

GEOMECHANICS

(Civil – 402, 5 credits)

Course program – Second Part: 11.11.24 – 19.12.24

Theory session: Monday, 11:15 – 14:00, room GR A3 30

Exercises, project session and workshops: Thursday, 17:15 – 19:00 rooms GC B3 30

Lecturers: **Alessio Ferrari** (AF, main lecturer), **Lyesse Laloui** (LL)

Assistants: Ziad Sahlab (ZS), Mathilde Métral (MM), Alessandro Parziale (AP)

W	Date	Room	Lecturer	Content
9	11.11.24		AF	8. Hydro-mechanical coupling 9. In-situ geotechnical testing for material parameters determination Lab testing
	14.11.24			Exercise 6: Parameters determination based on data from in-situ tests / Hands-on session – Introduction to FEM software
10	18.11.24		LL	10. Recommendations for numerical modelling in geotechnics
	21.11.24			Hands-on session: Implementation of constitutive models / Project – Part 4: FEM model definition
11	25.11.24		LL	11. Unsaturated geomaterials mechanics Basic concepts Hydraulic and mechanical behaviour Effective stress definition for unsaturated geomaterials
	28.11.24			Exercise 7: Geomechanical characterization of unsaturated geomaterials / Project – FEM analysis
12	2.12.24		AF	12. In-situ stress 13. Retaining structures in saturated and unsaturated geomaterials
	5.12.24			Workshop 3: Dr. Marwan Alzaylaie (DDA, UAE)
13	9.12.24		LL	14. Time-dependent behaviour of geomaterials Real cases and time-dependent phenomena Viscous deformations: basic concepts and experimental evidence Visco-elasto-plastic models
	12.12.24			Exercise 8: Lateral earth pressure of dry, saturated, and unsaturated soils
14	16.12.24		AF	Revision session for exams / Project – FEM analysis
	19.12.24			Project – Revision

ECTS credits allocated to this course: 5

Evaluation:

- Final exam (written): 60% of the final mark
- Mid-term exam (written): 20% of the final mark
- Project report: 20% of the final mark

Additional details:

Communication

- This class is on Ed Discussion:  **Ed Discussion forum - Geomechanics - CIVIL-402**

Mid-term and Final exam

- A formulary associated with each lecture will be created; a collection of formularies will be provided during the written exam tests.

Continuous assessment

- At each workshop, a quiz will be given to the students at the beginning of the session and will be pick-up at the end of the session for the evaluation
- The project (groups of 3 students), has to be submitted by Friday 20th December 2024 on Ed Discussion as “private” in the correct folder

Exercise sessions

- Students should bring their laptops during the exercise sessions.