

**J. Sargeant Reynolds Community College
Course Content Summary**

Course Prefix and Number: MTE 7

Credits: 1

Course Title: Rational Expressions and Equations

Course Description (as it should appear in the catalog)

Includes simplifying rational algebraic expressions, solving rational algebraic equations and solving applications that use rational algebraic equations. Credits not applicable toward graduation. Prerequisite: placement recommendation or MTE 6. Lecture 4 hours per week for $\frac{1}{4}$ semester.

General Course Purpose

This course is designed to give the student understanding and practice in simplifying and combining rational expressions, solving rational equations, and using rational equations in applications.

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

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

1. Identify the real values of the variable for which a rational algebraic expression having a linear or quadratic denominator is undefined.
2. Express a rational algebraic expression having negative exponents as an equivalent expression without negative exponents.
3. Simplify a rational algebraic expression.
4. Evaluate a rational algebraic expression given specific integral values for each variable.
5. Perform addition and subtraction of rational algebraic expressions having like denominators.
6. Find the Least Common Denominator (LCD) of two or more rational algebraic expressions.
7. Perform addition and subtraction of rational algebraic expressions with unlike denominators.
8. Multiply rational algebraic expressions and express the product in simplest terms.
9. Use factorization to divide rational algebraic expressions and express the quotient in simplest terms.
10. Simplify complex fractions.
11. Divide a polynomial by a monomial.
12. Perform polynomial long division having binomial divisors of the form $ax + b$.
13. Solve rational algebraic equations.
14. Write a rational equation to match the information given in an application problem.
15. Solve an application problem using rational equations.

Major Topics to be Included

1. Rational Algebraic Expressions
2. Combination of Rational Algebraic Expressions
3. Rational Algebraic Equations
4. Applications of Rational Algebraic Equations

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