



UNIVERSITÀ DI PAVIA

Anno Accademico 2021/2022

ENGINEERING GEOLOGY

Anno immatricolazione	2021/2022
Anno offerta	2021/2022
Normativa	DM270
SSD	GEO/05 (GEOLOGIA APPLICATA)
Dipartimento	DIPARTIMENTO DI SCIENZE DELLA TERRA E DELL'AMBIENTE
Corso di studio	GEOSCIENZE PER LO SVILUPPO SOSTENIBILE
Curriculum	GEOSCIENZE APPLICATE ALLA GESTIONE DELL'AMBIENTE
Anno di corso	1°
Periodo didattico	Primo Semestre (04/10/2021 - 14/01/2022)
Crediti	6
Ore	51 ore di attività frontale
Lingua insegnamento	English
Tipo esame	SCRITTO
Docente	MEISINA CLAUDIA (titolare) - 6 CFU
Prerequisiti	The students of this course have to own or to obtain an adequate initial knowledge about the following basic principles of geology: soil and rock classification, basic knowledge of structural geology and hydrogeology.
Obiettivi formativi	<p>Scope of the course is to introduce the student to fundamental geological surface and subsurfaces data in order to understanding engineering geological models for application to engineering works and to geohazards.</p> <p>In terms of acquired skills, the course will provide the ability to plan and execute engineering geological models to use for the study of landslide, tunnel, foundation, liquefaction, subsidence.</p>
Programma e contenuti	Geological factors and their relation with engineering problems. The

most important fields of application of engineering geology to foundations, slopes, tunnels, dams and earth structures. Basic aspects of engineering geology including map construction and interpretation (e.g. engineering geological mapping units). Significance of ground profiles to engineering design, their origin in various geological settings. Engineering geological model types and terminology: conceptual and observational approaches. General rules for the construction of useful models. Use of surface and subsoil data in creating model of the ground (data collection, management and pre-processing), development of engineering geological models involved in civil engineering projects and in geohazards, model validation. Some examples of engineering geological models for geohazards assessment in different geological and geomorphological environments.

The course content covers some Sustainable Development Goals (SDGs) defined by the United Nations in the 2030 Agenda for Sustainable Development: Goal 6: Ensure access to water and sanitation for all, Goal 11: Make cities inclusive, safe, resilient and sustainable, Goal 13: Take urgent action to combat climate change and its impacts

Metodi didattici

The course consists of lectures to illustrate the theory and tutorial sessions where the emphasis is on applications and problem solving. Each subject is illustrated with the support of experimental and observational evidences and well-documented case histories concerning earthquake and landslide hazard drawn from the experience of the instructor. During the exercises, two 3D engineering geological models of the subsoil will be reconstructed in two different geological and geomorphological contexts using the RockWorks software.

Testi di riferimento

? Luis Gonzalez de Vallejo, Mercedes Ferrer (2011). Geological Engineering. CRC Press, ISBN 9781439892213. Reference textbook.
? Course notes, scientific articles and other material will be provided during the course.

Modalità verifica apprendimento

Three assignments about the concepts and the topics of the course will be handed over and graded during the course. At the end of the course, a final examination will be also scheduled, consisting in a three hours-written test with open questions regarding the topics of the course. The final grading will be obtained from the following proportion: 40% evaluation of the assignments, 60% evaluation of the final exam.

Altre informazioni

Obiettivi Agenda 2030 per lo sviluppo sostenibile

[Gli obiettivi](#)