Course Syllabus
Wayne County Community College District
EE 107 Math for E/E I

CREDIT HOURS: 4.00

CONTACT HOURS: 60.00

COURSE DESCRIPTION:
Provides detailed coverage of areas of introductory algebra used in electrical engineering.

PREQUISITES: MAT 105

EXPECTED COMPETENCIES:
Upon successful completion of this course, the student will:

- Use the Principles of Equality to solve linear equations in one variable
- Solve an equation involving absolute value
- Solve literal equations for specified variable
- Solve linear inequalities in one variable and graph the solution
- Solve an inequality involving absolute value and graph the solution
- Transform a verbal statement of variation into a formula
- Apply the techniques of solving equations and inequalities learned in this chapter to technical problems.
- Factor a polynomial using the greatest common factor
- Factor a binomial using the difference of two squares
- Factor a trinomial using perfect square trinomial
- Factor a general trinomial using the ac method
- Reduce fractions to lowest terms
- Multiply and divide algebraic fractions
- Add and subtract algebraic fractions
- Simplify a complex fraction
- Solve an equation containing fractions
- Simplify an algebraic expression with integral exponents
- Simplify an algebraic expression with fractional exponents
- Simplify radical expressions to simplest form Add, subtract, multiply, and divide radical expressions
- Solve equations involving radicals
- Express one variable as a function of a second variable
- Identify the domain of a function
- Evaluate $f(x)$ for a given value of $x$
- Plot points on the rectangular coordinate system
- Graph a given function on the rectangular coordinate system Determine the slope of a line given two points
- Determine the distance between two points and the midpoint of two points. Find the solution to a given inequality or system of two inequalities on the rectangular coordinate system
- Apply these concepts to solve an equation, find the break-even point of a business, and graph empirical data
- Solve a quadratic equation by factoring
- Solve a quadratic equation by completing the square
- Solve a quadratic equation by using the quadratic formula
- Using the discriminate, describe the number and type of roots in a quadratic equation.
- Solve equations in quadratic form
- Solve a quadratic inequality
- Apply the techniques for solving quadratic equations to technical problems
- Determine whether an ordered pair is the solution to a system or equations
- Solve a system of linear equations graphically
- Solve a system of two or three linear equations using substitution or addition
- Evaluate a determinant
- Solve as system linear equation by using Cramer’s rule
- Apply the concepts of solving a system of equations to technical situations
- Apply the Remainder Theorem
- Use the factor Theorem to determine whether a quantity is a factor of a given polynomial, a zero of a given function, or the root of a given equation
- Perform synthetic division and use it to determine whether a quantity is a root, a zero, or a factor of a second quantity
- Find the roots of a higher degree equation
- Use Descartes’ Rule of Signs to determine the maximum number of positive and negative roots of an equation
- List all possible rational roots of a polynomial equation
- Find irrational roots of a polynomial equation by linear approximation
- Graph exponential and logarithmic functions
- Evaluate exponential expressions using a calculator
- Convert a logarithmic expression to an exponential expression, and vice versa
- Solve simple logarithmic equations by converting them to exponential form.
- Apply the properties of logarithms to write logarithmic expressions in different forms, and evaluate the resulting expressions.
- Solve exponential and logarithmic equations
- Convert and angle measured in degrees, minutes, and seconds into decimal parts of a degree, and vice versa
- Draw an angle and determine angles co terminal with it
- Given a point on the terminal side of an angle in standard position, determine any of the six trigonometric functions of that angle
- Given the value of one trigonometric function, determine the value of any of the remaining functions of that angle
- Using a calculator, find the value of a given trigonometric function
- Using a calculator, find the first quadrant angle for a given trigonometric value
- Solve a right triangle from given information
- Determine the sign of a trigonometric function in any of the four quadrants, or if given sign(s) of trigonometric function(s), determine the quadrant(s)
- Determine the six trigonometric functions from a point on the terminal side of an angle in any quadrant
- Determine the reference angle for an angle whose terminal side lies in any quadrant
- Find the value of the trigonometric functions for any given angle
- Determine the measure of an angle in any quadrant given its trigonometric value
- Convert angle measured in degrees to radians, and vice versa
- Find the value of a trigonometric function given an angle measured in radians, and vice versa
- Apply radian measure to find the length of a circular arc, the area of a circular sector, and angular and linear velocity
- Apply the methods of solving a right triangle to technical problems
ASSESSMENT METHODS:
Student performance may be assessed by examination, quizzes, case studies, oral reports, group
discussion, written reports or presentations. The instructor reserves the option to employ one or
more of these assessment methods during the course.

GRADING SCALE:
A  = 94% to 100%
B  = 87% to 93%
C  = 80% to 86%
D  = 73% to 79%
E  = less than 72%