BERGEN COMMUNITY COLLEGE
DIVISION OF MATHEMATICS, SCIENCE AND TECHNOLOGY
DEPARTMENT OF MATHEMATICS

COURSE SYLLABUS

MAT-283 DIFFERENTIAL EQUATIONS

COURSE DESCRIPTION: Differential Equations is a study of first order equations, linear equations with constant coefficients, non-homogeneous equations, variation of parameters, series solutions, Laplace Transforms, boundary value problems, Fourier series, systems of differential equations, and applications.

CREDITS/HOURS: 4 credits,   4 hours

PREREQUISITE: MAT-282 Calculus III or by permission of the Department Chair

GENERAL EDUCATION COURSE: No

STUDENT LEARNING OBJECTIVES: **Upon successful completion of this course the student will be able to:**

1. Calculate solutions to first-order ordinary differential equations.
2. Calculate solutions to higher-order ordinary differential equations.
3. Calculate solutions to systems of first-order ordinary differential equations.
4. Utilize the concepts of differential equation theory to model and solve applied problems.

ASSESSMENT MEASURES: Each of the above listed student learning objectives will be assessed by:
1. Written assignments and/or quizzes.
2. Written examinations.
3. Other, as announced by the instructor.

COURSE GRADE: Students should refer to the instructor's grading policy which will be distributed during the first meeting of the class.

TEXTBOOK: **Differential Equations with Boundary-Value Problems**, 7th Edition, Zill and Cullen; Cengage Publisher
Optional: **Student Solutions Manual**, Zill and Wright

COURSE CONTENT:

TOPIC	CHAPTER	SECTIONS
An Introduction to Differential Equations	1	1 - 3
First-Order Differential Equations	2	1 - 6
Applications of First-Order Differential Equations	3	1 - 3
Linear Differential Equations of Higher Order	4	1 – 7, (8, 9 optional)
Applications of Second-Order Differential Equations	5	1 - 3
Differential Equations with Variable Coefficients	6	1, (2, 3 optional)
Laplace Transforms	7	1 - 5, (6 optional)
Orthogonal Functions and Fourier Series	11	1 - 3

REFERENCES:

Differential Equations with Applications, Ritger and Rose, McGraw-Hill.
Elementary Differential Equations and Boundary Value Problems, Boyce and DiPrima, Wiley.
Elementary Differential Equations, Edwards and Penney, Prentice-Hall.
Differential Equations, Schaum's Outline Series, Ayers and Frank, McGraw-Hill.

ELECTRONIC DEVICES: **The Department of Mathematics prohibits the use of cell-phones, PDA's, laptops, headphones, IPODs and other such devices in mathematics classes unless otherwise specified in the grading policy provided by the instructor at the beginning of the semester.**

FACULTY ABSENCE PROCEDURE: CLASS CANCELLATIONS may be found at http://www.bergen.edu/classcancellations A list is also posted in a glass case near A-129, the main corridor on the first floor and in Ender Hall. If a cancelled class is not listed, it should be reported to the Department Office (A-327) or the Adjunct Office (C-107).

WEBSITE: Go to http://www.bergen.edu/academics/academic-divisions-departments/mathematics for more information regarding the Mathematics Department.

STUDENT SUPPORT SERVICES:

Learning Assistance Center	Room: L-125	879-7489
Math and Science Walk-In	Room: L-131	879-7489
Office of Specialized Services	Room: L-115	612-5269