

FACULTY OF **ENGINEERING**

DEGREE COURSE: **CIVIL AND ENVIRONMENTAL
ENGINEERING BS**

SUBJECT: CONSTRUCTION TECHNIQUES

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OBJECTIVES

This course will:

1. teach the main elements of constructive principles.
2. Critically analyze the basic elements for the definition of new construction and the most proper solutions for interventions on existing constructions.
3. Investigate the principal characteristics of buildings, with particular attention to the expressive potentialities of different materials.

CONTENTS

The process of construction
Evolution of the rules of construction
Mechanical performance of building elements
The architectural and structural projects
Conservation, restoration, rehabilitation and maintenance
Architectural and structural analysis of some historical buildings
Building materials and architectural issues

LEARNING OUTCOMES

The students will:

- understand the different phases of the construction process with regards to building techniques and material characteristics,
- learn the historical evolution of building techniques.

ASSESSMENT

Written exam: multiple choice and open questions

RECOMMENDED TEXTBOOKS

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

RECOMMENDED READING:

Italian language

- AAVV. *La concezione strutturale nel progetto di architettura*. Editrice Compositori, Bologna 2002.
- E. Benvenuto, *La scienza delle costruzioni e il suo sviluppo storico*, Ediz di Storia e Letteratura 2006
- Caleca L. *Architettura Tecnica*, Flaccovio Editore 2004
- Giuffrè, *Lecture sulla meccanica delle murature storiche*, Ed. Kappa, Roma, 1991
- Gordon, *Strutture sotto sforzo*, Zanichelli, Bologna 1991.
- A.W. Hendry, *Statica delle strutture in muratura di mattoni*, Ed. Patron, Bologna 1986.
- Salvatori Heller *Le strutture in architettura*, Etas, 1992
- Belz, Rosele Hoffmann, *Atlante della Muratura* Utet Torino 1998
- Di Sivio M., *Atlante della Pietra*, UTET, Torino 2004
- Herzog, T., Krippner R., Lang W., *Atlante delle Facciate*, UTET, Torino 2005
- Kind- Barkauskas F., Polonj S., *Atlante del Cemento* Utet 1998
- Nattarer J., Herzog T., Volz M., *Atlante del legno*, UTET, Torino 2006
- Schittich C., Staib G., Balkow D., Schuler M., Sobek W., *Atlante del vetro*, UTET, Torino 2006
- Schulitz H., Sobek W. Habermann K., *Atlante dell'acciaio*, UTET, Torino 2002
- Schunk, Finke, Jenisch, Oster, *Atlante dei tetti*, UTET, Torino 2005

Other languages:

- 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
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