

## Master Syllabus

### **MAT 1280 - Technical Mathematics I**

**Division:** Science, Mathematics and Engineering

**Department:** Mathematics

**Credit Hour Total:** 4.0

**Lecture Hrs:** 4.0

**Prerequisite(s):** MAT 0100

**Other Prerequisite(s):** AND Other with a grade of C or better or satisfactory score on math placement test

**Date Revised:** April 2017

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### **Course Description:**

Accuracy and precision with approximate numbers, geometry, functions, graphs, basic operations on polynomials, right-triangle trigonometry, systems of linear equations, factoring and quadratic equations. Scientific calculator required.

### **General Education Outcomes:**

- Critical Thinking/Problem Solving

### **Course Outcomes:**

#### **Perform Operations**

Demonstrate the ability to add, subtract, multiply and divide both polynomial and rational expressions.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Passing grade on exams with a score of 70% or better

#### **Evaluate Formulas and Functions**

Demonstrate the ability to evaluate formulas to solve problems in geometry and trigonometry. Evaluate functions and systems of linear equations both graphically and analytically.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Passing grade on exams with a score of 70% or better

#### **Solving Equations and Application Problems**

Demonstrate the ability to solve linear and quadratic equations and to solve problems involving linear and quadratic equations.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Passing grade on exams with a score of 70% or better

#### **Graphing Functions**

Demonstrate the ability to sketch the graphs of linear and quadratic functions.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Passing grade on exams with a score of 70% or better

### **Outline:**

Approximate numbers, measurement error and significant digits

Scientific & engineering notation & unit conversion

Solve simple linear equations, formulas and literal equations

Basic operations on polynomials

Simplifying expressions involving exponents

Basic geometry of lines, angles, triangles, quadrilaterals, circles, rectangular solids, prisms, spheres, cylinders and cones

Ratios, proportions and variation

Introduction to functions including the algebra of functions & graphing

Linear functions including slope-intercept & point-slope forms

Solving quadratic equations and graphing quadratic functions

Solving systems of linear equations by graphing, substitution, addition/subtraction and using determinants

Factoring, equivalent fractions - solving equations involving rational expressions

Define the trigonometric functions and use them to solve right triangles

Integral and rational exponents