MTH 256 : APPLIED DIFFERENTIAL EQUATIONS

Transcript title

Applied Differential Equations

Credits

4

Grading mode

Standard letter grades

Total contact hours

60

Lecture hours

30

Lab hours

30

Prerequisites

MTH 253Z or higher.

Course Description

Introduces the application of differential equations for science, technology, engineering and mathematics (STEM) students. Includes solutions to first- and second-order linear and nonlinear equations, systems of linear first-order differential equations and applications appropriate for science and engineering; numerical, graphical, series and analytical solutions are covered.

Course learning outcomes

1. Solve differential equations analytically, graphically, and numerically.
2. Employ technology to solve differential equations.
3. Solve linear and non-linear first order differential equations and second order differential equations.\\n
4. Construct differential equations that model rates of change.
5. Analyze solutions of differential equations in the context of specific applications.

Content outline

1. Introduction to differential equations and first order differential equations
   a. Direction fields
   b. Solving linear and nonlinear first order differential equations
   c. Applications
2. Second order differential equations
   a. Constant coefficient homogeneous equations
   b. Nonhomogeneous second order differential equations
3. Linear systems of differential equations or Laplace Transforms

Required materials

This course may require a textbook.

General education/Related instruction lists

- Mathematics