

CIVIL-444

**Energy geostructures**

Laloui Lyesse

Cursus	Sem.	Type
Civil Engineering	MA2, MA4	Opt.
Energy minor	E	Opt.
Mechanics		Opt.

Language of teaching	English
Credits	4
Session	Summer
Semester	Spring
Exam	During the semester
Workload	120h
Weeks	14
<b>Hours</b>	<b>3 weekly</b>
Courses	2 weekly
Exercises	1 weekly
<b>Number of positions</b>	

**Summary**

Energy geostructures are an innovative technology that couple the structural role of foundations and the heating/cooling role of geothermal heat exchangers. The goal of the course is to provide a comprehensive understanding of the structural, geotechnical and energy behaviour.

**Assessment methods**

Evaluation:

- 5 assigned exercises: 40% of the final mark
- Design project report: 30% of the final mark
- Oral presentation of the project: 30% of the final mark

**Resources****Bibliography**

Laloui, Lyesse, and Alessandro F. Rotta Loria. Analysis and Design of Energy Geostructures, 1st Edition: Theoretical Essentials and Practical Application. Academic Press, ISBN:9780128206232  
 Laloui, Lyesse, and Alice Di Donna, eds. Energy geostructures: innovation in underground engineering. Wiley-ISTE, 250 pages, ISTE Ltd. and John Wiley and Sons, Hoboken, NJ, ISBN: 9781848215726  
 Laloui, Lyesse, and Alice Di Donna, eds. Géostructures énergétiques. Hermes science Publications, 250 pages, ISBN: 978-2-7462-4577-8.

**Ressources en bibliothèque**

- [Laloui, Lyesse, and Alessandro F. Rotta Loria. Analysis and Design of Energy Geostructures](#)
- [Laloui, Lyesse, and Alice Di Donna, eds. Géostructures énergétiques](#)
- [Laloui, Lyesse, and Alice Di Donna, eds. Energy geostructures: innovation in underground engineering.](#)

**Prerequisite for**

"Le contenu de cette fiche de cours est susceptible d'être modifié en raison du covid-19"