharpen critical thinking, problem solving, and communication skills
- b. increase knowledge and understanding of the world in which we live

GE Area VI Objectives:

- a. communicate with individuals who are in the student's major, in allied fields, and non specialists
- b. understand important relationships and interdependencies between the student's major and other academic disciplines, world events or life endeavors

Course Objectives and GE Learning Outcomes:

Introductory Mathematics for Engineering Applications provides a broad introduction to the salient math topics most heavily used in engineering, at a level appropriate for first-year engineering students as well as non majors in related disciplines. All mathematical topics are motivated by their direct application in core engineering courses, and reinforced through hands-on physical experiments in the laboratory.

Area VI learning outcomes addressed:

Sharpens critical thinking, problem solving, and communication skills. Increases knowledge and understanding of the world in which we live. Requires students to communicate with individuals who are in the student's major, in allied fields, and non specialists. Illustrates important relationships and interdependencies between the student's major and other academic disciplines and life endeavors.

For WI Courses: WAC Objectives

1. To improve students' writing proficiency—their ability to develop ideas and transmit information for an appropriate audience in an organized, coherent fashion while writing with appropriate style and correct grammar, usage, punctuation and spelling.
2. To encourage students to use writing as a learning tool to explore and structure ideas, to articulate thoughts and questions, and to discover what they know and do not know, thereby empowering students to use writing as a tool of discovery, self-discipline, and thought.
3. To demonstrate for students the ways in which writing is integral to all disciplines, essential to the learning and conveying of knowledge in all fields.

In pursuit of the above objectives, students will write a 200 word abstract for each of their 8 regular laboratory assignments. Abstracts will be graded separately from the rest of the laboratory calculations, which will allow for independent assessment of the WI component of the course.

3. Suggested Course Materials

Text: *Gilat, A., Matlab: An Introduction with Applications, 2nd ed., John Wiley & Sons, 2004*
Course notes and laboratory materials are also posted on the course web page.

4. Suggested Methods of Evaluation

Student performance is assessed through two block midterms and one block final exam, as well as through weekly homework and laboratory assignments.

5. Grading Policy

All GE courses are graded A-F.

6. Suggested Weekly Course Outline Including Typical Assignments

Wk 1: Application of Algebra in Engineering

Wk 2: Application of Trigonometry in Engineering

Wk 3: Vectors and Complex Numbers in Engineering

Wk 4: Sinusoids and Harmonic Signals, Systems of Equations and Matrices in Engineering

Wk 5: Introduction to Derivatives in Engineering, Velocity and Acceleration

Wk 6: Application of Derivatives in Electric Circuits and Mechanics of Materials

Wk 7: Introduction to Integrals in Engineering, Application of Integrals in Statics

Wk 8: Application of Integrals in Dynamics and Electric Circuits

Wk 9: Differential Equations in Engineering - Mechanical Systems

Wk 10: Differential Equations in Engineering - Electrical Systems

Each week includes both handwritten and Matlab homework corresponding to the relevant course material.

7. Other

Syllabus distributed to students should employ the format approved by UCAP and must include: -Instructor name, office hours, and contact information -Office of Disability Services information -Information on how grades will be determined -Attendance policy