Course offered for the PhD program
in Civil, Chemical and Environmental Engineering
Curriculum in Structural and Geotechnical Engineering, Mechanics and Materials
A.Y. 2024/2025 (XL cycle)

(course is open for participation of students from other PhD cycles or programs)

1. Title
Continuum mechanics

2. Course Description
Continuous bodies. Deformation and motion. Lagrangian and Eulerian description. Deformation gradient, polar decomposition. Effects on lengths, volumes, areas. Nanson formula. Velocity gradient.Transport theorem. Balance equations: mass, linear momentum, angular momentum, energy. Cauchy's theorem. Balance in a control volume. Second law of thermodynamics and consistency of constitutive equations. Viscous fluids. Elastic solids and wave propagation.

3. Course Organization
The course consists of 30 one-hour lectures. The contents are developed directly by the teacher on the blackboard.

4. Teacher
Professor Angelo Morro.

5. Duration and credits
The course is developed during six weeks. The number of credits is 6.

6. Activation mode and teaching period
The course is given each year in the period January-February.

7. Deadline for registration

8. Final exam
The exam is based on a oral examination usually in the period June-September.