Department of Civil Engineering

Course Name:

Numerical Methods in Geotechnical Engineering

Course Number: 20-408	**Credit:** 3
Program: Graduate	**Course Type:** Technical Selective
Prerequisite: -	**Corequisite:** -

Course Description (Objectives):

This course aims to introduce students to the basics of numerical analysis in geotechnical engineering. It covers differential equations in civil engineering, numerical methods, and their application to geotechnical problems.

Course Content (outline):

- Chapter 1: Introduction and Basics
- Chapter 2: Finite Difference Method (FDM)
- Chapter 3: Finite Element Method (FEM)
- Chapter 4: Modelling Common Geotechnical Problems using FEM

References:

- Cook, Malkus and Plesha, "Concepts and Applications of Finite Element Analysis", (1989) John Wiley
- Bathe, K.J., "Finite Element Procedures in Engineering Analysis", (1996), Prentice Hall
- Zienkiewicz & Taylor, "The Finite Element Method", vol. 1, 4th Edition, (1989), McGraw Hill
- Smith, I.M., & Griffith, D.C., "Programming the Finite Element Method", 2nd Edition (1992), John Wiley & Sons
- Reddy, J.N., An Introduction to the Finite Element Method, McGraw-Hill, 1993