ROSE School | Earthquake Engineering

Seismic Assessment of Masonry Structures

Lecturer: **F. Graziotti**
Date: 7/09/2026 – 18/09/2026
Credits: 3 ECTS (CFU)

Course Description

This course provides an overview of the main concepts, tools, and methodologies for evaluating the seismic performance of existing masonry buildings. Students will explore how construction materials, building typologies, and structural systems influence the response of masonry under earthquake loading.
The course combines theoretical lectures with case studies and practical exercises, focusing on both simplified and advanced approaches for structural analysis. Attention is also given to the interpretation of code provisions and the selection of appropriate intervention measures aimed at improving seismic safety.

Topics

- Masonry materials and traditional building techniques.
- Typical failure mechanisms, local and global behaviour under seismic actions, including in-plane and out-of-plane response.
- Linear and nonlinear procedures for seismic assessment.
- Modelling strategies and identification of structural weaknesses.
- Strengthening methods and retrofit strategies at local and global level.

Learning Outcomes

Upon completion, students will have gained a general understanding of the seismic behaviour of masonry buildings and of the main factors influencing their performance during earthquakes. They will become familiar with the fundamental methods and tools used for structural assessment and with the typical approaches for evaluating and improving the seismic safety of existing masonry constructions.