

## Master Syllabus

### **MAT 1290 - Technical Mathematics II**

**Division:** Science, Mathematics and Engineering

**Department:** Mathematics

**Credit Hour Total:** 4.0

**Lecture Hrs:** 4.0

**Prerequisite(s):** MAT 1280

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

**Date Revised:** March 2015

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### **Course Description:**

Trigonometric functions of angles, radian measure, vectors, solving oblique triangles, graphs of trigonometric functions, inverse trigonometric functions, fractional exponents, complex numbers, exponential and logarithmic functions, systems of equations, theory of equations and fundamental trigonometric identities. Scientific calculator required.

### **General Education Outcomes:**

- ▣ Critical Thinking/Problem Solving

### **Course Outcomes:**

#### **Perform Operations**

Demonstrate the ability to perform operations involving vectors in the plane; graphically and analytically; perform operations in solving non-linear systems of equations and in simplifying exponential and logarithmic expressions, complex numbers and expressions involving fractional exponents.

**Assessment Method:** Locally developed exams

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

#### **Solve Equations**

Demonstrate the ability to solve polynomial, exponential, logarithmic, trigonometric and radical equations.

**Assessment Method:** Locally developed exams

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

#### **Perform Operations**

Demonstrate the ability to perform operations involving vectors in the plane; graphically and analytically; perform operations in solving non-linear systems of equations and in simplifying exponential and logarithmic expressions, complex numbers and expressions involving fractional exponents.

**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 involving angles, vectors and trigonometry. Evaluate exponential, logarithmic and radical functions and systems of non-linear equations, graphically and analytically.

**Assessment Method:** Locally developed exams

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

### **Outline:**

Trigonometric functions of any angle  
Radian measure - arc length, area of a sector, angular & linear velocity  
Introduction to vectors - add vectors graphically & by components  
Oblique triangles, Law of Sines & Cosines  
Graphical representation of complex numbers (polar & rectangular)  
Graph exponential and logarithmic functions with applications  
Simplify exponential & logarithmic expressions  
Simplify expressions involving fractional exponents  
Solve exponential, logarithmic & radical equations  
Solve systems of equations involving nonlinear equations  
Fundamental trigonometric identities  
Graph trigonometric functions & solve trigonometric equations  
Inverse trigonometric functions