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


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.

Course Grading Scale:
- 90 – 100  = A
- 80 – 89   = B
- 70 – 79   = C
- 60 – 69   = D
- 0   – 59   = F

Attendance Policy: The college attendance policy is available at http://www.bpcc.edu/catalog/current/academicpolicies.html

Revised: 08/07/2017
**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.

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