



COURSE DESCRIPTION RESTORATION LABORATORY

SSD: RESTAURO (ICAR/19)

DEGREE PROGRAMME: ARCHITETTURA (N14)
ACADEMIC YEAR 2022/2023

COURSE DESCRIPTION

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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: NOT APPLICABLE
MODULE: NOT APPLICABLE
CHANNEL: 03 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

REQUIRED PRELIMINARY COURSES

Theories and History of Restoration (Teorie e Storia del Restauro); Fundamentals of Solid Mechanics (Fondamenti di Scienza delle Costruzioni).

PREREQUISITES

None.

LEARNING GOALS

The course aims to provide students with the necessary knowledge to let them face the complexities of the restoration project throughout the adequate understanding of the historic built heritage, autonomously evaluating the processes which determine the built palimpsest, in order to transmit to the future the architecture heritage in its entirety and authenticity and to produce an intermediate-level architectural restoration project according to the current legislation. Students will be provided also with the necessary tools allowing them to analyze autonomously the built heritage and to evaluate the layers of the different interventions of transformation, conservation

and restoration occurred during the centuries.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

At the end of the course and after passing the exam, the student will be able to acknowledge the architectural restoration project methodology at different scales, to read and to portray a historical fabric, evaluating autonomously its historical and construction events, its materials and construction techniques, its collapse and decay phenomena, and also its tangible and intangible values, in order to transmit it to the further generations in its material integrity, defining the methodology approaches for its conservation. The student will be able to apply its knowledge in an architectural restoration project culturally aware and technically updated to the different scales of the built heritage.

The student must:

- Show to possess the methodology of the architectural restoration project at different scales, relating to the current disciplinary debate;
- Show the critical understanding methods of the built heritage relating to the historical transformation occurred during time;
- Show to know and portray the cultural values, tangible and intangible, preceding the choices for safeguard, conservation, management and enhancement of the built heritage;
- Show to understand with critical and multidisciplinary approach the survey and diagnosis techniques on the built heritage aimed to the restoration and conservation;
- Show to possess the survey and representation techniques of the construction systems of the historical architecture;
- Show to know the survey and representation techniques of the collapse and decay phenomena on the built heritage;
- Show to know the intervention techniques for restoration and conservation of the built heritage;
- Show to know the current legislation on protection of the built heritage;
- Show to be able to define the project strategies for the enhancement and improvement of use for the built heritage.

The training course, starting from the knowledge the evolving debate on architectural restoration –already studied into its historical aspects in the *Theories and History of Restoration* course –aims to convey to the student a methodology for the architectural conservation project in its many phases, of survey, of diagnosis, of concept and checking. Through this methods the students acquire the ability to draw up a culturally aware and technically updated project on built heritage.

Applying knowledge and understanding

The student must show:

- To have developed a critical ability of the built heritage, relating to the history of urban architectural, restoration transformations;
- To be able to apply methods of visual and instrumental investigation for the knowledge of the material, morphological, typological, constructional and structural aspect of the built heritage;
- To know how to use the advanced computer techniques and tools for the critical representation of the heritage in its historical recognition and through its phenomena of instability and decay;

- To know how to develop a restoration, conservation, reuse, enhancement project of the built heritage culturally aware in the line with disciplinary and legislative orientations.

The training course is aimed to transmit the operating abilities necessary to correctly apply the acquired knowledge by the student in the definition of project strategies for the conservation and restoration of the architectural heritage.

COURSE CONTENT/SYLLABUS

CURRENT ISSUES IN THE CONSERVATION OF ARCHITECTURAL AND LANDSCAPE HERITAGE

The term "restoration" in its various forms: conservation, recovery, restoration, reuse, restyling, etc. The "cultural heritage" subject to protection. The evolution of the concept of protection from the individual monument to the environment. Problems and guiding criteria in the architectural restoration project: minimum intervention, reversibility or reparability of previous interventions, compatibility and durability of materials and techniques. Some theoretical nodes: the dialectic among historical, aesthetic and psychological "instances", respect for authenticity, treatment of gaps, the relationship between permanence and transformation in restoration. Conservation and innovation: current orientations in architectural restoration in Italy and Europe between theoretical aspects and case studies. The restoration of the Modern architectural heritage.

THE PROTECTION OF CULTURAL HERITAGE

Criteria and evolution of modern cultural heritage protection. Architectural restoration, urban restoration, landscape restoration. Restoration, recovery, urban restructuring. Protection, spatial planning and integrated conservation. The Venice Charter (1964). The European Charter of Architectural Heritage (1975). The Amsterdam Declaration (1975). The European Landscape Convention (2000). The protection of architectural and landscape heritage in the Italian laws. The Cultural Heritage and Landscape Code (Legislative Decree no. 42/2004) and subsequent amendments and additions (Legislative Decree no. 63 of 26 March 2008); The "recovery plans" (Law 457/1978, Title IV). Standards for the elimination of architectural barriers (Law 13/1989 [private buildings] and Presidential Decree 503/1996 [public buildings]). Fire safety regulations (Ministerial Decree 30/11/1983; Ministerial Decree 569/1992 [historic buildings intended for museums and galleries]; Presidential Decree 418/1995 [historic buildings intended for libraries and archives]). Structural safety and seismic risk ("Linee Guida per la valutazione e riduzione del rischio sismico del patrimonio culturale allineate alle nuove Norme Tecniche per le Costruzioni (d.m. 14 gennaio 2008)" in Gazzetta Ufficiale no. 24 of 29-1-2008).

RESTORATION PROJECT

Methodology of architectural restoration design. The different forms of approaching the artefact: peculiarities of historical research for restoration. The survey for restoration: metric, architectural, material, survey of structural issues/crack patterns and degradation. Architectural restoration and design of the "new". The role of structural consolidation in the architectural restoration project. The concepts of minimum intervention, reparability, compatibility and durability of materials and techniques. Construction interpretation, seismic risk prevention and structural improvement. Analysis of materials and structures using analytical instruments. Methods and instruments for the detection of structural issues and crack patterns. Non-destructive testing and diagnostic methods.

Monitoring of structures.

Conservation techniques:

- Consolidation of land and foundations. Nature of land. Traditional and innovative techniques.

Outline of foundation structures. Techniques of foundation consolidation.

- Masonry: construction types, analysis and diagnosis of instabilities, consolidation methods.

- Arches, vaults and domes: construction types, instabilities, stability checks, consolidation interventions.

- Wood structures: main phenomena of degradation and instabilities. Consolidation methods.

- Restoration techniques for reinforced concrete buildings.

- Guidelines and regulations for assessment and reduction of seismic risk (Ministerial Decree of 14 January 2008).

- Damp issues in masonry buildings: analysis and intervention techniques.

- Diagnosis of pathologies and conservation interventions on surfaces using the Nor.Ma.L. Lexicon 1/88 (updated April 2006) and 20/85.

READINGS/BIBLIOGRAPHY

BIBLIOGRAPHY:

•C. BRANDI, *Teoria del restauro*, PBE, Torino 1977II.

•R. PANE, *Attualità e dialettica del restauro*, Solfanelli, Chieti 1987.

•G. CARBONARA, *Orientamenti teorici e di metodo nel restauro*, in D. FIORANI (ed.), *Restauro e tecnologie in architettura*, Carocci, Roma 2009, pp. 15segg.

•G. CARBONARA, *Architettura d'oggi e restauro. Un confronto antico-nuovo*, Utet, Torino 2011.

•V. RUSSO, *Bene culturale*, s.v. in *L'Architettura. Architettura Progettazione Restauro Tecnologia Urbanistica*, direzione scientifica G. Carbonara e G. Strappa, Utet Scienze Tecniche, Torino 2013. (<http://www.wikitecnica.com/bene-culturale/>).

•V. RUSSO, *Una difficile circolarità per la conservazione. Interpretazione storico-evolutiva e operatività sul patrimonio costruito*, in RICerca/REStauo, Sezione 1C. *Questioni teoriche: storia e geografia del restauro*, coord. D. Fiorani, Edizioni Quasar, Roma 2017, pp. 260-270.

The protection of cultural heritage

•D. ESPOSITO, *Carte, documenti e leggi*, in G. Carbonara (ed.), *Trattato di restauro architettonico*, Utet, Torino 1996.

•E. ROMEO, *Documenti e norme per il restauro architettonico*, in S. Casiello, *Restauro. Criteri, metodi esperienze*, Electa Napoli, Napoli 20002, pp. 237 segg.

•R. PICONE, *Conservazione e accessibilità. Il superamento delle barriere architettoniche negli edifici e nei siti storici*, Arte Tipografica editrice, Napoli 2004. Linee Guida per il superamento delle barriere architettoniche nei luoghi di interesse culturale, MIBACT 2008.

•A. AVETA, *Conservazione e valorizzazione del patrimonio culturale. Indirizzi e norme per il restauro architettonico*, Arte Tipografica Editrice, Napoli 2005.

•D. FIORANI (ed.), *Restauro e tecnologie in architettura*, Carocci, Roma 2009, pp. 335-354.

Restoration techniques of architectural heritage

•S. CASIELLO, *Il consolidamento come operazione culturale*, in *Restauro e consolidamento*, Proceedings edited by A. Aveta, S. Casiello, F. La Regina, R. Picone, Mancosu editore, Roma

2005, pp. 9-11.

- A. AVETA, *Materiali e tecniche tradizionali nel napoletano. Note per il restauro architettonico*, Arte Tipografica, Napoli 1987, pp. 3-20, pp. 25-35, pp. 45-59, pp. 63--146, pp. 163-176, pp. 181-196.
- D. FIORANI, *Conoscenza e restauro dell'architettura: ruolo e casistica delle tecnologie*, in Id. (ed.), *Restauro e tecnologie in architettura*, cit., pp. 43-67.
- A. DEFEZ, *Il consolidamento degli edifici*, Liguori, Napoli 1990 (2002II), pp. 107-128, pp. 145-150, pp. 152-157.
- R. DI STEFANO, *Il consolidamento strutturale nel restauro architettonico*, ESI, Napoli 1990, pp. 44-107, pp. 151-187, pp. 230-244.
- D. FIORANI (ed.), *Restauro e tecnologie in architettura*, cit., pp. 110-334.
- A. AVETA, L. M. MONACO, *Consolidamento delle strutture in legno. Diagnostica e interventi conservativi*, ESI, Napoli 2007.
- Atlante delle tecniche costruttive tradizionali. Napoli, Terra di Lavoro (XVI-XIX)*, edited by G. Fiengo, L. Guerriero, Arte Tipografica, Napoli 2008.
- G. FIENGO, L. GUERRIERO (eds.), *Murature tradizionali napoletane. Cronologia dei paramenti tra il XVI ed il XIX secolo*, Arte Tipografica, Napoli 1999.
- F. DOGLIONI, *Nel restauro*, Marsilio-IUAV, Venezia 2008.
- A. BELLINI (ed.), *Tecniche della conservazione*, Franco Angeli, Milano 2009III.
- R. PICONE, V. RUSSO (eds.), *L'arte del costruire in Campania tra restauro e sicurezza strutturale / Construction art in Campania between restoration and structural safety*, Clean, Napoli 2017.

TEACHING METHODS OF THE COURSE (OR MODULE)

Professor will use: a) frontal lectures approximately 40% of the total teaching hours; b) laboratory and exercises to improve applied knowledges approximately 40% of the total teaching hours; c) visits in Restoration construction sites approximately 20% of the total teaching hours.

The exercises aim at developing the restoration project of a building or an architectural complex which shows a significant historical stratification and conservation issues requiring restoration.

Students will trainee with direct and instrumental surveys, bibliographical research, surveys - also using the equipment present in the departmental laboratories (eg mlab - Monitoring Laboratory_Tecnologie per il monitoraggio dell'ambiente costruito).

The elaborations required for the exercise to be done by groups of 2-4 students, variable according to the specificity of the individual themes, must follow the list on the Professor's website, also shown during the classes.

EXAMINATION/EVALUATION CRITERIA

a) Exam type

- Written
- Oral
- Project discussion

Other

In case of a written exam, questions refer to

Multiple choice answers

Open answers

Numerical exercises

b) Evaluation pattern

The evaluation will be based on the oral interview and discussion of the project.