J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: MTE 8   **Credits: 1**

Course Title: Rational Exponents and Radicals

Course Description (as it should appear in the catalog)

Includes simplifying radical expressions, using rational exponents, solving radical equations and solving applications using radical equations. Credits not applicable toward graduation. Prerequisite: placement recommendation or MTE 7. Lecture 4 hours per week for ¼ semester.

General Course Purpose

This course is designed to give the student understanding and practice in evaluating radical expressions, combining radical expressions, and solving radical equations.

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

Upon completing the course, the student will be able to:
1. Convert between radical and rational exponent form.
2. Calculate (estimate) square and n^{th} roots using calculator.
3. Simplify using the properties of rational exponents.
4. Simplify square and n^{th} roots of variable expressions
5. Simplify radicals by using the multiplication and/or division property of radicals.
6. Define like radicals.
7. Combine and simplify like radicals.
8. Multiply and simplify radicals.
9. Simplify radicals by rationalizing a denominator with one or two terms.
10. Solve radical equations.
11. Define $i = \sqrt{-1}$
12. Define imaginary numbers (e.g. $\sqrt{-25}$)
13. Solve problems involving right triangles and/or the Pythagorean Theorem.
14. Solve problems involving the distance formula.

Major Topics to be Included

1. Radical and Rational Exponent Forms
2. Estimation and Simplification of Radical Expressions
3. Operations on Radical Expressions
4. Rationalization of Denominators
5. Radical Equations
6. Imaginary Numbers
7. Applications using Radicals, including Triangles and Distance

Effective Date of Course Content Summary (Month, Date Year): January 2, 2012