

## 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

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#### 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