National University of Sciences and Technology

Course Description

Course Title	Course Code	Credit Hours
Advanced numerical Analysis	**MATH 850**	3 – 0

Textbook:

- F. B. Hildebrand, Introduction to Numerical Analysis

Course Objectives:

- Advance students' expertise in sophisticated numerical techniques and algorithms, empowering them to tackle complex mathematical problems and perform high-precision simulations in engineering and scientific research.

Course Outline:

- Numerical Technique to solve Linear and Non-Linear systems, Generalized Newton's Method.

Finite difference Method, Finite Volume Method for PDEs. Upwind Schemes, TVD Schemes, Marker and Cell Method, Multi grid Method, Pseudo-spectral Method. Matlab applications for solving PDEs.

ASSESSMENTS

Description	Percentage Weightage (%)
Assignments	05-10%
Quizzes	10-15%
Mid Semester Exams	30-40%
End Semester Exam	40-50%