ALLEGATO 2.1

REGOLAMENTO DIDATTICO DEL CORSO DI LAUREA
INGEGNERIA STRUTTURALE E GEOTECNICA

CLASSE LM-23

School: Polytechnic and Basic Sciences

Department: Structures for Engineering and Architecture

Didactic Regulation in force from the academic year 2024–2025

Course: Fundamentals of Structural and Geotechnical Engineering Module 1: Continuum Mechanics Module 2: Geotechnical Engineering Module 3: Structural Engineering	**Language:** English
SSD (subject areas): Module 1: ICAR/08 Module 2: ICAR/07 Module 3: ICAR/09	**CREDITS:** 9 ECTS Modulo 1: 3 ECTS Modulo 2: 3 ECTS Modulo 3: 3 ECTS
Year: I	**Type of Educational Activity:** TAF-B (Core subjects for LM-23)
Teaching methods in presence	
Extracted contents coherent with course objectives: **Module 1:** Introduction to the fundamentals of continuum mechanics. Kinematics of deformation. Linearization. Stress concept. Constitutive equations. Yield criteria. Elastic response. Work and energy. Virtual work theorem. Simple linear elasticity problems. Stress state of a 3D beam under axial force, bending moment, shear and torsion. **Module 2:** Overview of basic concepts and experimental tools for characterizing and modelling the physical-mechanical properties of soils for analysing their behavior under design conditions. **Module 3:** General criteria and application techniques for the design, safety verification and construction aspects of reinforced concrete and steel structural elements. Includes structural design principles, material behavior, constitutive laws, safety verification according to limit-state design, and reference to international building codes and Eurocodes.	
Objectives: **Module 1:** Understanding principles and analysis methods for strength and behavior of solids and structures; awareness and critical use of main models. **Module 2:** Introduction to soil mechanics and geotechnical modelling with focus on civil engineering applications; deriving soil properties from laboratory tests and in-situ investigations. **Module 3:** Basic knowledge and methodologies for calculation and safety verification of reinforced concrete and steel members according to semi-probabilistic limit-state methods; reference to international codes, Eurocodes, and construction techniques.	
Propaedeuticies: none **Is a propaedeuticity for:** none	
Types of examinations and other tests: Written practical assignments and simple numerical applications. Final oral exam including discussion of assignments and numerical applications	