

Module Code	MA2013	Title	Differential Equations			
Credits	02	Hours/Week	Lectures	02	Pre-requisites	MA 1023
			Lab/Tutorials	-		

Learning Outcomes

At the end of this module the student should be able to

- Apply Fourier series approximations for periodic functions in real world situations.
- Solve initial-boundary-value problems involving partial differential equations.
- Apply Laplace transform and Fourier transform methods to solve differential equations in engineering applications

Outline Syllabus

Fourier Series Approximation

- Fourier coefficients, Dirichlet's condition, odd and even functions. Half range series.
- Trigonometric approximation to discrete data.

Partial Differential Equations

- Classification of second-order partial differential equations.
- Solutions by separation of variables.
- Fourier series application to boundary value problems.

Laplace Transform and Applications

- Laplace transforms of elementary functions and some basic theorems on Laplace transform.
- Application of Laplace transforms to solution of differential equations and system of differential equations.
- Transfer functions, convolution theorem, concepts of stability and controllability.

Fourier Transform and Applications

- Non-periodic function, Fourier transforms, properties of Fourier transform and applications.

Note: All MPR,ER,TT students excluding CS students