Aalto-yliopisto

Numerical methods in geotechnics D, GEO-E2020

Tue 19th of Apr – Thu 27th of May 2022

Lectures Mon & Wed 10:15, R2, Civil Engineering Department		**Exercises Tue & Thu 10:15, Maari E – 229, Maarintalo**	
18.4	**Easter Monday**	19.4	Introduction to the course. Introduction to geotechnical software available: Plaxis 2D, Optum G2. Shallow foundation design: bearing capacity with a variable water table
20.4	L1. Introduction & refresh: Finite Element Method for linear and non-linear materials	21.4	Ex 1. Shallow foundation design: bearing capacity with a variable water table , soil-structure interaction, settlements
25.4	L2. Seepage and consolidation in Finite Element Method. Refresh of the Elasto-plastic constitutive models	26.4	Ex 2a. Simplified embankment analysis
27.4	L3. Elasto-plastic constitutive models for soils available in FE software	28.4	Ex 2b: stability of a geotextile reinforced embankment. consolidation & factor of safety Deadline exercise 1?
2.5	L4. Elasto-plastic constitutive models for soils available in FE software. Parameters estimation	3.5	Ex 3. Deep excavations analysis Deadline exercise 2?
4.5	L5. Calculations with Finite Element Method: Finite Element Method limitations. Q&A before Exam 1.	5.5	Ex 3. Deep excavations analysis.
9.5	**Exam part 1 (L1-L5)**	10.5	Ex 4. Embankment analysis: Boston embankment with creep model Deadline exercise 3?
11.5	Design projects – distribution of subject, discussion, parameters estimation.	12.5	Ex 4 / design projects.
16.5	Overview of exercises and lessons learnt. Case studies, see below.	17.5	Design projects Deadline exercise 4?
18.5	Case studies including Mexico City Cathedral and Barcelona Harbour	29.5	Design projects
23.5	**Exam part 2** **Includes materials from exercises!**	24.5	Design projects; Course summary/feedback
25.5	**Design project presentations**	26.5	**Ascension day**

The schedule may change during the course, please follow MyCourses announcements.
Note that if you do not present your design project on the required date it will likely mean you will not pass the course – **due to industrial involvement, once set, the deadline is non-extendable and non-alterable**.

Some lectures may be also available at: https://aalto.zoom.us/j/7791646359