Differential Equation

Course Description :

This course is about Differential equations that accounts for any function with its derivatives. These equations are often used to describe the way things change over time, helping us to make predictions. Differential equations play a considerable role in our understanding in most of the fields of science. In this course on Differential Equation, we first provide the basic terminologies and then proceed to the methods of solving various types of ordinary differential equations. We first handle order differential equations and then second order linear differential equations and their applications.

Topics covered in the Course:

- First order Differential Equation

- Second order and higher order linear differential equation

- Mathematical Modeling and Applications

Benefits of the Course:

In this course of Differential equations,

- Students will learn how to apply mathematical skills to model and solve real engineering problems

- This course will enable you to develop a more profound understanding of engineering concepts and enhance your skills in solving engineering problems

- In other words, you will be able to construct relatively simple models of change and deduce their consequences.

Outcomes of the Course:

After the completion of the course,

- Student will be able to solve first order differential equations utilizing the standard techniques for separable, exact, linear, homogeneous, or Bernoulli cases.

- Student will be able to find the complete solution of a nonhomogeneous differential equation as a linear combination of the complementary function and a particular solution.

- Student will be introduced to the complete solution of a nonhomogeneous differential equation with constant coefficients by the method of undetermined coefficients.

- Student will be able to find the complete solution of a differential equation with constant coefficients by variation of parameters.

- Student will have a working knowledge of basic application problems described by second order linear differential equations with constant coefficients.

Eligible Stream of participants:

- Bachelor of Science and Engineering students

Tool: Zoom, Google hangouts

Dr. Sweta Shah
Assistant Prof., Applied Sciences and Humanities

Ph. D (Mathematics), PGD Industrial Mathematics and scientific computing, B. Ed, Experience: 9 years Teaching experience, Research Area: Structured group of matrices and co-centroidal matrices, Matrix factorization techniques for recommender systems Published more than 7 Research Paper.