

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

Autumn 2024 2. Period – some **changes are potential**

Prerequisites: GEO-E1020 Geotechnics

Lectures

Lectures (L) will start on Mo 21.10.2024 at 14.15 in room 265 (R5). Most lectures will be in R5 on Monday and Wednesday.

Lecturers: Prof. Sanandam Bordoloi (SB), Prof. Leena Korkiala-Tanttu (LKT), Monica Löfman (ML), Anoosheh Iravanian (AI), Hanafi Mohamad (HM)

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Exercises

Exercises (E) on Tuesdays 12.15-14.00 room Y338 and Thursdays 14.15 – 16.00 room Y430

The first exercise is on **29th October**.

Attendance > 80 %

Exercises will be held by Sanandam Bordoloi, Monica Löfman, Eden Telila, Soumya Roy, and Jani Lepistö

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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 3.12 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 must be returned. Exercises are mainly done during exercises hours, but you might need to continue at home. All are 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 1.12.2024). There might also be some additional homework. There will be more information about them during the course. The exercises are valid for one year (to the end of 2025). Some lectures are shared with the students from GEO-E1030 Structural Design of roads course (highlighted with blue).

Course material consists mainly of handouts, and they will be available in MyCourses. We will update only English lecture material. Finnish material and other additional material are delivered too. Feedback is collected through a 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 Y338	We 10:15-12:00 R5 R002/265=R5	Th 14:15 – 16:00 Y430
43 / 1	21.10.24 L1: Introduction of the course (SB/MH) Programming and analysis of ground investigations (ML)		23.10. 24 L2: Geotechnical design (LKT) and Geotechnical monitoring, (SY/MH)	
44 / 2	28.10.24 L3: Stability (ML)	29.10.24 E1: Stability of a road embankment (ML, ET, SR)	30.10 L4: Excavations 2 (SB)	31.10. 24 E2: Excavations, (ET, SR) (SB)
45 / 3	4.11.24 L5: Vertical drainage and mass exchange (ML)	5.11.24 L6 Waste containment systems-Design consideration (SB)	6.11.24 L7: Frost and frost protection (SB)	
46 / 4	11.11.24 L8: Deep stabilization (MH)	12.11.24 E3: Settlements of road embankment (ML, ET, SR)	13.11.24 L9: Drainage systems LKT	14.11.24 Geotekniikan päivä
47 / 5	18.11 L10: Piling 1, (AI)	19.11.24 E4: Piling AI, ET, SR	20.11.24 L11: Piling 2, ZR	21.11.24 E5: Drainage and frost protection (SB, MH, ET, SR)
48 / 6	25.11.24 L12: Recycled and lightweight materials (MH) Shared with GEO-E1030		27.11.24 L13: Earth construction (SB) Shared with GEO-E1030 Feedback of exercises and lectures	28.11 L14: Geosynthetics in ground improvement and sealing applications, VIACON, Pyry Piispanen
49 / 7	Lecture exam TUESDAY 3.12. at 9-12 in R1			

SB = Sanandam Bordoloi,

LKT = Leena Korkiala-Tanttu,
ML = Monica Löfman,
MH = Mohamad Hanafi,
AI= Anoosheh Iravanian,
ET = Eden Telila,
SR= Soumya Roy,
SY = Sami Ylönen, Finmeas
PP = Pyry Piispanen, VIACON