Department of Civil Engineering

Course Name:

Advanced Engineering Mathematics

Course Number: 20-014	**Credit:** 3
Program: Graduate	**Course Type:** Technical Selective
Prerequisite: -	**Corequisite:** -

Course Description (Objectives):

This course is designed to familiarize students with essential mathematics topics in engineering. It covers differential equations, sequences, and Fourier analysis, providing a foundation for solving engineering problems.

Course Content (outline):

- Chapter 1: Introduction
- Chapter 2: Introduction to Tensor Calculus
- Chapter 3: Fourier Analysis
- Chapter 4: Partial Differential Equations
- Chapter 5: Complex Analysis
- Chapter 6: Calculus of Variations
- Chapter 7: Numerical Analysis
- Chapter 8: Perturbation Theory

References:

- Lai, W.M., Rubin, D., and Krempl, E., Introduction to continuum mechanics, Butterworth -Heinemann, 2009
- Kreyszig, E., Kreyszig, H., and Norminton, E.J., Advanced engineering mathematics, 10th Edition, John Wiley & Sons, 2011
- Greenberg, M.D., Advanced engineering mathematics, 2nd Edition, Pearson Education India, 1998