



SEISMIC ISOLATION

Anno immatricolazione	2017/2018
Anno offerta	2018/2019
Normativa	DM270
SSD	ICAR/09 (TECNICA DELLE COSTRUZIONI)
Dipartimento	DIPARTIMENTO DI INGEGNERIA CIVILE E ARCHITETTURA
Corso di studio	CIVIL ENGINEERING FOR MITIGATION OF RISK FROM NATURAL HAZARDS
Curriculum	Reduction of seismic risk
Anno di corso	2°
Periodo didattico	Primo Semestre (24/09/2018 - 17/10/2018)
Crediti	6
Ore	51 ore di attività frontale
Lingua insegnamento	English
Tipo esame	SCRITTO E ORALE CONGIUNTI
Docente	FILIATRAULT ANDRE (titolare) - 6 CFU
Prerequisiti	---
Obiettivi formativi	<p>The main objective of the course is to familiarise Structural Engineers with the various innovative systems that have demonstrated considerable potential through analytical studies, experimental testing and actual structural implementation. The discussion will focus on passive energy dissipation systems and base isolation systems. At the end of the course, Structural Engineers should be able to:</p> <ul style="list-style-type: none">- Provide a critical comparison of various systems- Model and Design various systems with general structural engineering software- Recommend optimum systems for particular seismic design or retrofit projects
Programma e contenuti	Chapter 1: Introduction

Chapter 2: Review of Seismic Design Philosophies and Analysis Methods
Chapter 3: Energy Concepts in Earthquake Engineering
Chapter 4: Basic Concepts of Structures with Passive Energy Dissipating Systems
Chapter 5: Metallic and Friction (Hysteretic) Dampers
Chapter 6: Viscous and Viscoelastic Dampers
Chapter 7: The ASCE 7-10 Design Provisions for Structures with Passive Energy Dissipating Systems
Chapter 8: Theory of Linear Seismically Isolated Systems
Chapter 9: Seismic Isolation Systems
Chapter 10: The ASCE 7-10 Design Provisions for Seismically Isolated Buildings
Chapter 11: The AASHTO Design Guide Specifications for Seismically Isolated Bridges
Chapter 12: Tuned-Mass Dampers
Chapter 13: Self-Centering Systems

Metodi didattici

Lectures: Tuesdays, Wednesdays and Thursdays: 9.00 am to 1.00 pm
Tutorials: Tuesdays, Wednesdays and Thursdays: 2.30 pm to 5.30 pm

Testi di riferimento

- Christopoulos, C. and Filiatrault, A. 2006. "Principles of Passive Supplemental Damping and Seismic Isolation", IUSS Press, University of Pavia, Italy, 2006.
Order online at:
<http://www.iusspress.it/pc/viewPrd.asp?idcategory=21&idproduct=33>
or
http://www.amazon.com/Principles-Passive-Supplemental-Damping-Isolation/dp/8873580378/ref=sr_1_3?ie=UTF8&s=books&qid=1230769301&sr=1-3

-Slide sets available on the course Dropbox:
<https://www.dropbox.com/sh/8jh5r1hu7scuq17/AABPctjB9TjaDs57QqxTUjyra?dl=0>

Modalità verifica apprendimento

Project Report: 50% (open)
Project Oral Presentation and Examination: 25% (open)
Final Written Examination: 25% (1-A4 Sheet)

Altre informazioni

Office Hours: Mondays and Fridays 1.00 pm to 4.00 pm TA in CAR College reading room, by e-mail appointment to PS only, 24-hours notice required.

Obiettivi Agenda 2030 per lo sviluppo sostenibile

[Sibl legenda sviluppo sostenibile](#)