Bossier Parish Community College
Master Syllabus

Course Prefix and Number: MATH 254 **Credit Hours:** 3-3-0

Course Title: Differential Equations

Course Prerequisites: A grade of "C" or higher in MATH 253

Textbook(s): Nagle, Ken, Fundamentals of Differential Equations, 9th edition. Pearson, 2018. ISBN: 9780134768748

Course Description: Topics include Separable differential equations, linear constant coefficient differential equations (homogenous and nonhomogeneous). Laplace Transforms, series solutions, linear systems, Euler's methods.

Learning Outcomes:
At the end of this course, the student will:

A. solve first order differential equations using several methods;
B. use Laplace Transforms to solve differential equations;
C. use series solutions and numerical methods to solve differential equations; and
D. solve second order differential equations using several methods.

To achieve the learning outcomes, the student will or will be able to:
(The letter designations at the end of each statement refer to the learning outcome(s).)

1. solve first order Differential Equations by making them be exact; (A)
2. solve first order Differential Equations by using an integrating factor; (A)
3. solve first order Differential Equations by making an appropriate substitution; (A)
4. determine the Laplace Transforms of a function by integration; (B)
5. determine the Laplace Transforms of a function by using a table; (B)
6. determine the inverse Laplace Transforms of a function; (B)
7. rewrite a Differential Equations as a sum of Laplace Transforms; (B)
8. rewrite a Differential Equations as a sum of infinite series; (C)
9. adjust the index of an infinite series as necessary; (C)
10. write the series approximation of the solution of a Differential Equation; (C)
11. use reduction of order method to solve Differential Equations; (D)
12. use differential operator to solve Differential Equations; (D)
13. find eigenvalues; (D) and
14. use eigenvalues and eigenvectors to solve a Differential Equation. (D)

Course Requirements: All students are required to take a comprehensive final exam. When this course is taken in an online environment, the department has established a minimum grade of 60% on the final exam required to earn a grade of "C" or higher in the course. If this minimum score is not obtained by the student, then the student shall refer to the policy outlined in the course syllabus which will supersede the course grading scale shown below.

Course Grading Scale:

90 – 100 = A
80 – 89 = B
70 – 79 = C
60 – 69 = D

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0 – 59 = F

Attendance Policy: The college attendance policy is available in the BPCC Student Handbook.

Course Fees: This course is accompanied with an additional non-refundable fee for supplemental materials, laboratory supplies, software licenses, certification exams and/or clinical fees.

Nondiscrimination Statement: Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

Title VI, Section 504, and ADA Information
Angie Cao, Student and Disabilities Services Specialist
Student Services, F-254
6220 East Texas Street
Bossier City, LA 71111
Phone: 318-678-6511
Email: acao@bpcc.edu
Hours: 8:00 a.m. - 4:30 p.m. Monday - Friday, excluding holidays and weekends.

Equity/Compliance Coordinator
Teri Bashara, Director of Human Resources
Human Resources Office, A-105
6220 East Texas Street
Bossier City, LA 71111
Phone: 318-678-6056
Email: tbashara@bpcc.edu
Hours: 8:00 a.m. - 4:30 p.m. Monday - Friday, excluding holidays and weekends.