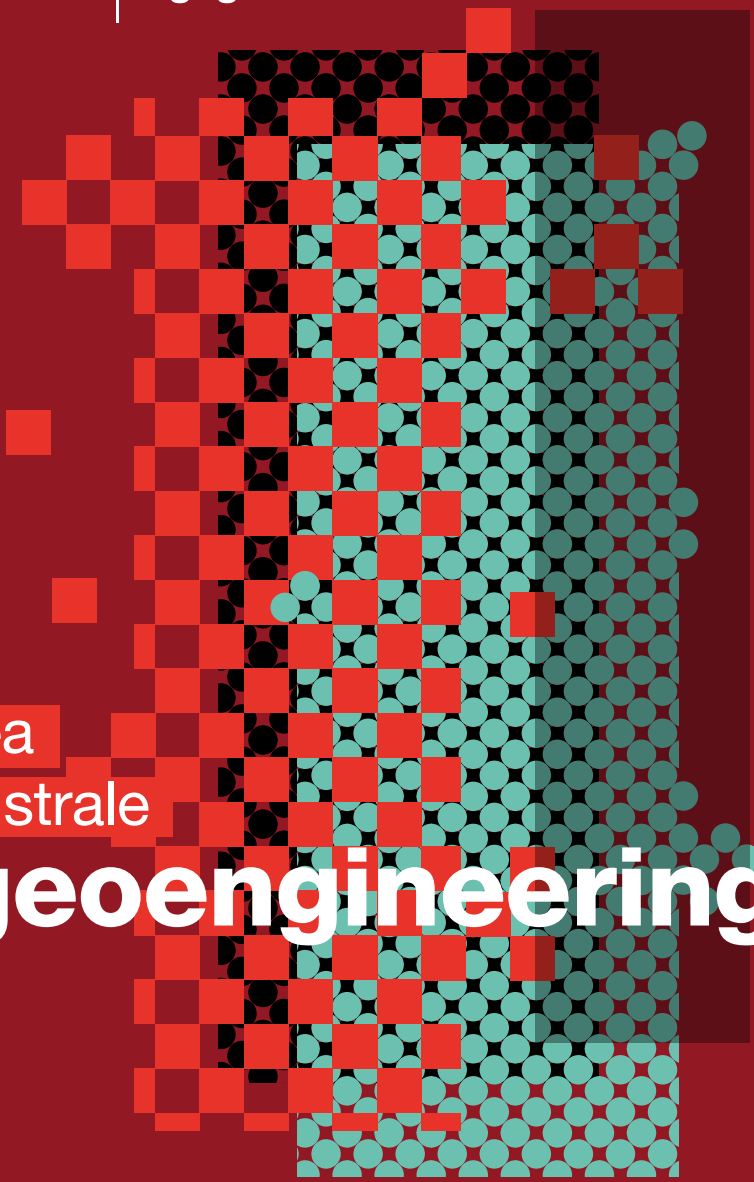
UNIVERSITÀ DEGLI STUDI FIRENZE

Scuola di Ingegneria



laurea magistrale

geoengineering

Geoengineering (GEM) is an international and interdisciplinary master devoted to train specialist technicians/practitioners in the activities of monitoring, design and management of systems, and structures for geohydrological risk reduction with particular reference to floods, landslides, subsidence, sinkholes, earthquakes and in general to slope and basin scale dynamics. The full teaching will be in English. The Geoengineering curriculum is developed in the framework of the UNESCO Chair on Prevention and Sustainable Management of UNESCO Geo-Hydrological Hazards established at the University of Firenze. The Chair mission is to promote Education, Research and Development for the prevention and management of geo-hydrological hazards, in order to support policies and actions for risk reduction.

admission requirements

To be admitted to the Master Course in Geoengineering a first cycle or a single cycle degree awarded by an Italian or a foreign University is required. Applying students have to meet general educational requirements and possess adequate personal education background, certified by a specific authorization (nulla osta) issued by the Education Committee of the Geoengineering Msc. Furthermore, a knowledge in English Language B2 Level is required.

aims

The master course aims to train specialists able to:

- know and develop methods and techniques for territorial survey and related data analysis at different scales;
- apply new technologies for the prevention and protection of society and environment from geo-hydrological hazards;
- develop an integrated approach for the assessment of geohydrological hazards;
- cope with problems raising from monitoring and management of the territory and the environment;
- achieve expertise for geohydrological risk assessment and management.

what you learn

In Geoengineering you are trained in an interdisciplinary environment, learning how to analyse and manage complex environmental conditions, geohydrological processes and problems.

As a Geoengineering student, you'll develop in-depth scientific knowledge and technical skills to design, plan, and manage complex and innovative systems, processes and services on a territorial scale. Methods and techniques for territorial investigation, environmental monitoring, analysis and data integration at different territorial scales will be key intermediate learning goals.

The teaching program provides fundamental tools for quantitative analysis of engineering systems in the context of geological processes, their time evolution and their modelling, especially for application purposes, prevention, protection of society and environment from hydrogeological risk. The programme is implemented through a two-year study plan (120 ECTS - European Credit Transfer System or 120 CFU (Crediti Formativi Universitari) in accordance with the learning objectives in different sectors, i.e. structural mechanics, geotechnics, hydrology and hydraulics, geology and engineering geology, all integrated through advanced numerical methods, statistics and geomatics.

what you will do

With a degree in Geoengineering you will be a top-skill expert in the prevention, mitigation and management of geo-hydrological hazards and risks, with particular reference to floods, landslides, subsidence, sinkholes and earthquakes.

Due to the interdisciplinary and international character of the study course, the Geoengineer graduated in Firenzse will be attractive for both enterprises and public agencies, operating across a wide range of engineering fields, from hydraulics to geotechnics and engineering geology.

traineeship and final examination

In order to obtain the second cycle degree, a final exam must be performed.
In order to be admitted to the final exam, students must have obtained all the ECTS included in their study plan and foreseen by the official Educational Rules of the degree course.

Integral part of the final exam are at least 3 ECTS of stage/ traineeship that must be officially activated through the stage office of the School of Engineering or with the help of the professors in charge of the organization.

The student manages the preparation and discussion of the final thesis under the supervision of two university professors and a tutor from the company/agency or laboratory where the traineeship was activated.

Students working on the final thesis should apply advanced methodologies linked to research and technological innovation activities in specific sectors, in accordance with the learning objects of the degree course. In this way, the student will achieve knowledge and autonomous judgement competences in specific sectors, under the coordination of his/her supervisors.
The final thesis must be written in English and the thesis defence will be performed in English.

offices and contacts

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