Course Prefix and Number: MTE 7  
Credits: 1

Course Title: Rational Expressions and Equations

Course Description: 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 ¼ 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 Prerequisites and Co-requisites:  
Prerequisite: placement recommendation or MTE 6

Student Learning Outcomes:  
Upon completing the course, the student will be able to  
a. Identify the real values of the variable for which a rational algebraic expression having a linear or quadratic denominator is undefined;  
b. Express a rational algebraic expression having negative exponents as an equivalent expression without negative exponents;  
c. Simplify a rational algebraic expression;  
d. Evaluate a rational algebraic expression given specific integral values for each variable;  
e. Perform addition and subtraction of rational algebraic expressions having like denominators;  
f. Find the Least Common Denominator (LCD) of two or more rational algebraic expressions;  
g. Perform addition and subtraction of rational algebraic expressions with unlike denominators;  
h. Multiply rational algebraic expressions and express the product in simplest terms;  
i. Use factorization to divide rational algebraic expressions and express the quotient in simplest terms;  
j. Simplify complex fractions;  
k. Divide a polynomial by a monomial;  
l. Perform polynomial long division having binomial divisors of the form ax + b;  
m. Solve rational algebraic equations;  
n. Write a rational equation to match the information given in an application problem; and  
o. Solve an application problem using rational equations.

Major Topics to Be Included:  
a. Rational algebraic expressions  
b. Combination of rational algebraic expressions  
c. Rational algebraic equations  
d. Applications of rational algebraic equations

Date Created/Updated (Month, Day, and Year): January 2, 2012