Università degli Studi della Basilicata
Scuola di Ingegneria

COURSE: Seismic Risk

TEACHER: Angelo MASI

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Language: Italian

ECTS: 9	n. of hours: 90	Academic year: 2014-15	Campus: Potenza	Semester: I

TOPICS
Lessons learnt from past eartquakes, general concepts on Seismic Risk
Seismic vulnerability of buildings and lifelines
Emergency plannning and management
Mitigation Strategies
Assessment and retrofitting of Reinforced Concrete buildings
Preparation of earthquake scenarios

TEACHING METHODS (please tick one or more options)
x Theoretical lessons
x Tutorials in classroom
□ Tutorials in laboratory
x Project works
x Technical visits
Other activities (please specify) _____

TEXTBOOKS
A. Coburn, R. Spence. Earthquake Protection, J. Wiley & Sons, 2002.
Lecture notes

ON-LINE EDUCATIONAL MATERIAL
web address: www.angelomasi.it

LEARNING OUTCOMES
Providing basic knowledge on seismic risk and more generally on civil protection activities, with particular attention to evaluation and reduction of the seismic vulnerability of built environment. The course gives methods and tools for the planning and management of earthquake emergencies, as well as for setting up seismic risk mitigation strategies.

REQUIREMENTS
The attendance of the Earthquake Engineering course is suggested.

EVALUATION METHODS (please tick one or more options)
□ Intermediate verifications
□Written examination
x Discussion of a project work
□ Practical test
x Oral examination
Other methods (please specify) _____

DETAILED CONTENT
Lessons learnt from past earthquakes in Italy and worldwide. Seismic risk: Hazard, Vulnerability, Exposure. General notes on sesmic amplification effects.
Seismic vulnerability evaluation: Damage Probability Matrices, Fragility Curves.. History of seismic codes and hazard maps in Italy. Macroseismic Scales, EMS 98 scale. Seismic Risk analyses and earthquake scenarios.
Damage scenarios of lifelines and of RC and masonry buildings. Social and economic loss estimation. HAZUS methodology.
Prevision and Prevention programs. Emergency Planning and Management. Post-earthquake usability surveys: concepts, tools, responsibilities, damage inspection. The Italian (AeDES) usability survey form.
Mitigation strategies, the new seismic codes in Italy, OPCM 3274.

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Evaluation and retrofitting of existing Reinforced Concrete buildings. Examples and applications. Annual Exercise: preparation of an earthquake scenario, effects on the building stock and human beings, suggestions for civil protection plans.
SEMINARS BY EXTERNAL EXPERTS YES x NO ☐
FURTHER INFORMATION