Virginia Western Community College
MTH 267
Differential Equations

Prerequisites
Completion of MTH 264 Calculus II or equivalent with a grade of C or better.

Course Description
Introduces ordinary differential equations. Includes first order differential equations, second and higher order ordinary differential equations with applications and numerical methods.

Semester Credits: 3 **Lecture Hours: 3**

Required Materials
Textbook:
Elementary Differential Equations and Boundary Value Problems. Boyce & DePrima. 10th edition. John Wiley & Sons. ISBN: 9780470458310.

Course Outcomes

At the completion of this course, the student should be able to:

- Have a general understanding of the role of differential equations as a tool for solving many practical problems of engineering and science as well as a wide range of purely mathematical problems.
- Solve first order and second order nonhomogeneous differential equations.
- Solve systems of differential equations using eigenvalues and eigenvectors.
- Use Laplace Transforms to solve initial value problems.
- Derive a series solution about an ordinary point.

Topical Description

Topics	Chapter	Section
Definitions and examples of differential equations	1	1.1-1.4
Equations of First Order (Linear, Nonlinear, Applications)	2	2.1-2.7
Equations of Second Order	3	3.1-3.8
Higher Order	4	4.1-4.2
Systems of Differential Equations	7	7.1-7.9
Laplace Transforms	6	6.1-6.4
Series Solutions to Differential Equations	5	5.1-5.3

Maple Labs

1. Direction Fields
2. Symbolic Solutions
3. Laplace Transforms

Notes to Instructors

None.