Aalto-yliopisto

Numerical methods in geotechnics L, GEO-E2020

Mon 15th of Apr – Thu 23rd of May 2019 - weeks 16 – 21

Lectures Mon & Wed 10:15 R2		Exercises Tue & Thu 10:15 Maari-E	
15.4	Introduction & refresh: Finite Element Method for Linear Materials Decision on design project presentation day	16.4	Introduction to geotechnical software available: Plaxis 2D, Optum G2. Shallow foundation design: bearing capacity with variable water table
17.4	Seepage and consolidation in Finite Element Method. Refresh of the Elasto-plastic constitutive models	18.4	Ex 1. Shallow foundation design: bearing capacity with variable water table , soil structure interaction / settlements
22.4	Easter Monday	23.4	Ex 2. Simplified embankment analysis: consolidation & factor of safety Deadline exercise 1
24.4	Elasto-plastic constitutive models for soils available in FE software	25.4	Simplified embankment analysis: stability of reinforced embankment.
29.4	Elasto-plastic constitutive models for soils available in FE software. Parameters estimation	30.4	Ex 3. Deep excavations analysis Deadline exercise 2
1.5	May Day	2.5	Deep excavations analysis.
6.5	Exam part 1. Possibly some subjects from 8.5.	7.5	Ex 4. Embankment analysis: Boston Embankment with creep model Deadline exercise 3
8.5	Calculations with Finite Element Method: Finite Element Method limitations Non-linear finite element method analysis	9.5	**Industrial design project subjects introduction, division into groups**, finishing all the remaining exercises.
13.5	Implementation of elasto-plastic models into FEM 3D Finite element method analysis & advanced subjects.	14.5	Design projects. Deadline exercise 4
15.5	Exam part 2 May include materials from exercises!	16.5	Design projects
20.5	Case study: Mexico City Cathedral	21.5	Design projects; Course summary / feedback
22.5	Case study: Barcelona Harbour Course summary / feedback	23.5	**Design projects: presentations. Can be moved to 27th, 28th or 29th of May, decision to be made during the first lecture on 15.4.**

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**.