Università degli Studi di Napoli Federico II

Scuola Politecnica e delle Scienze di Base

Nell'ambito del **Corso di Dottorato** in
Ingegneria Strutturale, Geotecnica e Rischio Sismico

7-11 giugno 2021, ore 10-13 e 14-17

Dott. Ing. Paolo Ricci
Dott. Ing. Mariano Di Domenico

Corso Breve

Nonlinear modeling of RC structures using OpenSees

The course provides basic elements of nonlinear modeling of RC structures using the OpenSees(Open Software for earthquake engineering simulation) platform. The focus is on nonlinear modeling for seismic response analysis. OpenSees is anopen source software, widely recognized in earthquake engineering research community, which allows code development and contributions by the single users, making it very suitable foradvanced modeling and academic research activities. The course is structured in theory and practice lessons. The theory lessons recall basic principles of structural modeling and provide elements of nonlinear modeling, with emphasis on RC frame structures subjected to seismic action. The practice lessons allow the construction of a numerical model reproducing a simple 3D structure and the execution of the main analyses for earthquake engineering purposes, from eigen to nonlinear static and dynamic.The first part of the course is focused on the introduction to the software, with basic concepts regarding the object-oriented approach including the definition of geometry, elements, and materials of the numerical model, response recorders and analysis commands.Then, basic elements of linear and nonlinear modeling approaches are provided, with emphasis on modeling strategies for RC frames, including beam-column joints and members controlled by shear. Brief notes on special elements/materials/commands are provided, too, including example modeling approaches for base isolation systems, nonstructural masonry infill elements, and element removalfor progressive collapse simulation. Finally, the main commands for the analysis of structural response under seismic action are illustrated, i.e. eigen, nonlinear static and nonlinear dynamic analysis, and corresponding output analysis.

Agli studenti di Dottorato che sosterranno e supereranno
la prova finale saranno riconosciuti **3 CFU**

Iscrizioni all'indirizzo phd.dist@unina.it

Il Coordinatore del CdD
Prof. Ing. Iunio Iervolino

Il Direttore del Dipartimento
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