

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

### **Autumn 2020 2. Period**

**Prerequisites:** GEO-E1020 Geotechnics

**Lectures**                      **Lectures will start on Mo 26.10.2020 at 14.15. Lectures are all online.**

Lecturers: Prof. Leena Korkiala-Tanttu (LKT), Henry Gustavsson  
Leena's room R148b, ph. 050 312 4775  
[leena.korkiala-tanttu@aalto.fi](mailto:leena.korkiala-tanttu@aalto.fi)

**Exercises**

Exercises are organized online on Tuesdays and Thursdays  
14.15-16.00

First exercise is on 29<sup>th</sup> October.

Attendance is highly recommended.

Exercises will be held by university teacher Henry Gustavsson (HG) [henry.gustavsson@aalto.fi](mailto:henry.gustavsson@aalto.fi) and Jani Lepistö (JL) [jani.lepisto@lepisto.eu](mailto:jani.lepisto@lepisto.eu) and Lasse Rasmussen (LR) [lasse.rasmussen@ramboll.fi](mailto:lasse.rasmussen@ramboll.fi)

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 Wednesday 9.12 9-12 as a lecture exam and another on a week after. If you miss the first exam, there is alternative exam in the next week. The weight of exercises / exam is **50% / 50%. The course will be organized in 2020 as virtual course.**

You are highly recommended to attend the online exercise sessions organized with ZOOM. During these sessions you can ask questions using chat and will get help from teachers. Later the guidance given will be much more limited. 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 5.12.2020). 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 2021). **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 though Webropol system. We will give you our counter-feedback in MyCourses.

You have a possibility to participate in ‘Geotekniikan päivä’ on 5th November. We have some free places for our students. The positions are filled in registration order. More information will be sent before the course starts.

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

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### Timetable

(L lecture, E exercise):

| Week   | Mo 14:15 - 16:00  | Tu 12:15 – 14:00                                      | We 12:15-14:00   | Th 14:15 – 16:00  |
|--------|---|---|--|---|
| 44 / 1 | 26.10. L1 Introduction of the course LKT<br>Programming and analysis of ground investigations LKT | 27.10 E1 Ground investigations and report (Part 1) HG | 28.10. L2: Geotechnical design and stability, LKT                      | 29.10 E1 Ground investigations and report (Part 1) HG + JL?                         |
| 45 / 2 | 2.11. L3 Stability, and Excavations LKT   | 3.11 E3: Stability of a road embankment HG            | 4.11 L4; Excavations LKT<br>Geotechnical monitoring, AE                | <b>5.11 Geotekniikan päivä virtual meeting, limited amount of students accepted</b> |
| 46 / 3 | 9.11 L5; Vertical drainage and mass exchange LKT  | 10.11 E4 Excavations, HG                              | 11.11 L6: Frost and frost protection HG                                | 12.11 E5: Settlements of road embankment HG   |
| 47 / 4 | 16.11 L7: Drainage systems LKT  | 17.11 E6: Drainage and frost protection HG            | 18.11 L8: Deep stabilization LKT                                       |   |
| 48 / 5 | 23.11 L9: Piling 1, LKT   | 24.11 E7: Piling HG                                   | 25.11 L10: Light weight and recycled materials LKT                     | 26.11. E2 Ground investigations and report (Part 2) HG                              |
| 49 / 6 | 30.11 L11: Piling 2 LKT   | 1.12 L12: Geosynthetic materials and their use, PJ    | 2.12 L13: Earth construction LKT<br>Feedback of exercises and lectures | 3.12. Possible time for returning the exercises and feedback                        |
| 50 / 7 | Lecture exam We 9.12. at 9 – 12   |   |  |   |
| 51     | Alternative Exam We 16.12. at 13-16   |   |  |   |

LKT = Leena Korkiala-Tanttu;

HG = Henry Gustavsson;

PJ = Perttu Juntunen, Geosynt Oy

AE = Aatu Eteläsaari, Finmeas