



Course Name:

Advanced Mathematics

Course Number: 20-014	Credit: 3
Program: Graduate	Course Type: General Required
Prerequisite: -	Corequisite: -

Course Description (Objectives):

This course aims to develop a strong foundation in advanced mathematical techniques, including matrices, vector calculus, differential equations, and Fourier analysis. It emphasizes their applications in solving complex physical and engineering problems.

Course Content (outline):

- Chapter 1: Matrices, Vectors, Determinants, Linear Equation System
- Chapter 2: 3D vector differential calculus and vector integral
- Chapter 3: Complex Variables and Functions
- Chapter 4: Eigen value/vector
- Chapter 5: Fourier series analysis
- Chapter 6: Ordinary Differential Equation (ODE)
- Chapter 7: Partial Differential Equation (PDE)
- Chapter 8: Physical problems formulation (Heat, wave, Laplace)

References:

- “Advanced Engineering Mathematics”, E. Kreyszig.
- “Mathematical Analysis in Engineering”, C. C. Mei.
- “Advanced Engineering Mathematics”, C. R. Wylie & L. C. Barrett.