

## **GEO-E2080 Foundation Engineering and Ground Improvement (5 cr)**

### **Autumn 2023 2. Period – some changes are potential**

**Prerequisites:** GEO-E1020 Geotechnics

#### **Lectures**

**Lectures will start on Mo 23.10.2022 at 14.15 in room 265 (R5)**

Lecturers: Prof. Leena Korkiala-Tanttu (LKT), Henry Gustavsson (HG),  
Monica Löfman (ML)

Leena's room R148b, ph. 050 312 4775

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#### **Exercises**

Exercises on Tuesdays **12.15-14.00 room Maari E** and Thursdays **14.15 – 16.00** room Maari C-D

First exercise is on **31<sup>st</sup> October**.

Attendance > 80 %

Exercises will be held by university teacher Henry Gustavsson (HG),  
Samuel Chavez Romero and Jani Lepistö

[henry.gustavsson@aalto.fi](mailto:henry.gustavsson@aalto.fi) [samuelfrancisco.chavezromero@aalfo.fi](mailto:samuelfrancisco.chavezromero@aalfo.fi) and

Jani Lepistö ([jani.lepisto@lepisto.eu](mailto:jani.lepisto@lepisto.eu))

In this course you will learn about different foundation and ground improvement methods, and when and how they can be applied. You will also learn the basics of their design concepts. This course is useful for geotechnical, structural, rock and pavement engineers. The exam will be right after the course on Tuesday 5.12 9-12 as a lecture exam and another next Spring. The weight of exercises / exam is 50% / 50%.

You need to attend the exercises. **You can be away once from the exercises.** All the exercises have to be returned. Exercises are mainly done during exercises hours, but you might need to do also something later on. There are both group and personal exercises. You will get feedback already during the course. Exercises are returned weekly. Only those who have returned all exercises can attend the exam (DL 5.12.2022). There might also be some additional homeworks. There will be more information of them during the course. The exercises are valid for one year (to the end of 2024). Some lectures are shared with the students from GEO-E1030 Structural Design of roads course (highlighted with green).

Course material consists mainly on hand-outs and they will be available in MyCourses. We will update only English lecture material. Finnish material and other additional material is delivered too. Feedback is collected through new feedback system. We will give you our counter-feedback in MyCourses.

**NOTE: some changes are possible. Follow MyCourses pages.**

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### Timetable

(L lecture, E exercise), note the numbering of exercises is not continuous:

Week	Mo 14:15 - 16:00 R5 R002/265=R5	Tu 12:15 – 14:00 U351	We 12:15-14:00 R5 R002/265=R5	Th 14:15 – 16:00 Maari C-D
43 / 1	23.10. L1 Introduction of the course LKT Programming and analysis of ground investigations ML		25.10. L2: Geotechnical design LKT and Geotechnical monitoring, SY	
44 / 2	30.10. L3 Stability ML	31.10. E1: Stability of a road embankment HG, SCR	1.11 L4; Excavations 2 LKT	<b>2.11. Geotekniikan päivä</b>
45 / 3	6.11 L5; Vertical drainage and mass exchange ML	7.11 E2 Ground investigations and report (Part 1) HG/JL	8.11 L6: Frost and frost protection HG	9.11 E3 Excavations, HG, SCR
46 / 4	13.11 L7: Deep stabilization ML	14.11 E4: Settlements of road embankment HG, SCR	15.11 L8: Drainage systems LKT	16.11 E5: Drainage and frost protection HG, SCR
47 / 5	20.11 L9: Piling 1, ML	21.11 E6: Piling HG, SCR	22.11 L10: Piling 2, LKT	23.11 E2 Ground investigations and report (Part II) HG /JL
48 / 6	27.11 L11: Recycled and lightweight materials ML  Shared with GEO-E1030		29.11 L12: Earth construction SB Shared with GEO-E1030 Feedback of exercises and lectures	30.11 L13: Geosynthetic materials and their use, GEOSYNT Geosynt Oy Raimo Autti, Huesker Synthetic GmbH: Burkard Lenze, Viktor Poberezhnyi
49 / 7	Lecture exam TU 5.12. at 9-12 in R1			

LKT = Leena Korkiala-Tanttu  
 ML = Monica Löfman  
 HG = Henry Gustavsson  
 SB = Sanandam Bordoloi  
 JL = Jani Lepistö, Lepistö  
 SY = Sami Ylönen, Finmeas  
 SCR = Samuel Chavez Romero