

Master Syllabus

EGR 1101 - Introductory Mathematics for Engineering Applications

Division: Science, Mathematics and Engineering

Department: Automation and Control Technology

Credit Hour Total: 4.0

Lecture Hrs: 3.0 **Lab Hrs:** 3.0

Prerequisite(s): MAT 0300OR MAT 1290OR MAT 1570

Date Revised: August 2015

Course Description:

An overview of math topics used in engineering courses: algebra, trigonometry, vectors, complex numbers, sinusoids, systems of equations, matrices, differentiation, integration, differential equations. All math topics are presented within the context of engineering applications, reinforced through examples from engineering courses. Also introduces the engineering analysis software MATLAB. Three classroom, three lab hours per week.

General Education Outcomes:

- Critical Thinking/Problem Solving Competency
- Information Literacy Competency

Course Outcomes:

Integrals

Solve problems involving applications of integrals in engineering.

Assessment Method: Locally developed exams
Performance Criteria:

Correctly answer at least 70% of exam questions

Assessment Method: Performance appraisals
Performance Criteria:

Score at least 70% on lab activities

Derivatives

Solve problems involving applications of derivatives in engineering.

Assessment Method: Locally developed exams
Performance Criteria:

Correctly answer at least 70% of exam questions

Assessment Method: Performance appraisals
Performance Criteria:

Score at least 70% on lab activities

MATLAB

Use MATLAB to solve a variety of introductory engineering mathematics problems.

Assessment Method: Locally developed exams
Performance Criteria:

Correctly answer at least 70% of exam questions

Assessment Method: Performance appraisals
Performance Criteria:

Score at least 70% on lab activities

Differential Equations

Solve problems involving applications of differential equations in engineering.

Assessment Method: Locally developed exams
Performance Criteria:

Correctly answer at least 70% of exam questions

Assessment Method: Performance appraisals
Performance Criteria:

Score at least 70% on lab activities

Algebra and Trigonometry

Solve problems involving applications of algebra and trigonometry in engineering.

Assessment Method: Locally developed exams
Performance Criteria:

Correctly answer at least 70% of exam questions

Assessment Method: Performance appraisals
Performance Criteria:

Score at least 70% on lab activities

Experiments

Conduct a variety of physical experiments using engineering laboratory equipment.

Assessment Method: Performance appraisals
Performance Criteria:

Score at least 70% on lab activities

Lab Abstracts

Write proper technical abstracts for engineering laboratory assignments.

Assessment Method: Performance appraisals
Performance Criteria:

Score at least 70% on lab activities

Outline:

Algebra

Trigonometry

Vectors

Complex numbers

Sinusoids

Systems of equations & matrices

Derivatives

Integrals

Differential equations