

**NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
MTE 7 - RATIONAL EXPRESSIONS AND EQUATIONS (1 CR.)**

Course Description

Includes simplifying rational algebraic expressions, solving rational algebraic equations and solving applications that use rational algebraic equations. Credit is not applicable toward graduation. Lecture 1 hour per week.

General Course Purpose

The purpose of this course is to develop competency necessary to succeed in 100-level math courses in solving applications using rational algebraic equations.

Course Prerequisites/Co-requisites

Prerequisite: MTE 6 or qualifying placement score

Course Objectives

Upon completing the course, students will be able to:

- 7.1 Identify a rational algebraic expression.**
- 7.1.1 Identify the real value of the variable for which a rational algebraic expression having a denominator of the form $ax + b$ is undefined.
 - 7.1.2 Identify all real values of the variable for which a rational algebraic expression having a denominator of the form $ax^2 + bx + c$ is undefined.
 - 7.1.3 Express a rational algebraic expression having negative exponents as an equivalent rational expression without negative exponents.
- 7.2 Simplify rational algebraic expressions.**
- 7.2.1 Simplify a rational algebraic expression.
 - 7.2.2 Evaluate a rational algebraic expression given specific integral values for each variable.
- 7.3 Perform arithmetic operations with rational algebraic expressions.**
- 7.3.1 Perform addition and subtraction of rational algebraic expressions having like denominators.
 - 7.3.2 Find the Least Common Denominator (LCD) of two or more rational algebraic expressions.
 - 7.3.3 Perform addition and subtraction of rational algebraic expressions having denominators that have no common factors.
 - 7.3.4 Perform addition and subtraction of rational algebraic expressions having denominators that have a common monomial factor.
 - 7.3.5 Perform addition and subtraction of rational algebraic expressions having denominators that have a common binomial factor.
 - 7.3.6 Perform multiplication of rational algebraic expressions and express the product in simplest terms.
 - 7.3.7 Use factorization to divide rational algebraic expressions and express the quotient in simplest terms.
 - 7.3.8 Simplify complex fractions.
 - 7.3.9 Divide a polynomial by a monomial.
 - 7.3.10 Perform polynomial long division having binomial divisors of the form $ax + b$.
- 7.4 Solve rational algebraic equations.**
- 7.5 Solve application problems using rational algebraic equations.**
- 7.5.1 Write a rational equation to match the information given in an application problem.
 - 7.5.2 Solve an application problem using rational equations.

Major Topics to be Included

- 7.1 Identifying a rational algebraic expression.
- 7.2 Simplifying rational algebraic expressions.
- 7.3 Performing arithmetic operations with rational algebraic expressions.
- 7.4 Solving rational algebraic equations.
- 7.5 Solving application problems using rational algebraic equations.