COURSE: Earthquake Engineering  
ACADEMIC YEAR: 2019/20  
TYPE OF EDUCATIONAL ACTIVITY: Basic  
TEACHER: Donatello Cardone  
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Language: Italian  

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

Knowledge: Understanding of the seismic response of buildings and bridges. Understanding of the seismic response and performances of structures with seismic isolation.
Skills: Ability to model and analyze complex structures such as multi-storey buildings and multi-span bridges. Ability to design structures (especially buildings) located in high seismicity regions.

PRE-REQUIREMENTS
- Fundamentals of Structural Engineering, with particular attention to reinforced concrete structures,
- Basic knowledge and use of finite element programs for structural analysis (eg SAP2000).

SYLLABUS

Part 5. INNOVATIVE SEISMIC PROTECTION TECHNIQUES (10 hrs): (i) passive, semi-active and active control of structural vibrations, (ii) dissipation of energy: fundamentals, technologies for energy dissipation, examples of application, (iii) Seismic isolation: strategies for seismic isolation, currently used isolation systems, mechanical properties of currently used isolation systems, performance requirements of isolated structures, methods of design and analysis of buildings and bridges with seismic isolation, construction details, examples of application, seismic code aspects.

TEACHING METHODS

The course is organized as follows:
o Theoretical lessons (65 hrs);
o Classroom tutorials (20 hrs)
o Laboratory tutorials (5 ore).
o Project Homework

EVALUATION METHODS

The exam consists of three tests:
o Written test, dealing with the content of the first part of the course (Dynamics of Structures). The estimated time for the test is 2 hours.
o Discussion of a project homework (max 3 person for group), dealing with the design of a RC frame building with either fixed-base or base-isolated.
o Oral examination.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL


INTERACTION WITH STUDENTS
Office hours: Wednesday from 11am to 13am, study n. 8, third floor. The Professor can be contacted by e-mail.

EXAMINATION SESSIONS (FORECAST)
19/02/2020, 25/03/2020, 13/05/2020, 24/06/2020, 22/07/2020, 14/10/2020, 11/11/2020, 2/12/2020

EVALUATION BOARD
Riportare la commissione inserita nella scheda in lingua italiana

SEMINARS BY EXTERNAL EXPERTS YES ☒ NO ☐

FURTHER INFORMATION

In the academic year. 2019/2020, two integrative teaching modules, 9 hours each, will be provided by a visiting professor from New Zealand. The tentative title of the two teaching modules is as follows: "Displacement approaches for the seismic design of structures", "Evaluation and improvement of seismic performance of non-structural elements"

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1 Subject to possible changes: check the web site of the Teacher or the Department/School for updates.