



UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II
DIPARTIMENTO DI STRUTTURE PER L'INGEGNERIA E L'ARCHITETTURA
Dottorato in Ingegneria Strutturale, Geotecnica e Rischio Sismico

PROPOSTA SEMINARIO – OFFERTA FORMATIVA 2026

Titolo del seminario	Analytical, Experimental, and Computational Studies on Cellular Materials
Docente proponente (per i docenti esterni indicare l'affiliation)	Prof. Marcin Kamiński Department of Structural Mechanics Faculty of Civil Engineering, Architecture and Environmental Engineering Łódź University of Technology Al. Politechniki 6, 93-590 Łódź, Poland
Argomenti trattati / Descrizione sintetica	Cellular engineering materials, both natural and those manufactured, have gained high applicability and popularity in recent years. They are widely applicable in several engineering products and solutions that are frequently manufactured using 3D printing. Mathematical and numerical optimization tools are necessary, as these materials have a designed microstructure – a specific microarchitecture is proposed using some simplified analytical formulas. On the other hand, the overall mechanical characteristics of such a cellular solid are concurrently computed using the Finite Element Method-based homogenization of the given solution. All these issues will be discussed in the context of the quite natural uncertainty quantification of such materials using fundamental numerical techniques such as Monte Carlo simulation, semi-analytical methods, and the generalized iterative stochastic perturbation method. Probabilistic moments of structural response and the effective characteristics of these skeletal solids, as well as the associated probabilistic entropy, will be presented and discussed during this seminar. Additionally, a comparison of experimental work relevant to this topic with corresponding numerical models implemented in the ABAQUS system will be presented and summarized.
Data o periodo previsto	Autunno 2026
Numero di ore totali	2
CFU proposti	(Seminario)
Modalità di erogazione	In presenza

Da restituire compilato in ogni sua parte a phd.dist@unina.it entro il 30 novembre 2025.