J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: MTH 166   **Credits:** 5

Course Title: Precalculus with Trigonometry

Course Description (including lecture hours, lab hours, total contacts)

Presents college algebra, analytic geometry, trigonometry, and algebraic, exponential, and logarithmic functions. Credit will not be awarded for more than one of the following: MTH 163 or MTH 166. Lecture 5 hours per week.

General Course Purpose

A preparatory course for Calculus with Analytic Geometry (MTH 173)

Course Prerequisites/Corequisites (E*ntry-level competencies **required** for enrollment*)

Prerequisites: a placement recommendation for MTH 166 and Algebra I, Algebra II, and Geometry or equivalent.

Course Objectives (Each item should complete the following sentence.)

Upon completing the course, the student will be able to:

    a. solve quadratic equations
    b. apply the concept of function
    c. use the properties of functions to sketch their graphs
    d. use the theory of equations to find real zeros of polynomial functions of degree greater than two
    e. graph rational functions
    f. describe the properties of exponential and logarithmic functions and sketch their graphs
    g. solve exponential and logarithmic equations
    h. given a point of the terminal side of an angle in standard position, find the values of the six trigonometric functions of the angle
    i. give an angle measured in degrees or radians, find the values of the six trigonometric functions of the angle
    j. sketch the graphs of the six basic trigonometric functions
    k. evaluate inverse trigonometric functions of given real numbers
    l. state and use basic trigonometric identities
    m. solve trigonometric equations
    n. solve right and oblique triangles (as time permits)
    o. given an equation of a conic section, determine the features and sketch its graph
    p. given sufficient information, write the equation of a conic section
    q. use a specific graphing calculator to enhance learning techniques

Major Topics to be Included

    a. Graphs of Equations and Functions
    b. Operations on Functions
    c. Inverse Functions
    d. Polynomial Functions
    e. Zeros of Polynomials
    f. Rational Functions
    g. Exponential and Logarithmic Functions
    h. Trigonometric Functions
    i. Inverse Trigonometric Identities
    j. Trigonometric Identities
    k. Solutions of Triangles
    l. Conic Sections

Effective Date of Course Content Summary (Month, Date Year): Fall 2007