



MODELLO SCHEDA INSEGNAMENTO

Corso di L/LM/LMCU	Geology
Denominazione insegnamento:	Engineering Geology Lab.
Numero di Crediti:	6
Semestre:	II
Docente Titolare:	Gerardo Grelle
Dottorandi/assegnisti di ricerca che svolgono attività didattica a supporto del corso:	Laura Bonito Luigi Guerriero Neri Mascellaro
Orario di ricevimento:	Fryday 11:00 13:00 (giving warning)
Indirizzo:	Building ex-Enel, via dei Mulini BN

PRESENTAZIONE DEL CORSO:

The lessons are set up on the theory, experimentation and practice about the geotechnical characterization of soils and their mechanical and hydraulic behaviour. The skills acquired constitute the base for understanding the natural hazard phenomena as well the interaction of the human activity (engineer) with the near ground surface.

GLI OBIETTIVI FORMATIVI

The course have the aim to give to students the tools for resolve the main geotechnical and engineering geology topics. Particularly, the student will have the specific knowledge on the underground problems and the studies, surveys and tests that occurs in order to have a adequate characterization of the associate geotechnical models. It will give the skills can be to spend in engineering-geology free lands.

PREREQUISITI RICHIESTI

It is not required any preparatory exam but it is opportune to have skills of algebra, geometry, trigonometry and mathematical analysis and bases on the mechanic and kinematic physic.

FREQUENZA DELLE LEZIONI

The frequency is recommended because the course consist in frontal lessons and lab activities

CONTENUTI DEL CORSO

1. WELCOME AND COURSE PRESENTATION
2. INDEX PROPERTIES OF THE SOILS
3. CLAYEY SOIL FEATURING
4. MECHANISM BEHAVIOUR OF SOILS
5. HYDRAULIC BEHAVIOUR OF SOILS
6. CONSOLIDATION THEORY
7. LABORATORY TESTS

METODI DIDATTICI

Lectures, laboratory tests, discussions on case histories and field activities.

TESTI DI RIFERIMENTO

Any books treating the geotechnical principles and/or also notes and e-books.

ESAME DI PROFITTO

The exam consist in the discussion and questions on topics treated and on the exercitations resolved during the course.

CALENDARIO ESAMI

22/05/2018, 18/06/2018, 16/07/2018, 10/09/2018, 15/09/2018, 12/11/2018, 01/02/2019

PRENOTAZIONE ESAMI

Rinvio al link

SYLLABUS

SYLLABUS MODULE

Argomenti	Ore	Riferimenti bibliografici	Tipologia di lezione
<ul style="list-style-type: none">• Representative Physical model and volumetric indexes• Volumetric parameters• Granulometric distribution and correlated parameters• Granulometric distribution of	8	Notes by lectures	Lectures Exercises Laboratory tests

<ul style="list-style-type: none"> cohesionless soils Granulometric distribution of cohesion soils Interpretation of the granular size distribution curves 			
<ul style="list-style-type: none"> Geological formation and mineralogy Role of the water Water content and Atterberg limits Index plasticity property 	6	Notes by lectures	Lectures Exercises Laboratory tests
<ul style="list-style-type: none"> Stress distribution and typology Principles of Stress and Strain Mohr-Coulomb model Mohr-Coulomb circles and stress distribution Stress-strain linear relation Lithostatic stress Efficacy stress principle Rankine state of plastic equilibrium Passive and Active load Tensional running and drained undrained failures 	12	Notes by lectures	Lectures Exercises
<ul style="list-style-type: none"> Hydrostatic condition and Darcy Low Permeability test: constant and variable loads Permeability in layered medias. Stationary water flow: Laplace theory Water flow direction and its role on efficacy tensions 	10	Notes by lectures	Lectures Exercises Laboratory tests
<ul style="list-style-type: none"> On Consolidation Phenomenon Settlements Terzaghi's principle Degree of consolidation Time dependent and drainage models. 	6	Notes by lectures	Lectures Exercises Laboratory tests
<ul style="list-style-type: none"> Consolidation equipment and edometer tests Consolidation curves and primary consolidation and secondary compression Compression curves and edometer module 	14	Notes by lectures	Lectures Exercises Laboratory tests

<ul style="list-style-type: none"> • Over-consolidation degree • Casagrande Shear Box and direct shearing • Shear straight in granular soils • Shear straight in cohesive soils • Triaxial equipment • Consolidation and failure in triaxial cell • CID triaxial test • CIU triaxial test • UU triaxial test 			