

	National University of Sciences and Technology	
	Course Description	
Course Title Computation and Data Analysis in Engineering	Course Code ME-825	Credit Hours 3 – 0

Textbooks:

- Chapman & Hall/CRC Computer Science & Data Analysis

Reference Books:

- Python for Data Analysis, Wes McKinney

Course Objectives:

- Apply numerical methods to solve engineering problems
- Design and implement algorithms for engineering applications
- Use software tools for data analysis and visualization
- Interpret and communicate results of computational and data analysis to engineering professionals

Course Outline:

- Introduction to computational methods and data analysis in engineering
- Numerical methods for solving linear and nonlinear equations
- Interpolation and curve fitting techniques
- Numerical differentiation and integration
- Numerical solutions of ordinary and partial differential equations
- Design and implementation of algorithms for engineering problems
- Data analysis techniques: descriptive statistics, hypothesis testing, regression analysis
- Data visualization tools and techniques
- Case studies and applications in engineering

ASSESSMENTS

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