



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 CORSO / SEMINARIO – OFFERTA FORMATIVA 2026**

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| <b>Titolo del corso/seminario</b>                                                       | Out-of-plane modelling and non-linear dynamic analysis of masonry structures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Docente/i proponente/i</b><br><b>(per i docenti esterni indicare l'affiliazione)</b> | Linda Giresini<br>Professore associato CEAR 07/A<br>Sapienza Università di Roma                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Argomenti trattati / Descrizione sintetica</b>                                       | The course will discuss the traditional approaches currently adopted for assessing the out-of-plane performance of masonry structures, illustrating the principles of non-linear kinematic analysis applied to local mechanisms. Then the non-linear dynamic analysis (NLDA) of masonry constructions will be introduced, highlighting the current challenges of modelling and interpreting the results of analyses on existing masonry, including historic structures. The NLDA of out-of-plane modes will be the focus of the course, presenting the analytical formulation of free-standing and restrained rigid-block models and stochastic approaches to identify the most significant intensity measures. Special sessions will be dedicated to the modelling of earthquake-resistant devices, considering both traditional (tie-rods) and innovative restraints (dissipative tie-rods). A final slot will discuss the experimental results collected for free-standing and restrained rocking walls analyzing their impact on the definition of coefficient of restitution and of mechanical parameters related to transverse walls and tie-rods. |
| <b>Data o periodo previsto</b>                                                          | Marzo-Aprile 2026                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Numero di ore totali</b>                                                             | 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>CFU proposti</b>                                                                     | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Modalità di erogazione</b>                                                           | Mista                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

**Da restituire compilato in ogni sua parte a [phd.dist@unina.it](mailto:phd.dist@unina.it) entro il 30 novembre 2025.**