



NATIONAL TECHNICAL UNIVERSITY OF ATHENS

School of Civil Engineering – Geotechnical Department

Computational Methods in the Analysis of Underground Structures

Spring Term 2023 – 24

Lecture Series in Postgraduate Programs:

1. Analysis and Design of Structures (DSAK)
2. Design and Construction of Underground Structures (SKYE)

Instructor: Michael Kavvadas, Emer. Professor NTUA

Lectures: Wednesday 08:45 – 11:30 (Room 15 CE)

Teaching Assistant: Dimitris Georgiou, PhD, NTUA

Course educational material is available at: <https://helios.ntua.gr/course/view.php?id=5225>

26.02.2024

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No	Date	Lecture Description	Lecture No
1	21/2	Introduction Distribution of stress and deformation around a cylindrical tunnel	00, 01, 02
2	28/2	Distribution of stress and deformation around a cylindrical tunnel	02
3	6/3	Tunnel analysis with the convergence-confinement method	03
4	13/3	Tunnelling with NATM (New Austrian Tunnelling Method)	04
5	20/3	PROBLEM 2A : Use of the convergence-confinement method PROBLEM 2B: Analysis of tunnel support with ROCSUPPORT	
6	27/3	Analysis of tunnel face stability – Part 1 PROBLEM 3A: Report on the use of NATM	05
7	3/4	Analysis of tunnel face stability – Part 2 PROBLEM 3B: Analysis of face stability	05
8	10/4	2D numerical models for the analysis of tunnel excavation and support Use of the Finite Element Method	07
9	17/4	PROBLEM 4 : Tunnel numerical model with software RS2	07
10	24/4	PROBLEM 5A : Tunnel numerical model with software RS2	07
11	1/5, 8/5	NO CLASS – EASTER HOLIDAYS	
	15/5	PROBLEM 5B : Tunnel numerical model with software RS2	07
12	22/5	Analysis of the final lining of tunnels	06
13	29/5	PROBLEM 6 : Analysis of the final lining with software RS2	06, 07