Course Code	Course Title	C	H	I	E	T
17U3MAC3	**Allied Mathematics - III**	2	4	25	75	100

Learning Objectives

- ➢ Enable the students to have a good foundation on Differential Equations and to understand the fundamental ideas of Partial differential equations.
- ➢ Enable the students to know the concepts of analytic functions and bilinear transformations.

Learning Outcomes

After successfully completing this course, students will be able to

- ➢ Explain the concepts of Differential Equation and Classify the Differential Equation with respect to their order and linearity.
- ➢ Solve First order Ordinary Differential Equation and Exact Differential equations.
- ➢ Classify Partial Differential Equation and solve the first order Partial Differential Equation.
- ➢ Find the function whether it is analytic or not and solving the bilinear transformation.

Unit I Exact differential Equations

Equations of first order and first degree – Variable separable – Homogenous equations – Non-homogeneous equations – Exact Differential Equations – Integrating factors.

Unit II Linear equations of Higher Order

Linear equations with constant coefficients – Methods of finding complementary functions – Methods of finding particular Integrals – Problems.

Unit III Partial differential Equations

Formation of partial differential equations – First order partial differential equations – Methods of solving First order partial differential equations – some standard forms – Charpit's method.

Unit IV Analytic Functions

Limits – Analytic functions– Cauchy Riemann Equations (C-R equations) – Alternate forms of C-R equations.

Unit V Bilinear Transformations

Elementary Transformations – Problems – Bilinear Transformations – Cross Ratio – Fixed points of a bilinear Transformation.

Text Book:

1. S. Arumugam and A. T. Isaac, Allied Mathematics Paper III, Edition 2012, New Gamma Publishing House.

Chapters: 1(1.2 - 1.4), 2, 4, 6, 7.

Reference Books:

1. S. Arumugam, A. T. Issac, A. Somasundaram, Complex Analysis, Reprint 2010, Scitech Publications (India) Pvt. Ltd.
2. P. R. Vital, Allied Mathematics,2009, Margam Publications.