

FACULTY OF **ENGINEERING**

DEGREE COURSE: **CIVIL AND ENVIRONMENTAL ENGINEERING**

MASTER DEGREE: **CIVIL ENGINEERING**

SUBJECT: DESIGN FOR BUILDING RESTORATION

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OBJECTIVES

The course is aimed to the education and training of buildings reuse, with further knowledge in conservation of ancient and old buildings.

This course is also aimed to provide the main elements of knowledge about the constructive principles, analyzing, with a critical review, the basic elements for the definition of the most proper solutions for interventions on the existing edification.

CONTENTS

1. The process of edification
2. Evolution of buildings constructions rules
3. The architectural and structural projects
4. Mechanical performance of main factory elements
5. Diagnosis before, during and after conservation-restoration interventions.
6. Conservation, restoration, rehabilitation and maintenance
7. Mechanical relief of one building
8. Reuse project of a building.

LEARNING OUTCOMES

At the end of the course the student will be able

-To understand the different phases of the process of edification in relation with building techniques and with the characteristics of materials, with a strong relation with the history of buildings techniques.

- To co-operate with other disciplines and conduct research on causes and mechanisms of deterioration.
- To interpret scientific results for the benefit of the conservation.
- To develop and evaluate conservation concepts, materials, measures, methods and techniques and develop standards and guidelines.

ASSESSMENT

Written exam: multiple choice and open questions

RECOMMENDED TEXTBOOKS

Arthur Lyons, *Materials for Architects and Builders*, Routledge, 2010 ISBN-13: 978-1856175197

Dirk M. Kestner, Jennifer Goupil, Emily Lorenz, *Sustainability Guidelines for the Structural Engineer*. ASCE ISBN: 9780784411193

AA.VV. (A.Giuffrè), *Sicurezza e conservazione dei centri storici, il caso di Ortigia*, Laterza 1993.

A. Bellini, *Teorie del restauro e conservazione architettonica*, in *Tecniche della conservazione*, Franco Angeli 1986.

G. Carbonara, *Restauro dei monumenti. Guida agli elaborati grafici*, ed. Liguori, Napoli 1990.

G. Carbonara, *Teoria e metodi del restauro*, in G. CARBONARA (a cura di) *Trattato di restauro architettonico*, Utet Torino 1996.

Frate M. Carmela. *Capitolato speciale di appalto per i lavori di recupero, conservazione e restauro*. Editore Flaccovio 2009.

Kind-Barkauskas F., Polonj S., *Beton ATLAS* Birkhäuser Verlag GmbH

ISBN-13: 978-3764366858

Belz, Rosele Hoffmann, *Mauerwerk Atlas*, 1996 München by Institut für internationale Architektur-Dokumentation.

Nattarer J., Herzog T., Volz M., *Holzbau Atlas Zwei*, Birkhäuser Edition Detail

ISBN-13: 978-3764369842

Magazines:

Detail

The Plan