



COURSE DETAILS

"ARCHITECTURAL RESTORATION LABORATORY"

SSD ICAR 19 RESTAURO*

DEGREE PROGRAMME: MASTER'S DEGREE IN ARCHITECTURE (LM-4 SINGLE CYCLE)

ACADEMIC YEAR 2022-2023

GENERAL INFORMATION – TEACHER REFERENCES

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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE (IF APPLICABLE):

MODULE (IF APPLICABLE):

SSD OF THE MODULE (IF APPLICABLE):

CHANNEL (IF APPLICABLE): A

YEAR OF THE DEGREE PROGRAMME (I, II, III): V

SEMESTER (I, II, ANNUAL): 1ST SEMESTER

CFU: 8

REQUIRED PRELIMINARY COURSES (IF MENTIONED IN THE COURSE STRUCTURE “REGOLAMENTO”)

Theories and History of Restoration (Teorie e Storia del Restauro); Fundamentals of Construction Science (Fondamenti di Scienza delle Costruzioni)

PREREQUISITES (IF APPLICABLE)

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)

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.

Knowledge and understanding

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.

Autonomy of Judgement

The student must be given the required means to re-elaborate and to apply the methodologies and the principles behind a culturally aware restoration project, and to define an autonomous manner to a design solution coherent with the aforementioned assumptions, evaluating the specificities of the single case study. The autonomy of judgement will be progressively checked and refined throughout the laboratories activities and the field activities, the collective reviews and the final exam.

Communication Skills

The student must be able to communicate and argue his or her project proposals collaborating with his or her colleagues, with the professor and his or her collaborators and also with other teachers during the intermediate and final juries. The student must be able to expose his or her project proposals thanks to his graphic and technical works and using effective digital presentation also clear for non-expert audiences.

Learning Skills

The student must acquire an adequate learning skill allowing him or her to broaden his or her knowledge via the consultation of bibliographical sources, the participation in seminars, conferences, international workshops provided by the Department or abroad. At the end of the training path the student must be able to continue his or her studies through third level training programs (School of Specialization, Masters, Ph.D. programs) or to update his knowledge by himself or herself.

COURSE CONTENT/SYLLABUS

THE CONTEMPORARY DEBATE ON CONSERVATION AND PROTECTION OF ARCHITECTURAL HERITAGE

The passage from the notion of historical-artistic monument to that of cultural heritage: the contribution of the Franceschini-Papaldo Commission. The evolution of the concept of protection from the single monument to the environment. Historical instance, Aesthetical instance, Psychological instance. The contribution of Cesare Brandi and Roberto Pane. The definition of the architectural, urban, environmental heritage and the object of protection. Theoretical knots: the respect of authenticity, the treatment of the lacuna, the relationship between permanence and transformation in restoration. The current orientations: the critical restoration, the pure conservation, the maintenance-restoration. General criteria of the modern protection of the cultural heritage and the evolution of the concept of conservation. The insertion of the protection in the urban planning. The participation of citizens and local authorities in the integrated conservation. The social cost of the requalification and restoration operations. The Charter of Venice (1964). The European Charter of the Architectural Heritage (1975). The Declaration of Amsterdam (1975). The Convention for the safeguard of the European Architectural heritage. The Institution and the organization of the Ministry of Culture (D. Lgs. 368/1998 and DPR 173/2004). The New Code of Cultural and Landscape heritage (D. Lgs. 42/2004). The decree of the Prime Minister n. 3431/2005 and the Guidelines for the evaluation and reduction of seismic risk of the cultural heritage with references on technical legislation of construction. Minister Circular BB. CC.: Recommendations on the intervention on the monumental heritage with special typology in seismic areas (17.06.1986). T.U. for construction (D.lgs. 380/2001) and interventions ex art. 31 della L. n. 457/1978. Legislation for Elimination of Architectural Barriers (L. n. 13/1989 [private constructions] e D.P.R. n. 503/1996 [Public Buildings]). Legislation on Fire Safety (R.D. n. 1564/1942 [Technical installations on historical buildings]; D.M. n. 1/1983 [terms, general definitions e graphic symbols for fire safety]; D.M. n. 246/1987 [buildings for housing]; D.M. n. 569/1992 [Historical building serving as museums]; D.P.R. n. 418/1995 [historical buildings serving as libraries or archives]).

PROJECT METHODOLOGY OF ARCHITECTURAL RESTORATION

The project methodology of architectural restoration. The concepts of minimum intervention, reversibility, compatibility and durability of the materials. The methods of survey in the architectural restoration project: geometric survey, material survey, representation of decay in stone materials via Lessico Normal 1/88. Analysis tools, Non-destructive tests and monitoring of masonry. Issues related to archeological restoration: maintenance, reconstruction, anastylosis. The restoration of ruins.

CONSERVATION TECHNIQUES ON CULTURAL HERITAGE

The role of structural consolidation in the architectural restoration project: hypothesis, project, checking, monitoring, maintenance. The knowledge of materials and pre-industrial techniques and modern techniques and related methods of consolidation:

- History of traditional foundations. Ground, foundations structures, deep subsidence, consolidation of ground and foundations.
- History of traditional masonry. Analysis and diagnosis of instability. Instruments for detection of cracks. Methods of consolidation for vertical structures above ground.
- Notes on shoring of masonry
- Wooden slabs: analysis of decay and consolidation methods.
- Vaults and masonry arches: understanding the crack pattern and methods of consolidation.
- Conservation techniques on reinforced concrete and steel elements.
- The humidity issue on buildings: instruments of analysis and intervention techniques.
- The conservation project of architectural surfaces: criteria and intervention techniques.

READINGS/BIBLIOGRAPHY

Please list here textbooks or other readings. In case of **integrated courses** or courses delivered through several **channels**, please specify the readings/bibliography of the single module/channel.

- C. BRANDI, *Teoria del restauro*, Einaudi, Torino 1977.
- R. PANE, *Attualità e dialettica del restauro*, Solfanelli, Chieti 1987.
- G. CARBONARA, *Gli orientamenti di metodo attuali del restauro architettonico*, in S. Casiello, (a cura di), *Restauro. Dalla teoria alla prassi*, Electa Napoli, Napoli 2000.
- R. PICONE, 'Restauro' e de-restauro. Il caso della cattedrale di Troia in Puglia, in S. Casiello (a cura di), *Restauro dalla teoria alla prassi cit.*, pp. 76-102.
- R. PICONE, *Il pensiero di Roberto Pane come contributo al moderno criterio di tutela ambientale*, in "Napoli nobilissima", n.s., vol. XXVI, fasc. I-IV, gennaio-dicembre 1987.
- E. ROMEO, *Documenti e norme per il restauro architettonico*, in S. CASIELLO, (a cura di), *Restauro, criteri metodi esperienze*, Electa Napoli, Napoli 20002.
- G. FIENGO, *La conservazione dei beni ambientali e le Carte del restauro*, in S. CASIELLO, (a cura di), *Restauro, criteri...*, cit.
- R. PICONE, *Conservazione e accessibilità. Il superamento delle barriere architettoniche negli edifici e nei siti storici*, Arte Tipografica, Napoli 2004.
- *Linee guida per il superamento delle barriere architettoniche nei luoghi di interesse culturale*, a cura di, Ministero per i Beni e le Attività Culturali, Direzione Generale per i Beni Architettonici, Storico-Artistici ed Etnoantropologici, Gangemi editore, Roma 2008.
- R. PICONE, *Pompei Accessibile. Per una fruizione ampliata del sito archeologico*, L'Erma di Bretschneider, Roma 2013.
- R. PICONE – V. Russo, *L'Arte del costruire in Campania tra Restauro e sicurezza strutturale*, ed. Clean, Napoli 2018..
- R. PICONE - M. Osanna, *Restaurando Pompei*, L'Erma di Bretschneider, Roma 2018.
- R. PICONE- A. Di Luggo – M. Campi - P. Scala, *Palazzo Penne a Napoli tra conoscenza, Restauro e valorizzazione*, Arte'm, Napoli 2018.

PROJECT METHODOLOGY IN THE ARCHITECTURAL RESTORATION

- S. CASIELLO, *Il restauro degli edifici allo stato di rudere*, in 'Restauro', n. 12, 1974.
- R. PICONE, *La organizzazione operativa del cantiere di conservazione*, in *Atti del Convegno Scienza e beni culturali. Il cantiere della conoscenza, il cantiere del restauro*, ed. Il Progetto, Padova 1989, pp. 221-232.
- G. CARBONARA, *Restauro dei monumenti. Guida agli elaborati grafici*, ed. Liguori, Napoli 1990.
- S. CASIELLO – R. PICONE, *Il rilievo nel progetto di restauro*, in *Architettura e informatica*, a cura di Adriana Baculo, Electa Napoli, Napoli 2000.
- M. ROSI, *Il restauro del Partenone*, in S. CASIELLO, (a cura di), *Restauro, criteri...*, cit. I Restauri dell'Acropoli di Atene. 1975-2003, *Quaderni Arco*, a cura di M.G. Filetici, F. Giovannetti, F. Mallouchou Tufano, E. Pallottino, Gangemi editore, Roma 2003. *Rivista 'Tema'*, numero monografico 'Un rilievo per il restauro?', nn. 3-4, 1996.

CONSERVATION TECHNIQUES ON CULTURAL HERITAGE

- A. DEFEZ, *Il consolidamento degli edifici*, Liguori, Napoli 20024.
- A. BELLINI, (a cura di), *Tecniche della conservazione*, Franco Angeli, Milano 20036.
- P. FANCELLI, *Il progetto di conservazione*, Guidotti, Roma 1983, vedi in particolare il capitolo 'Linee di metodo per la lettura diagnostica e per l'intervento conservativo'.
- G. TAMPONE, *Il restauro delle strutture in legno*, Hoepli, Milano 1996.
- S. DELLA TORRE, *Como, Palazzo Natta: la copertura*, in 'Tema', n. 3, 1998.
- F. LANER, *Connettori a secco continui per il recupero di solai in legno*, in 'ANAG KH, n. 7, settembre 1994.
- G. CIGNI, B. CODACCI PISANELLI, *Umidità e degrado negli edifici. Diagnosi e rimedi*, Kappa, Roma 1987. Rivista 'Tema', numero monografico 'Umidità nelle murature', n. 2, 1999.
- L. M. MONACO, A. SANTAMARIA, *Indagini, prove e monitoraggio nel restauro degli edifici storici*, ed ESI, Napoli 1998.
- G. FIENGO, L. GUERRIERO (a cura di), *Murature tradizionali napoletane: cronologia dei paramenti tra il XVI ed il XIX secolo*, Arte Tipografica, Napoli 1999.
- A. AVETA, L. M. MONACO, *Consolidamento delle strutture in legno. Diagnostica e interventi conservativi*, ESI, Napoli 2007.

TEACHING METHODS

The course is divided into frontal lectures (40% circa), applicative practices (40% circa) and construction site inspections (20%), focused on themes explained during the course. The practices are aimed to elaborate the restoration project of a building or an architectural complex, also modern or archeological, whose historical layering is widely recognized and the conservations issues make a restoration intervention necessary.

Bibliographical researches and investigations, are conducted on the field also via instrumental surveys and tools of the departmental laboratories (for example mLAB – Monitoring Laboratory Technology for monitoring the environmental heritage). Collective practices are the instruments for monitoring the degree of understanding of the topics covered and their effective outcome. The graphic works required for the practice of groups of 3-4 students must follow the example provided on the professor website.

EXAMINATION/EVALUATION CRITERIA

a) Exam type:

For *integrated courses*, there should be one exam.

Exam type	
written and oral	
only written	
only oral	
project discussion	x
other	

In case of a written exam, questions refer to: (*)	Multiple choice answers	
	Open answers	
	Numerical exercises	

(*) multiple options are possible

The exam tests is based on the discussion upon the project made by the students group via the presentation of graphic works (the final outcome must be submitted on a CD-ROM to the professor) and the checking on the preparation acquired upon the topics covered during the lesson and treated by the bibliography. The evaluation takes account of the degree of ripeness on theoretical topics, the relationship between conceptual and project components, the exhibition and synthesis ability of the group work.

b) Evaluation pattern:

The evaluation is based on the oral exam and the discussion on the graphical project.