Department of Civil Engineering

Course Name:

Ground Improvement

Course Number: 20-894	**Credit:** 3
Program: Graduate	**Course Type:** Technical Selective
Prerequisite: -	**Corequisite:** -

Course Description (Objectives):

The aim of this course is to introduce the principles and methods of ground improvement and their applications in geotechnical engineering. It covers techniques for improving soil in shallow and deep foundations, as well as hydraulic and dynamic methods, to equip students with the skills needed to analyze and select appropriate improvement techniques.

Course Content (outline):

- Chapter 1: Drainage and dewatering
- Chapter 2: Surface compaction
- Chapter 3: Dynamic compaction
- Chapter 4: Deep vibratory compaction methods
- Chapter 5: Permeation grouting
- Chapter 6: High-pressure grouting
- Chapter 7: Deep drilling
- Chapter 8: Ground reinforcement
- Chapter 9: Soil mixing
- Chapter 10: Vertical elements

References:

- Ground Control and Improvement, P.P.Xanthakos, L.W.Abramson, D.A.Bruce, John Wiley, 1994
- Ground Improvement, M.P.Moseley, K.Kirsch, 2nd Edition, Spone Press, 2004
- Grouting of Rock and Soil, C.Kutzner, Balkema, 1996