**ROCHESTER** COMMUNITY AND TECHNICAL COLLEGE

Course discipline/number/title: MATH 0915:  Foundations of College Algebra

A. CATALOG DESCRIPTION
   1. Credits: 3
   2. Hours/Week: 3
   3. Prerequisites (Course discipline/number): MATH 0094 or MATH 0098, READ 0900
   4. Other requirements:  Must be taken concurrently with MATH 1115 and prerequisites may be satisfied by equivalent Math and/or Reading placement scores.
   5. MnTC Goals (if any): NA

B. COURSE DESCRIPTION:  This course is designed to be taken concurrently with Math 1115 College Algebra. The course focuses on concepts, operations, and models involved with radicals, quadratic equations and inequalities, systems of equations and functions to prepare for College Algebra topics. Must be taken concurrently with MATH 1115 and prerequisites may be satisfied by equivalent Math and/or Reading placement scores.

C. DATE LAST REVISED (Month, year):  December, 2022

D. OUTLINE OF MAJOR CONTENT AREAS:
   1. Equations and Expressions
   2. Properties of Functions
   3. Polynomial Functions
   4. Systems of Equations
   5. Matrices
   6. Inequalities

E. LEARNING OUTCOMES (GENERAL):  The student will be able to:
   1. Solve equations and simplify expressions.
      a) Solve equations using factoring, square root method, completing the square, and quadratic formula.
      b) Simplify and solve one variable equations in quadratic, absolute value, radical, and rational form.
      c) Perform operations and simplify expressions involving complex numbers, radicals, rational expressions, and rational exponents.
   2. Illustrate an understanding of functions.
      a) Perform operations on functions.
      b) Identify the domain and range of relations and determine if they are functions.
      c) Evaluate functions.
   3. Apply concepts of quadratic and polynomial functions.
      a) Identify and graph quadratic functions including the vertex, direction, maximum, minimum, intercepts, and axis of symmetry.
      b) Perform polynomial division using long division and synthetic division.
   4. Solve systems of equations.
      a) Solve two variable linear systems of equations using substitution, elimination, graphing, and Guass-Jordan Elimination.
   5. Perform row operations on matrices.
   6. Inequalities
      a) Solve compound linear, quadratic, and absolute value inequalities.
      b) Graph single and systems of linear equations in two variables.

F. LEARNING OUTCOMES (MNTC):  NA

G. METHODS FOR EVALUATION OF STUDENT LEARNING:  Methods may include but are not limited to:
   1. Exams
   2. Homework
   3. Quizzes
   4. Cooperative Group Assignments
   5. Comprehensive Final Exam

H.      RCTC CORE OUTCOME(S). This course contributes to meeting the following RCTC Core Outcome(s): Critical Thinking. Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.

I.      SPECIAL INFORMATION (if any):
A graphing calculator is required