# 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: 01 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 Construction Science (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.

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**

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. 42/204). 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

- 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, ‘Ristauro’ 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 OF THE COURSE (OR MODULE)

The course is divided into frontal lectures (40% ), applicative practices (40% ) 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

**b) Evaluation pattern**

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

# 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/REStauro, 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.

# 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: 02 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 Construction Science (Fondamenti di Scienza delle Costruzioni).

### PREREQUISITES

Any requirement.

### LEARNING GOALS

The course aims to provide students with the necessary knowledge to let them face the complexities of the conservation 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 integrity and authenticity and to produce an intermediate-level architectural conservation 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 layering 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 the exam, the student will be able to acknowledge the conservation project methodology at different scales, to read and to portray a historical fabric, evaluating autonomously its historical and construction events, its materials and 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 conservation project culturally aware and technically updated to the different scales of the built heritage.
The student must:
-show that he/she has acquired the methodology of the architectural conservation project at different scales, relating to the current disciplinary debate;
-show that he/she has gained the critical understanding methods of the built heritage relating to the historical transformation occurred during time;
-show that he/she knows and portray the cultural values, tangible and intangible, preceding the choices for safeguard, conservation, management and enhancement of the built heritage;
-show that he/she understand with critical and multidisciplinary approach the survey and diagnosis techniques on the built heritage aimed to the restoration and conservation;
-show that he/she possess the survey and representation techniques of the construction systems of the historical architecture;
-show that he/she knows the survey and representation techniques of the collapse and decay phenomena on the built heritage;
-show that he/she knows the intervention techniques for restoration and conservation of the built heritage;
-show that he/she has acquired the knowledge of the current legislation on protection of the built heritage;
-show that he/she is 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 abe to re-elaborate and to apply the methodologies and the principles inset one at the base of a culturally aware conservation project, and to define an autonomous way 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 the 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 the 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

**Orientation topics.**

Design and conservation walked to architecture, archaeology and landscape. The cultural asset and evolution of architectural, urban and environmental heritage. The concept of historic urban landscape (HUL), cultural landscape and integrated conservation. Critical reading and interpretation of architecture. The dimension of the historic building and its identities; aesthetic instance, historical instance, psychological instance. Some theoretical issues through emblematic cases: the relationship between structure and architectural surface, the treatment of lacks, the relationship between permanence and transformation in restoration as a matrix of the relationship between old and new. The "criteria": minimal intervention, distinguishability, compatibility, durability, reversibility; respect and the criterion of authenticity. Current method orientations of architectural restoration between "conservation," "restoration," and "reuse."

**Methodology and techniques of/for the restoration project.**

The methodological steps of the restoration project: analysis, design hypothesis, verification, executive design, execution. Knowledge in the analysis phase and the reading of the building in its urban and/or landscape context and in its constructive, material and decorative components. Direct and indirect surveys and the surveying techniques. The constructive material palimpsest and the representation of the historic building. Natural and man-made materials, traditional construction techniques and types in historic building; binders and mortars. Soils and foundation structures. In- and above-ground masonry structures: masonry, platbands, stairs, arches, vaults, floors, roofs. Traditional finishes of architectural surfaces. Survey of deterioration and cracking framework. Material alterations and surface deterioration. Lexicon UNI-NorMaL 11182/2006. Diagnosis: tensional analysis and study of the crack framework; identification of the static pattern; subsidence and instabilities. The instrumental cognitive investigations of masonry structures: of non-destructive tests, in situ and laboratory tests; structural monitoring and archaeological prospecting. The choice of appropriate functions: identification of the criticalities and potentials of the urban and/or territorial context and contemporary environmental and social dynamics. Conservation interventions: conservation and structural consolidation. Consolidation of foundation and elevated structures; consolidation of floors, vaults, staircases, platforms and roofs. Surface treatment and restoration of moisture damage. Reinforced concrete architectures: problems and restoration.

**Normative documents and tools.**

The Venice Charter (1964), The World Heritage Convention (1972). The Italian Restoration Charter of 1972 (Circular no. 117 of 6 April 1972 - Ministry of Public Education).
The Declaration of Amsterdam (1975) and the Granada Convention (1985). The Washington Charter (1987). The Nara Document on Authenticity (1994). The European Landscape Convention (2000). Faro Convention (2005). Vienna Memorandum (2005). Recommendation on the Historic Urban Landscape (2011). the Code of Cultural Heritage and Natural Landscape (Legislative Decree no. 42 of 2004). The Ordinance of the President of the Council of Ministers, Ordinance No. 3431 (2005) and the Guidelines for the evaluation and reduction of seismic risk of the cultural heritage aligned with the new Technical Standards for Construction (Ministerial Decree 14 January 2008), MIBAC Circular No. 26/2010. T.U. on construction (Legislative Decree 380/2001) and interventions under Article 31 of Law No. 457/1978. Guidelines to overcome architectural barriers in cultural heritage sites (Ministerial Decree March 28, 2008, in GU n. 114 of 16-5-2008 - Ordinary Suppl. No. 127).

## READINGS/BIBLIOGRAPHY

**General and orientation bibliography:**

- Brandi C., *Teoria del restauro*, Einaudi, Torino 1977.
- Carbonara G., *Architettura d'oggi e restauro. Un confronto antico-nuovo*, UTET, Torino, 2011, pp. 35-57.
- *Codice dei beni culturali e del paesaggio* - Decreto Legislativo 22 gennaio 2004, n. 42.
- P. Fancelli, *Il progetto di conservazione,* Guidotti, Roma 1983 (capitolo '*Linee di metodo per la lettura diagnostica e per l'intervento conservativo*').

- Marino B. G., *Restauro e arte*, in *Arte Contemporanea* (4 voll.), Istituto dell'Enciclopedia Treccani, Roma 2021, vol. IV, pp. 61-63.
- Marino B. G., *Restauro dell'arte contemporanea*, in *Arte Contemporanea* (4 voll.), Istituto dell'Enciclopedia Treccani, Roma 2021, vol. IV, pp. 59-61.
- Marino B. G., *Sugli impossibili margini della conservazione,* in M. Dezzi Bardeschi (a cura di), *La conservazione accende il progetto*, artstudiopaparo, Napoli 2018.
- B.G. Marino, *Restauro, storia, progetto: una questione da affrontare*, in Fiorani D. (a cura di), *RICerca/REStauro*, Edizioni Quasar, Roma 2017.
- Marino B. G., *Il restauro dopo e durante i* Moderni: *un* autentico *valore di novità*, «Confronti», numero monografico *Il restauro del Moderno*, n. 1, 2012, pp. 110-118.
- Marino B. G., *Note sulla definizione dell'oggetto di tutela nelle carte del restauro*, in Aveta A., Conservazione e valorizzazione del patrimonio culturale. Indirizzi e norme per il restauro architettonico, Arte Tipografica Editrice, Napoli 2005, pp. 217-223.
- Riegl A., *Il culto moderno dei monumenti. Il suo carattere i suoi inizi*, a cura di S. Scarrocchia, Nuova Alfa Editoriale, Bologna 1990, pp. 27-75.

**Conservation techniques:**

- Aveta A., *Materiali e tecniche tradizionali nel napoletano*, Napoli 1987.
- Aveta A., *Restauro architettonico e conoscenza strutturale*, Napoli 1989, pp. 147-217.
- Aveta A., *Tecniche per il restauro: problemi di umidità negli edifici monumentali*, Napoli, 1996.
- Aveta A., *Consolidamento e restauro delle strutture in legno: tipologie, dissesti, diagnostica, interventi,* Dario Flaccovio Editore, Palermo 2013.
- Bartolomucci C., Cantalini L., *Tecnologie per la conservazione delle superfici materiche,* in D. Fiorani (a cura di), *Restauro e tecnologie in architettura*, Carocci, Roma 2009, pp. 285-334.
- Di Stefano R., *Il consolidamento strutturale nel restauro architettonico*, Napoli, 1990.
- Esposito D., *Malte, intonaci e stucchi*, in G. Carbonara (a cura di), *Atlante del restauro*, Utet, Torino 2004, tomo I, pp. 75-101; Id., *Finiture diverse*, *ivi*, pp. 368-396; Capponi G., *L'invecchiamento e il degrado*, ivi, pp. 433-455; Conti C., Martines G., *Conservazione di materiali e superfici*, ivi, tomo II, pp. 669-703.

**Supporting bibliography for charting:**

- Defez A., Monaco L.M., *Il consolidamento degli edifici,* Liguori, Napoli 2002.
- De Gennaro M., Langella A., Cappelletti P., Colella A., Buccheri G., D'Amore M., *Il degrado dei geomateriali*. in Aveta A., *Diagnostica e Conservazione l'insula 14 del Rione Terra.* vol. 4, p. 206-232, ESI, Napoli, 2008.
- Fiengo G., Guerriero L. (a cura di), *Murature tradizionali napoletane: cronologia dei paramenti tra il XVI ed il XIX secolo*, Arte Tipografica, Napoli 1999.
- Gallo Curcio A., *Sul consolidamento degli edifici storici*, EPC Libri, Roma 2007, pp. 253-291.
- *Linee guida per il superamento delle barriere architettoniche nei luoghi di interesse culturale* - Decreto Ministeriale 28 marzo 2008.
- Musso S. F., *Tecniche di restauro architetto*nico, Utet, Torino 2013.
- Aggiornamento *Norme tecniche per le costruzioni* (NTC 2008) - Decreto 17 gennaio 2018
- Negri A., Russo J., *Degrado dei materiali lapidei: proposta di simbologia grafica*, in G. Carbonara (a cura di), *Trattato di restauro architettonico. Secondo aggiornamento*, Utet, Torino

2008, pp. 533-544.
- Norma UNI 11 182/2006 per la descrizione delle alterazioni e degradazioni macroscopiche dei materiali lapidei.

**Bibliography on topics for further study** (possible thematic and optional fields for further study):
- Bellini A., *L'intervento strutturale nel restauro come stratificazione di "rilevante interesse storico"*, in A. Aveta, S. Casiello, F. La Regina, R. Picone (a cura di), *Restauro e consolidamento. Atti del Convegno "Restauro e consolidamento dei beni architettonici e ambientali: problematiche attuali", Napoli 31 marzo-1 aprile 2003,* Mancosu, Roma 2005, pp. 13-18.
- Di Stefano R., *Il recupero dei valori. Centri storici e monumenti. Limiti della conservazione e del restauro*, ESI, Napoli 1979.
- Marino B.G., *Restauro e autenticità: nodi e questioni critiche*, Edizioni scientifiche italiane, Napoli 2006.
- Marino B.G., *Valori architettonici e conservazione*, in A. Aveta (a cura di), *Diagnostica e conservazione. L'insula 14 del Rione Terra*, ESI, Napoli 2008, PP. 45-60.
- Marino B.G., *Luoghi esterni, immagini interne: attualità del percorso della conservazione dell'architettura in Roberto Pane*, in Atti del Convegno *Roberto Pane tra storia e restauro. Architettura, città, paesaggio,* (Napoli, 27-28 ottobre 2008), Marsilio, Venezia 2010.

**Note: During the course, any bibliographic references useful for the development of the project theme will be indicated and provided.**

## TEACHING METHODS OF THE COURSE (OR MODULE)

The course is divided into ex cathedra lectures (about 40 percent), application exercises (about 40 percent) and site visits and restoration workshops (20 percent), focusing on the topics illustrated during the course. The course is articulated with the alternation and relative integration of lectures and classroom exercises. For the fulfillment of the year's theme, students, divided into groups (of two up to a maximum of five components), will tackle a project theme (free or proposed) and hold visits and inspections for the retrieval of cognitive data in order to achieve thematic graphing. The papers in the course of the workshop activities will be subject to discussion and review with scheduled inter-course presentations to showcase the progress of their work. The examination will focus on discussion of the design work and verification of theoretical acquisitions of the topics in the program. In-depth thematic seminars are planned for the purpose of formative refinement useful for the advancement of one's work.

## EXAMINATION/EVALUATION CRITERIA

**a) Exam type**

- ☐ Written
- ☐ Oral
- ☑ Project discussion

☑ Other : The examination test, which is individual, involves the discussion of the project carried out in the group through the presentation of graphs (the final version of which is also delivered on CD-ROM at the end of the course) and verification about the preparation acquired about the topics covered during the lectures, supported by the bibliography. The assessment takes into account the degree of maturity of the theoretical topics, the interrelation between conceptual and design components, expository and synthesis skills as well as the degree of interaction in group work.

**In case of a written exam, questions refer to**

☐ Multiple choice answers

☐ Open answers

☐ Numerical exercises

**b) Evaluation pattern**

Evaluation will be based on the oral interview and discussion of the graphic design paper.

# COURSE DESCRIPTION
# RESTORATION LABORATORY

# SSD: RESTAURO (ICAR/19)

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

## COURSE DESCRIPTION

TEACHER: PANE ANDREA
PHONE: 081-2538061
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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: NOT APPLICABLE
MODULE: NOT APPLICABLE
CHANNEL: 04 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.
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.

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**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.

## COURSE CONTENT/SYLLABUS

PART I - PRINCIPLES AND METHODOLOGY OF RESTORATION
1. From the Charter of Venice to the current orientations of restoration. Definitions of restoration and heritage. What is to be restored. Fundamental principles about restoration: minimal intervention, distinguishability, compatibility, reversibility, respect for authenticity, sustainability. The transition from the notion of historical-artistic monument to that of cultural heritage. The Charter of Venice (1964). The European Charter of Architectural Heritage and the concept of integrated conservation (1975). The current orientations of architectural restoration: pure conservation, buildings maintenance-restoration, critical-conservative restoration.
2. The urban dimension of conservation in Italy between history and current events. References to the evolution of the debate from the nineteenth-century cuttings to the theory of thinning out. The cases of the Renaissance district in Rome and the ancient centre of Bari. Historical centres and post-war reconstruction: the problem of the old-new relationship and the role of Roberto Pane. The activities of ANCSA, the plan of Gubbio. The school of Saverio Muratori and type-morphological restoration: the case of Bologna. The ancient centre of Naples from the years of buildings speculation to the urban and architectural conservation plan of 1971: general criteria and principles. The extension of the perimeter and the current debate about the historic centre of Naples from the ICOMOS (1982) study to the Historical Centre Great Project by UNESCO.
3. The legislative framework about cultural heritage in Italy and the Code of Cultural Heritage and Landscape (D. Lgs 42/2004 and amendments and additions). Outline of history of legislation in Italy. Powers of preservation. The Franceschini-Papaldo Commission and the concept of cultural heritage. The structure of the Ministry. The code of Cultural Heritage and Landscape and its essential elements: cultural and landscape heritage. The protection of contemporary heritage.

PART II – RESTORATION PROJECT
1. Survey for restoration. Methodologies and operating procedures. Direct survey and trilateration: common issues of survey for historical buildings. Indirect survey. Introduction to the most advanced tools for indirect survey: digital photogrammetry, drone photogrammetry and laser scanner survey. Graphic representation techniques: geometric and material survey. Examples.
2. Investigation, testing and monitoring for preliminary knowledge and diagnosis for the restoration project. Destructive, partially destructive and non-destructive tests. Micro-coring, endoscopy, flat jacks, thermography, magnetometry, sonic tests, radiography, gamma reys, reflectography, georadar. Manual and automated monitoring.
3. Functional and regulatory adaptation. Fire prevention and protection. Architectural restoration and installations: electrical and environmental comfort installations. More studies about lighting technology for cultural heritage.

4. Accessibility of buildings and historical sites. Basic concepts: accessibility, visitability, architectural barriers. The regulatory framework about these topics. The Ministry Guidelines to overcome architectural barriers in cultural sites (2008): contents and examples. Criteria about design and management: orientation, overcoming distances, overcoming level and floors differences.

PART III - CONSERVATION TECHNIQUES
1. Structural issues and crack pattern. Rigid movements in masonry, deformations, injuries. Common crack patterns and their representation. Provisional works.
2. Seismic elements applied to masonry buildings. Earthquakes and seismic classification. Current legislation. Guidelines for seismic risk reduction assessment (2010). Mechanisms of collapse. Seismic adjustment and improvement. Structural design of consolidation measures.
3. Consolidation of land and foundations. Nature of land. Traditional and innovative techniques. Outline of foundation structures. Techniques of foundation consolidation.
4. Consolidation of masonry in elevated. Masonry and masonry fabric: regional types and differences. Elevated elements stratigraphy. Masonry and structural modelling. Traditional and innovative consolidation techniques.
5. Arches, vaults and domes: characterization, static and consolidation. Geometry elements of arches and vaults. Conditions of stability and mechanisms of collapse. Static of domes. Constructive characteristics of vaults and domes. Traditional and innovative consolidation techniques.
6. Wood structures: constructive characteristics and consolidation. Notes about wood as a building material. Diagnostics applied to wood. Wooden slabs: national and regional characteristics. Techniques of floor consolidation. Wooden trusses: constructive characteristics and consolidation techniques.
7. Damp problems in buildings: diagnosis and restoration. Nature, causes and effects of dampness. Diagnostics and survey methodology. Restoration techniques against damp in walls.
8. Conservation of concrete structures: degradation, structural issues and consolidation. Outlines about concrete and physical and chemical degradation causes. Degradation and diagnostics. Consolidation techniques with fiber-reinforced materials.
9. Surface conservation techniques: diagnosis and interventions. The NORMAL Committee and UNI 11182-2006. Characterization of surface alteration and degradation phenomena. Conservative interventions: pre-consolidation, cleaning, consolidation, protection.

## READINGS/BIBLIOGRAPHY

**Part I**

G. Carbonara, *Orientamenti teorici e di metodo nel restauro*, in D. Fiorani (a cura di), *Restauro e tecnologie in architettura*, Carocci, Roma 2009, pp. 15-41.
* A. Pane, *Questões contemporâneas de restauro: una riflessione dall'Italia*, in *Questões contemporâneas. Patrimônio arquitetônico e urbano*, a cura di R. Fernández Baca Salcedo e V. Benincasa, Canal6 editora, Bauru (SP, Brasil) 2017, pp. 109-130.

* G. Fiengo, *La conservazione dei beni ambientali e le Carte del restauro*, in in S. Casiello (a cura di), *Restauro, criteri, metodi, esperienze*, Napoli 1990, pp. 26-46.
* E. Romeo, *Documenti e norme per il restauro architettonico*, in S. Casiello (a cura di), *Restauro, criteri, metodi, esperienze*, Napoli 1990 (Carta di Atene, 1931; Carta italiana del restauro, 1932; Istruzioni del 1938; Carta di Venezia, 1964; Carta italiana del restauro, 1972), pp. 237-240; 252-256.
* A. Pane, *Dal monumento all'ambiente urbano: la teoria del diradamento edilizio*, in *La cultura del restauro. Teorie e fondatori*, a cura di S. Casiello, III edizione, Marsilio, Venezia 2005, pp. 293-314.
* F. De Pieri, *Un paese di centri storici: urbanistica e identità locali negli anni Cinquanta e Sessanta*, in «Rassegna di architettura e urbanistica», 136 (2012), pp. 92-100.
* G. de Martino, *Il centro antico di Napoli. Piano di intervento del 1971*, in M.C. Giambruno (a cura di), *Per una storia del restauro urbano*, Cittàstudi, Milano 2007, pp. 205-212.
*Codice dei Beni Culturali e del Paesaggio* (D. Lgs. 42/2004 e successive modifiche e integrazioni, disponibile on-line su molteplici siti e in numerosissime pubblicazioni).

**Part II**

D. Fiorani (a cura di), *Restauro e tecnologie in architettura*, Carocci, Roma 2009.
M. De Meo, *Tecnologie per l'uso della fabbrica*, in D. Fiorani (a cura di), *Restauro e tecnologie in architettura*, Carocci, Roma 2009, pp. 335-354.
S.F. Musso, *Recupero e restauro degli edifici storici*, EPC libri, Roma 2006 (per la parte sul rilievo).
* A. Pane, *Accessibilità e superamento delle barriere architettoniche negli edifici e nei siti storici: alcuni problemi ricorrenti*, in «Arkos», n.s., a. VI, n. 11, luglio-settembre 2005, pp. 39-46.
* A. Pane, *Dispositivi di collegamento verticale*, in *Conservazione vs Innovazione. L'inserimento di elementi tecnologici in contesti storici*, a cura di D. Concas, Il Prato, Saonara (PD) 2018, pp. 91-106.
*Linee Guida per il superamento delle barriere architettoniche nei luoghi di interesse culturale*, MIBACT 2008 (disponibili sul sito www.beniculturali.it).

**Part III**

A. Aveta, *Materiali e tecniche tradizionali nel napoletano*, Arte Tipografica, Napoli 1987.
A. Aveta, *Consolidamento e restauro delle strutture in legno*, Flaccovio, Palermo 2013.
A. Aveta (a cura di), *Restauro strutturale e riduzione del rischio sismico*, Editori Paparo, Napoli 2019.
A. Defez, *Il consolidamento degli edifici*, nuova edizione a cura di L.M. Monaco, Liguori, Napoli 2002.
D. Fiorani (a cura di), *Restauro e tecnologie in architettura*, Carocci, Roma 2009.
*Linee Guida per la valutazione e riduzione del rischio sismico del patrimonio culturale allineate alle nuove Norme tecniche per le costruzioni*, MIBACT 2010 (disponibili sul sito www.beniculturali.it ).
*Materiali lapidei naturali ed articiali. Descrizione della forma di alterazione. Termini e denizioni* (Norma UNI 11182:2006).

* The bibliographic material marked with an asterisk is available in pdf on the teaching site in the "teaching material" section.

The volumes that are not marked by an asterisk are available to buy in bookshops and/or can be found in the Central Library of Area Architettura or in the specialized one of History and Restoration "Roberto Pane", both located on the first floor of Palazzo Gravina.

## TEACHING METHODS OF THE COURSE (OR MODULE)

Professor will use: a) frontal lectures approximately 40% of the total teaching hours; b) exercises to improve directly theoretical knowledge approximately 20% of the total teaching hours; c) laboratory to improve applied knowledges approximately 40% 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 historic centre of Nola (NA) is the study area for the current academic year 2022-23.
The elaborations required for the exercise to be done by groups of 3-4 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**

To take the exam, the student must have participated in all the laboratory activities and been evaluated positively in the 3 periodic tests, which are placed respectively after the first month of the course, after the second month and at the end of the course.
The exam involves the discussion of the project carried out by the group through the presentation of drawings (which final version has to be also shared in digital and printed version in book A3 paper format at the end of the course) and examination of the acquired knowledges about the topics dealt with during classes, considering the bibliography.
The positive evaluation of the project is essential to be admitted to the oral test. The importance of the project for the final evaluation is equal to 70% of CFU, while that the oral exam is equal to 30% of CFU. The evaluation considers the students’ learning level of theoretical topics, the interrelation between conceptual and design components, the ability to display and synthetize and the

interaction level in team-work.

# COURSE DESCRIPTION
# ARCHITECTURAL AND URBAN DESIGN

# SSD: COMPOSIZIONE ARCHITETTONICA E URBANA (ICAR/14)

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

## COURSE DESCRIPTION

TEACHER: PAGANO LILIA
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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 15587 - PROGETTAZIONE ARCHITETTONICA E URBANA
CHANNEL: 01 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

### REQUIRED PRELIMINARY COURSES

Architectural and Urban Design Studio 4, Construction systems Studio, Urban Planning Studio, Theory of construction, Environmental Physics.

### PREREQUISITES

None

### LEARNING GOALS

The Architectural and urban final studio design consists of courses in: Architectural and urban design, Urban planning, Construction systems, Environmental techniques, Detailed planning, Economics and environmental assessment.
The multiplicity of the aspects covered allows students to develop a proposal for the transformation of the existing building by delving into the various levels of complexity of the project in its entirety.

The Architectural and urban final studio design has the objectives of:
- increase students' design skills through work based on a critical-interpretative approach to places and a methodological-experimental approach to setting up the intervention strategy;
- provide methods and tools for dealing with the architectural project by controlling the process of definition and development from the urban to the detailed scale.

The Architectural and urban final studio design course is to transmit to the student a professionalizing critical-interpretative methodology aimed at:
- the identification of timely architectural intervention programs correlated to each other by systemic, structural and perceptive logics of living, capable of transforming urban and natural landscapes by reinterpreting the constraints, potential and aspirations of a community;
- to the experimentation of architectural syntheses with landscape value through an interscalar compositional control of the different degrees of complexity of the project as well as of the intertwining between the different specialist areas of competence, including the evaluation of the feasibility and of the construction procedures in the construction of the architecture.

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The reflection on the public dimension of urban living makes explicit the potential of the different interpretative declinations of the Architecture project in the joint enhancement of urban settlements and natural geomorphological contexts in terms of 'landscape', with particular reference to spaces, infrastructures and public buildings representative of the communities connected to each other by systemic visual and travel relationships.
This implies:
- the construction of the question as identification of the specific architectural themes posed by the context and by the communities;
- an interpretative analysis methodology of contexts guided by both perceptive and structural approaches, oriented by thematic/design prefigurative hypotheses and aimed at revealing semantic potential and values;
- the mastery in the simultaneous control at the various scales of the different degrees of complexity of the project understood as a technical and semantic synthesis of the processes of different nature that contribute to the construction of the architecture;

- the ability to take in and synthesize in the compositional articulation of architectural and urban spatialities the intertwining of the various areas of specialist expertise (environmental, construction, structural, plant engineering and energy) that flow into the construction of the work;
- the evaluation of the economic feasibility of the interventions and of the construction procedures in relation to the urban constraints, the technical and energy regulations.
The results of the formal-interpretative synthesis, which he will demonstrate both through the elaboration of tables, books and models for the final exam and through active participation in the construction of the open access publication of the results of the Laboratory, must demonstrate the achievement a high level of autonomy, responsibility and design dexterity of the student throughout the design process.

The student must demonstrate mastery of a critical-interpretative method of contextual realities capable of setting up a project strategy as a cognitive tool revealing existing and potential relational fields, a formal semantic synthesis of the recomposition of knowledge and community aspirations.
The student must be able to update or expand their knowledge by independently drawing on texts and articles on topics similar to those covered in the laboratory and by carrying out research on similar projects and case studies of particular interest with respect to the project being developed. The student must be able to identify, within the vast range of events organized by DiARC, but also broadening his gaze towards the outside, seminars, conferences, workshops in which to take part in order to deepen the project themes addressed in the laboratory or to experiment knowledge and acquired methodologies.
During the course of the laboratory, the teacher organizes and/or offers students comparisons with other teachers and students or with external subjects whose contribution can broaden the field of investigation and knowledge or, again, suggests autonomous participation in initiatives of particular interest with respect to the topics covered in the laboratory

**Applying knowledge and understanding**

The results of the formal-interpretative synthesis, which the student will demonstrate both through the elaboration of tables, books and models for the final exam and through active participation in the construction of the open access publication of the results of the Laboratory, must demonstrate the achievement of a high level of

autonomy, interaction skills, responsibility and design dexterity throughout the design process.
Making judgments:
The student must act as an active interlocutor demonstrating the ability to autonomously interpret the subjects and places being studied. They must demonstrate that they are able to carry out research and experiments independently and also that they are able to understand and critically judge the accuracy or any gaps.
Must be able to interact not only with the teacher but also with fellow students for the construction and sharing of knowledge and projects.

Communication skills:
In the context of moments of discussion with other teachers and students outside the laboratory or with other subjects outside the University invited to present and/or discuss the project's themes and places, the student must be able to explain the methodological approach and must be able to present papers , even in a form that has not yet been completed, in a clear and concise manner.

## COURSE CONTENT/SYLLABUS

The university building heritage in the Neapolitan territory is a large and heterogeneous reality scattered, with its glorious ancient and recent history, in the center, in the suburbs, in contexts with marked environmental and naturalistic values.
The design reflection will focus on the systemic and specific potential of individual settlements with the aim of:
- bring to the fore the potential systemic value of physical and cultural references of a predominantly public nature within the various urban and landscape contexts;
- enhance the specific types of structures present in their strong diversity and implications with respect to the renewed training needs and, more generally, as reference cultural poles.
- identify those 'intermediate' areas between the University and the city that could be the object of strategic interventions to improve the quality of education and living.
Individual projects will address these specific strategic areas with a dual purpose:
1) a strengthened synergy between cultural training poles and urban and landscape contexts, aimed at the regeneration of parts of the city.
2) new solutions for a renewed conception of teaching spaces possibly involving external and neighboring areas, also in consideration of the new needs brought to light by the pandemic.

## READINGS/BIBLIOGRAPHY

The teaching materials will be uploaded to the teacher's website

## TEACHING METHODS OF THE COURSE (OR MODULE)

The course has an annual duration.

1st phase (September-December): urban planning, landscape and geological framework, architectural definition of the project themes, first illustration of the project ideas.
The intermediate verification (December) provides for the delivery and presentation of the papers produced to the teachers involved both in the first and second semester of the laboratory.

2nd phase (March-June): in-depth study and detailed drafting of the individual projects in concert with all the teachings related to the laboratory, final intensive workshop which sees the participation of all the teachers involved.
The final verification (June) also includes the comparison and discussion with technicians and exponents of the administration and civil society through the presentation and/or exhibition of the architectural solutions developed.

## 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 final grade will be weighted on the credits of each course and therefore composed as follows:

- ARCHITECTURAL AND URBAN DESIGN 8CFU;
- URBAN PLANNING 4CFU;
- EXECUTIVE DESIGN 4CFU;

- CONSTRUCTION TECHNIQUE 2CFU;
- ENVIRONMENTAL TECHNIQUE 6CFU;
- ENVIRONMENTAL EVALUATION 4CFU

# COURSE DESCRIPTION
# ARCHITECTURAL AND URBAN DESIGN

# SSD: COMPOSIZIONE ARCHITETTONICA E URBANA (ICAR/14)

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

## COURSE DESCRIPTION

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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 15587 - PROGETTAZIONE ARCHITETTONICA E URBANA
CHANNEL: 02 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

### REQUIRED PRELIMINARY COURSES

Laboratorio di Composizione Architettonica e Urbana 4/Lettura morfologica
Progettazione di sistemi costruttivi/Tecnologia del recupero edilizio
Laboratorio di Urbanistica
Scienza delle Costruzioni
Fisica tecnica ambientale
Estimo ed esercizio professionale

### PREREQUISITES

The student will have to demonstrate a predisposition to the reading and the critical-interpretative project of complex urban realities, through which to set transformation strategies as cognitive tools revealing existing and potential relational fields. The curiosity and the desire for constant updating and improvement, about both knowledge and skills, instrumental and cultural, as well as of the design experimentation to be carried out, will have to distinguish the design work in all its process, to be carried out both in the context of the course activities and through bibliographic and design

research and a comparison with the international contemporary architectural panorama.

## LEARNING GOALS

The Final Design Studio consists of the following courses: Architectural and Urban Design, Urban Planning, Construction Technique, Environmental Control Technique, Executive Design of Architecture, Economics and Environmental Assessment. The multiplicity of the aspects allows students to develop a proposal for the transformation of the existing by deepening the various levels of complexity of the project in its entirety.
The Final Design Studio's objectives are:
- to increase the students' design skills through a critical-interpretative approach to places, and methodological-experimental approach for the intervention strategy;
- to provide methods and tools to tackle the architectural project by controlling the process of definition and development from the urban to the detailed scale.

The aim of Architectural and Urban Design course is to convey to the student a critical-interpretative methodology that directs towards the operational practice of architecture, aimed at:
- identifying programs of specific architectural interventions correlated with each other by systemic, structural and perceptive logics, capable of transforming urban and natural landscapes by reinterpreting the constraints, potential and aspirations of a community;
- the experimentation of architectural syntheses with landscape value through an inter-scaling compositional control of the different degrees of complexity of the project as well as the intertwining of the various specialist areas of expertise, including the assessment of feasibility and implementation procedures in the construction of architecture.

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The reflection on the public dimension of urban living expresses the potential of the different interpretative declinations of the architectural project in the joint enhancement of urban settlements in terms of landscape, with particular reference to spaces, infrastructures and public buildings. In this sense, knowledge and understanding are based on:
- the construction of the demand as an identification of the specific architectural themes posed by the context and by the communities;
- the methodology of interpretative analysis of contexts guided by both perceptual and structural approaches, oriented by the thematic/design prefigurative hypotheses and aimed at revealing their potential;
- an ever greater mastery in the simultaneous control at various scales of the different degrees of complexity of the project intended as a design synthesis of the processes of different nature that contribute to the construction of architecture;
- the ability to synthesize in the compositional articulation of architectural and urban spatiality the intertwining of the various areas of specialist expertise (environmental, urban, construction, structural, plant and energy, economic).
During the course of the laboratory the teachers organize and/or propose to the students discussions with other teachers and students or with external subjects whose contribution can

broaden the field of investigation and knowledge or, again, suggests autonomous participation in initiatives of particular interest with respect to the topics covered in the design studio.

**Applying knowledge and understanding**

The results of the projects will be shown both through the elaboration of tables, portfolios and models for the final exam and through the active participation in the construction of the open access publication of the results of the Laboratory (for FedOA Press, http://www.fedoabooks.unina.it/index.php/fedoapress/catalog/series/ads). The students must demonstrate the achievement of a high level of autonomy, responsibility and design dexterity throughout the entire design process.

The student must act as an active interlocutor demonstrating that he is able to autonomously interpret themes and places under study. Must demonstrate that he/she is able to carry out research and experiments independently and also that he/she can understand and critically judge the accuracy or any gaps. Must be able to interact not only with the teacher but also with fellow students for building and sharing knowledge and projects. In the context of moments of confrontation with other teachers and students outside the studio or with other subjects outside the University invited to present and/or discuss themes and places of the project, the student must be able to explain the methodological approach and present the documents in a clear and concise manner.

## COURSE CONTENT/SYLLABUS

Each year the Final Design Studio B focuses on a municipality in the Campania region. Starting from the critical issues of the territory and the choice of a specific area of study, the project proposals will be articulated and structured in an interdisciplinary and multi-scalar way with the systematic integration between the modules of the courses involved. The identified themes will be developed by relating the architectural structure to the urban, morphological, environmental, social and economic characteristics of the territory, in the choice of the program, in the definition of the system of relations, accessibility and mobility, in the articulation of open and closed spaces, with the aim of defining complex and innovative design solutions.

## READINGS/BIBLIOGRAPHY

The didactic material provided to the students will be both of an investigative type in the survey area, so that the project work can begin immediately and be constantly supported by research and documentation, and of a disciplinary and bibliographic type for the definition of the design approach methodologies.

## TEACHING METHODS OF THE COURSE (OR MODULE)

The Design Studio provides a cycle of theoretical lessons related to the project that are intertwined with the development of design activities. The lessons will be aimed at guiding students in the definition of spatial configurations also in light of the main territorial regulatory guidelines. As part of the studio activities, collective and individual comparisons are envisaged, punctuated by periodic deliveries articulated by successive phases of study such as:

1. knowledge and interpretation of the study area;
2. definition of the first compositional hypotheses;
3. specification/critical evaluation of the project solution(s);
4. development and details.

Each stage of progress will be discussed together with the teachers of the modules of the courses integrated into the studio. The work will be carried out for small groups of students in a first phase of analysis, research, retrieval and organization of materials useful for the creation of a collective database. Once this phase is completed, each student will have to define their own project theme and the area of intervention, which they will develop individually but with continuous collective discussion for the progress of the project.

## EXAMINATION/EVALUATION CRITERIA

**a) Exam type**

- [ ] Written
- [x] Oral
- [x] Project discussion
- [ ] Other

**In case of a written exam, questions refer to**

- [ ] Multiple choice answers
- [ ] Open answers
- [ ] Numerical exercises

**b) Evaluation pattern**

The final exam will consist in the discussion on the project theme, on the modalities with which the proposal was set up and articulated and finally on the design solution adopted. Particular attention will be paid to the student's capacity for critical and graphic-expository synthesis and to the methods and degree of integration of the different aspects of the project (technological, environmental, economic, etc.).

# COURSE DESCRIPTION
# ARCHITECTURAL AND URBAN DESIGN

# SSD: COMPOSIZIONE ARCHITETTONICA E URBANA (ICAR/14)

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

## COURSE DESCRIPTION

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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 15587 - PROGETTAZIONE ARCHITETTONICA E URBANA
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

Laboratorio di Composizione Architettonica e Urbana 4/Lettura morfologicaProgettazione di sistemi costruttivi/Tecnologia del recupero edilizio Laboratorio diUrbanisticaScienza delle Costruzioni Fisicatecnica ambientaleEstimo ed esercizio professionale

### PREREQUISITES

The student is required to be able to critically read and interpret the complexity of the places and urban realities under study to identify possible design strategies for their transformation. The activity conducted must be guided by a predisposition to updating and improving one's knowledge through bibliographic studies and design research that feeds constant comparison with the national and international contemporary architectural panorama.

### LEARNING GOALS

The Final Design Studio represents the latest academic commitment in the field of architectural and urban design of the students of the single-cycle Master's Degree in Architecture; it is

configured as the moment of verification of the cultural and practical skills of the students and must be understood as the test of passage to the world of work. The course aims to strengthen the student's design skills in consideration of the complexity of the contemporary role of the architect in the design process, both from a cultural and operational point of view. The other integral disciplines, urban planning, and executive planning, with environmental economics and evaluation, environmental control techniques and construction techniques, have a decisive role in the development of the exercise of knowledge and of the architectural project intended as a composition of knowledge, tools, and techniques, providing tools and methods for the definition of the architectural project from the urban to the detailed scale. The studio intends to offer, around a single design experience, the synthesis of skills and knowledge on the architectural project, giving students the opportunity to deal with a theme that focuses on the social role of architecture. The aim of the teaching of Architectural and Urban Design is to enable the student to measure himself concretely with reality through the deepening of a theme that favors a transversal reading of the central issues in the transformation of reality, within a research program that has been carried out for some years and sees the Department of Architecture as one of the reference points at a national and international level: the object of study and place of experimentation of the laboratory is the prison, a control device taken as a symbol of the multiplicity of aspects that make up the penitentiary universe, and which articulates a large number of issues closely related to architecture and ways of conceiving and inhabiting space.

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

**Knowledge and understanding**That of the spaces of confinement is a difficult issue due to the complexity of the general conditions with respect to the physical and social context, the spatial device, the human and political components that come into play, due to the objective difficulties from a psychological point of view. We enter another world, unknown to most, and we do so by reasoning about the spatial conditions in which people condemned to the deprivation of personal freedom are forced. Students are encouraged to understand prison as a great architecture, to be studied and understood before carrying out a transformation consistent with a prison model different from the current one. Reflecting on a possible transformation of the existing detention spaces thus offers the possibility of testing students' abilities to interpret existing places, with particular attention to the existing building stock, the functioning of the different parts and the relationships between the spaces. In this sense, knowledge and understanding are based on:- the construction of the demand that drives the transformation linked on the one hand to the real needs of the community that inhabits the places and, on the other, to the idea of detention established by the Constitution;- the development of a methodology of knowledge and reading of places guided by phenomenological and morphological approaches, aimed at identifying criticalities and potentialities, prefiguring possible design themes;- the ability to control the design process and the different scales;- the ability to operate, in the architectural and urban composition, a synthesis of the complexities involved in the project, intertwining the different areas of specialist competence (urban planning, construction, plant engineering and energy, environmental, structural, economic and evaluation).

**Applying knowledge and understanding**

**Applying knowledge and understanding**The results of the project summaries will be illustrated both through the elaboration of the tables, books, and models for the final exam. Students will have to demonstrate the achievement of a high level of awareness, autonomy, responsibility, and design dexterity throughout the workshop. The student will have to act as an active interlocutor demonstrating that he is able to autonomously interpret themes and places under study. You will have to demonstrate that you are able to carry out research and experiments independently and that you can understand and critically judge the accuracy or any gaps. You will need to be able to interact not only with the teacher but also with fellow students for the construction and sharing of knowledge and projects. In the context of moments of confrontation with other teachers and students outside the laboratory or with other subjects outside the University invited to present and / or discuss themes and places of the project, the student must be able to explain the methodological approach and present the documents in a clear and concise manner.

## COURSE CONTENT/SYLLABUS

The place of the design experimentation of the Final Design Studio C is the "prison", the main device of criminal execution, characterized by a multiplicity of specific issues which, in turn, branch out further in relation to the different types of institutes and structures built which constitute the consolidated document of this particular "built landscape", in terms of location-relationship with the context, capacity-size, historical period of construction, state of maintenance, characteristics of the people who live in it-prisoners, who work there policemen- operators and many others. The "prison phenomenon" in its entirety gives back a microcosm in the civil life of the country, the reading of the characters, the interpretation and the understanding of the critical aspects is substantiated and made significant, by the concrete confrontation with institutions, citizens, operators in the sector, but also from the revival of a central project theme for civil architecture and indispensable for the recovery of a social role for architecture.The studio deals with the themes of the transformation of the existing, the recovery and maintenance of the penitentiary assets, relations with the context. Through the architectural project, the configuration of the prison architecture is experimented, reflecting on the complex system of relationship between the prison building and the city to go beyond the conception of the container and design spaces and articulations that keep the recluse at the center and its needs.

## READINGS/BIBLIOGRAPHY

The didactic material provided to the students will be both of an investigative type in the survey area, so that the project work can begin immediately. Disciplinary and bibliographic research and documentation are provided as support for the definition of the design approach methodologies and knowledge of the assigned topic.

## TEACHING METHODS OF THE COURSE (OR MODULE)

The work of the studio will be organized in different phases that see a first period of choral work, for the deepening of the issues of knowledge of the place and of the theme and of the specificities

of the architecture of the prison through inspections, description and interpretation, to the restitution phases. through different models and techniques of representation; students will choose the theme of the project which will be developed in groups. The laboratory dimension will be central, with a weekly day dedicated to classroom work; during the year, the course will be articulated through the alternation of lectures by the teacher with interventions by external guests, who will offer different contributions, with which students will be able to build individual training courses, get in touch with the different actors of the reality object of study, address the complexity of the design process.There are four successive stages of in-depth study of the design process:- Knowledge and interpretation of the place under study;- Definition of the first project ideas;- Development of the project idea;- Deepening and definition of the details of the project.Intermediate meetings are planned in which each stage of progress will be discussed by the students with the teachers of the integrated courses of the studio. Students will be engaged in distinct forms of exercises with different techniques that all contribute to the development of the final project, each of these will be part of the final presentation; from the first lesson each will have a personal carnet de voyage, a sort of diary of the project experience and its gestation that will testify to the process and the profuse commitment.

## EXAMINATION/EVALUATION CRITERIA

**a) Exam type**

- [ ] Written
- [x] Oral
- [x] Project discussion
- [ ] Other

**In case of a written exam, questions refer to**

- [ ] Multiple choice answers
- [ ] Open answers
- [ ] Numerical exercises

**b) Evaluation pattern**

The final exam will consist in the discussion on the project theme, on the ways in which the proposal was set up and articulated and finally on the design solution adopted. Particular attention will be paid to the student's capacity for critical and graphic-expository synthesis and to the methods and degree of integration of the different aspects of the project (technological, environmental, economic, etc.).

# COURSE DESCRIPTION
# EXECUTIVE DESIGN OF ARCHITECTURE

# SSD: TECNOLOGIA DELL'ARCHITETTURA (ICAR/12)

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

## COURSE DESCRIPTION

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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 09280 - PROGETTAZIONE ESECUTIVA DELL'ARCHITETTURA
CHANNEL: 01 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

### REQUIRED PRELIMINARY COURSES

Laboratorio di Composizione Architettonica e Urbana 4, Tecnologia dei sistemi costruttivi, Laboratorio di Urbanistica, Scienza delle costruzioni, Fisica Tecnica Ambientale.

### PREREQUISITES

none

### LEARNING GOALS

The aims of the course is to introduce the student towards a methodological path capable of governing the design process that goes from the concept to the correct execution of building works. The main objective is to bring out the relationships between design, production and standard, focusing on products, systems and materials and on the logic for their choice and assembly in compliance with current requirements.
The course aims at deepening cultural and operational aspects of the architectural object, focusing on the phases of the design and executive process and on the tools by which the architect can

manage the consistency between the design idea and the technical solutions adopted. The student will then be directed to choose from the repertoire of 'possible' technical solutions the most appropriate ones to the specific context (environmental, production, regulatory,.).

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

### Knowledge and understanding

The course provides students with knowledge and basic methodological tools needed to understand the transformation process from the design idea to the realization of the architectural work. The student needs to show ability to know and understand problems related to methods and analysis tools will be studied for the knowledge of the context in which we operate, and on the other innovative systems, technologies and products in line with urgent environmental demands. The student must demonstrate the ability to insert and manage the technological data within a broader interdisciplinary comparison, in line with the training objectives of the synthesis laboratory.

**Applying knowledge and understanding**

Applying knowledge and understanding
The students need to show ability to infer decision and consequences from available information to technical-constructive solutions capable of guaranteeing performance levels consistent with the broader objectives of the project, especially in satisfying environmental requirements. They must recognize technological innovation to contribute to a design definition capable of offering the most favorable relationship between use of resources and services offered.
The students must be able to interpret and solve the problems relating to the sequence and methods of installation in the definition of construction details

## COURSE CONTENT/SYLLABUS

In accordance with the other integrated course, students will develop the design exercise on the agreed theme of the year, deepening the aspects that link the technical-executive choices to the current demand in an era of energy transition and climate change. In the teaching activity, the learner will be accompanied to the application of support tools and design verification, up to the elaboration of the technical detail. Depending on the different phases of the project and in relation to the specificity of the context, the following topics will be studied in depth, among others: the question of technique in the design of contemporary architecture; 2030 Agenda and European Green Deal. Objectives, strategies, criteria and environmental protocols, CAM; Materials, components, construction techniques: criteria for choosing technical solutions; Building envelope, requirements and performance; integration of components and systems for the production of energy from renewable sources; solutions for water recovery, waste disposal, cooling and natural ventilation.

## READINGS/BIBLIOGRAPHY

Marisa Bertoldini, Andrea Campioli*, Cultura tecnologica e ambiente,* CittàStudi, Milano, 2008

Mario Losasso, *Percorsi dell'innovazione. Industria, edilizia, tecnologie, progetto,* Clean, Napoli, 2011
Andrea Campioli, Monica Lavagna*, Tecniche e architettura,* CittàStudi Edizioni, Milano, 2013
*Massimo Perriccioli, Pensiero tecnico e cultura del progetto. Riflessioni sulla ricerca tecnologica in architettura,* Franco Angeli, Milano, *2016*
*More didactic materials will be provided during the course*

## TEACHING METHODS OF THE COURSE (OR MODULE)

The laboratory is divided into
a) theoretical lessons (1 CFU)
b) seminars (0.5 credits)
c) design exercises dedicated to the theme of the year (3.5 credits).
for the carrying out of the laboratory activity, multimedia supports, specialized software, online material are provided as well

## EXAMINATION/EVALUATION CRITERIA

**b) Evaluation pattern**

Based on the results and skills demonstrated in the discussion of the project as well as the learning of the main issues relating to the execution of the project idea, the final grade will be weighted on the credits of each course in the laboratory.

# COURSE DESCRIPTION
# EXECUTIVE DESIGN OF ARCHITECTURE

# SSD: TECNOLOGIA DELL'ARCHITETTURA (ICAR/12)

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

## COURSE DESCRIPTION

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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 09280 - PROGETTAZIONE ESECUTIVA DELL'ARCHITETTURA
CHANNEL: 02 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

### REQUIRED PRELIMINARY COURSES

-

### PREREQUISITES

-

### LEARNING GOALS

The Final Synthesis Laboratory consists of courses in: Architectural and Urban Design, Urban Planning, Construction Technique, Environmental Control Technique, Executive Design, and Estimate and Evaluation. The multiplicity of aspects covered allows students to elaborate a proposal for the transformation of the existing building by delving into the various levels of complexity of the project as a whole.
The Final Synthesis Workshop aims to
- increase students' design skills through work based on a critical-interpretative approach to places and a methodological-experimental approach to setting up the intervention strategy

- provide methods and tools for tackling the architectural project by controlling the process of its definition and development from the urban to the detailed scale.
In coherence with the objectives of the course of study and with the training gained in the previous years in the field of Architectural Technology, the course aims to make students:
a) understand the issues relating to the execution in operational, procedural, construction and regulatory terms of the project.
b) face and solve the issues concerning the control of the design outcomes through appropriate technological-constructive solutions and relative performance checks
c) autonomously evaluate design choices and technological-environmental solutions
d) use the methodological tools necessary to govern the interaction between formal and functional aspects to guarantee the executability of the work and in view of the entire life cycle
e) produce graphic-descriptive drawings and documents necessary for the execution of the work, i.e. for the correct and clear transmission of the project also to non-experts (stakeholders).

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The student must know and be able to understand the problems related to the executability in operational, procedural, site-manufacturing and regulatory terms of the project, developing the ability to argue the conceptual, material and technical advances of technological innovation, in order to govern the project in relation to the complexity of the building process. The training course intends to provide the knowledge and basic methodological tools necessary to analyse the interaction between formal, functional and technical aspects in relation to the relationship between design objectives and the execution of the work in view of the entire life cycle.

**Applying knowledge and understanding**

The student must be able to design according to a systemic approach, considering construction and assembly sequences in relation to the needs of users, procedures, the regulatory framework and technical information, i.e. the instruments that regulate the relationships between the actors of the building process. The training course is oriented towards conveying the ability to solve problems concerning the control of design outcomes by means of appropriate technological-constructive solutions and performance verifications.

## COURSE CONTENT/SYLLABUS

The lectures will cover various cultural, regulatory, procedural and operational aspects in the definition and realisation of urban transformation interventions through the detailed design of architectural artefacts and the open spaces on which they insist, focusing on
- building processes that regulate the construction sector with reference to current technical and procedural regulations; [0.5 CFU].
- bioclimatic approaches and technological advancement aimed at the containment of climate-altering emissions from buildings; [1 CFU]
- technological and environmental design aimed at the mitigation of and adaptation to climate change in buildings and open spaces; [1 CFU]

- environmental sustainability in building processes with reference to materials and components for buildings with low environmental impact, protocols and evaluation systems for the environmental sustainability of urban transformation processes and the realisation of architectural artefacts (e.g. CAM, LEED, etc.), product certifications (e.g. EPD, REACH, Cradle to Cradle, etc.); [1 CFU]
- Practice in the use of IT tools for the control and verification of the energy-environmental performance of the building-environment system (e.g. Rhino, Grasshopper, Ladybug, Honeybee, Dragofly, Envi-MET). [0.5 CFU].
Aim and orientation of students towards the choice of innovative, appropriate and sustainable technical solutions in relation to the environmental, production and regulatory context.

## READINGS/BIBLIOGRAPHY

*Eduardo Bassolino, Climate-adaptive design e tecnologie digitali. Modelli, strumenti e pratiche , CLEAN Edizioni, Napoli, 2021*
*Mattia Leone, Tersigni Enza, Progetto resiliente e adattamento climatico. Metodologie, soluzioni progettuali e tecnologie digitali, CLEAN Edizioni, Napoli, 2018*
*Mario Losasso, Percorsi dell'innovazione. Industria, edilizia, tecnologie, progetto, Clean, Napoli, 2011*
*Massimo Perriccioli, Pensiero tecnico e cultura del progetto. Riflessioni sulla ricerca tecnologica in architettura, Franco Angeli, Milano, 2016 Fabrizio Tucci, Costruire e Abitare Green. Approcci, Strategie, Sperimentazioni per una Progettazione Tecnologica Ambientale, Altralinea Edizioni, Firenze, 2018*

## TEACHING METHODS OF THE COURSE (OR MODULE)

The lecturer will use: a) frontal lessons in the classroom for about 25% of the total hours, for which specific online material will be provided to support self-study; b) laboratory activities in the classroom will be foreseen both for the activity of revision of the examination papers and for the application of methodologies and tools for the assessment of the environmental sustainability of the processes of urban transformation and realisation of architectural artefacts for about 30% of the total hours, in particular exercises in the application of the CADI-BE - Climate Adaptive Design Index for the Built Environment - assessment system; c) in-depth seminars on the use of IT tools for the control and verification of the energy-environmental performance of the building-environmental system for about 15% of the total hours, such as Rhino, Grasshopper, Ladybug, Honeybee, Dragofly, Envi-MET; d) exercises to deepen the theoretical and practical aspects for about 25% of the total hours; e) visits to sites of architectural artefacts for about 5% of the total hours.

## EXAMINATION/EVALUATION CRITERIA

**b) Evaluation pattern**

# COURSE DESCRIPTION
# EXECUTIVE DESIGN OF ARCHITECTURE

# SSD: TECNOLOGIA DELL'ARCHITETTURA (ICAR/12)

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

## COURSE DESCRIPTION

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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 09280 - PROGETTAZIONE ESECUTIVA DELL'ARCHITETTURA
CHANNEL: 03 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

### REQUIRED PRELIMINARY COURSES

Laboratorio di Composizione Architettonica e Urbana 4, Tecnologia dei sistemi costruttivi, Laboratorio di Urbanistica, Scienza delle costruzioni, Fisica Tecnica Ambientale.

### PREREQUISITES

none

### LEARNING GOALS

The Laboratorio di Sintesi Finale consists of the following courses: Progettazione architettonica e urbana, Urbanistica, Tecnica delle costruzioni, Tecnica del controllo ambientale, Progettazione esecutiva, Economia ed estimo ambientale.
The multiple topics covered by the Studio allow students to develop a design proposal by deepening the various levels of complexity of the project. Main objectives are:
- increase the students' design skills through a critical-interpretative approach to the site and a methodological-experimental approach to set the intervention strategy;

- provide methods and tools to tackle the architectural project by controlling the definition and developmentprocess, from urban to detailed scale.
Consistent with the objectives of the Master Degree course and with the training gained in previous years in the field of Architectural Technology, the Executive Design course aims to achieve the following:
a) understand the issues relating to the execution of the project in operational, procedural, construction, production and regulatory terms.
b) address and resolve issues concerning the control of design outcomes through appropriate technological-constructive solutions and related performance checks
c) evaluate design choices and technological-environmental solutions
d) use appropriate tools to govern the interaction between formal and functional aspects, to guarantee the execution of the work and considering the entire life cycle
e) produce drawings and graphic/descriptive documents necessary for the execution of the work, and/or the correct and clear communication of the project even to non-expert stakeholders.

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The student must know and be able to understand the issues relating to the executionof the project in operational, procedural, constructive, production and regulatory terms, developing the ability to discuss the conceptual, material and technical costs/benefits of technological innovation, in order to govern the project in relation to the complexity of the building process. The training path aims to provide the knowledge and basic methodological tools necessary to analyze the interaction between formal, functional and technical aspects of the project, in relation to the relationship between design objectives/solutions and a proper execution of the works, cosnidering the entire life cycle.

**Applying knowledge and understanding**

The student must be able to design according to a systemic approach, considering construction and assembly sequences in relation to user needs, procedures, regulatory framework and technical information, understanding methods and tools that regulate the relationships between the actors of the construction process. The training path is aimed at transmitting the ability to solve problems concerning the control of design results through appropriate technological-constructive solutions and performance checks.

## COURSE CONTENT/SYLLABUS

The course aims at providing the theoretical, methodological and operational tools to develop technical and design solutions characterized by levels of detail appropriate to the execution of the architectural project, controlled in terms of performance characteristics in relation to the main sectoral regulations, with particular reference to the issues of green building and sustainability of the building process.
Students will develop specific skills related to the choice and control of technological alternatives available to the designer, the integration of building systems / products in the architectural project

and their correct description, also in support of technical specifications and specialist reports.
Within the course, starting from the project theme of the Laboratorio di Sintesi Finale, students will develop a series of technological-constructive insights, integrating the architectural project with the appropriate performance specifications relating to structural elements, building envelope, technical systems and open spaces.
Specific insights will concern the control of specific technological and environmental requirements, with particular reference to sustainable management of material and energy resources, indoor and outdoor comfort, HVAC systems integration, in light of the Minimum Environmental Criteria for building and green building protocols for energy and environmental quality, such as LEED and WELL certification systems.
The course will include seminars and workshops which will correspond to a series of deliverables, mainly produced in the classroom and in teams, which will contribute to the final evaluation.
The course contents are focused on the following themes:
• Environmental planning, sustainability and climate neutrality: the objectives of the 2030 Agenda and the European Green Deal
• Technological design of architecture, materials and construction techniques
• Building envelope and environmental performance: sustainability, resilience and performance control.
o Climate resilience
o Bioclimatic design and energy efficiency
o Nature-Based Solutions
o Acoustic design
• Technical protocols and green building environmental criteria

## READINGS/BIBLIOGRAPHY


- Bellew, P. (2015), *Invisible Architecture: Atelier Ten*, Laurence King Publishing.
- Buckminster Fuller, R. (1969). *Operating manual for spaceship earth*. New York: EP Dutton &Co.
- Braungart, M., McDonough, W. (2002), *Cradle to Cradle: Remaking the Way We Make Things* , North Point Press.
- Liedl, P., Hausladen, G., &Saldanha, M. (2012). *Building to suit the climate: A handbook*. Walter de Gruyter.
- Rosenzweig, C., W. Solecki, P. Romero-Lankao, S. Mehrotra, S. Dhakal, and S. Ali Ibrahim (eds.), *Climate Change and Cities: Second Assessment Report of the Urban Climate Change Research Network*. Cambridge University Press. New York. (available at https://uccrn.ei.columbia.edu/arc3.2).
- U.S. Green Building Council (2013), *LEED Reference Guide for Building Design and construction*, USGBC.
- Walker, B., &Salt, D. (2012). *Resilience thinking: sustaining ecosystems and people in a changing world*. Island Press.
- Materiale didattico fornito durante il corso

## TEACHING METHODS OF THE COURSE (OR MODULE)

The course includes: a) lectures for about 30% of the total hours, b) seminars held by external experts for about 10% of the total hours, c) workshop activities to deepen the applied knowledge for about 60% of the total hours. The lectures and teaching materials will be made available online on the TEAMS teaching channel.

## EXAMINATION/EVALUATION CRITERIA

**b) Evaluation pattern**

The final evaluation will take into account the levels of participation in the teamwork, in the workshop and exercise activities carried out, as well as the ability to convey the main theoretical contents of the course in the final presentation (which may include tables, videos, real and virtual models) and in the discussion of the project documents, starting from the results of the design experiments conducted. The final assessment related to the teaching module will contribute to the overall assessment for the Laboratorio di Sintesi Finale, weighting the final grade on the basis of the credits required by each module.

# COURSE DESCRIPTION
# URBAN PLANNING DESIGN

# SSD: URBANISTICA (ICAR/21)

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

## COURSE DESCRIPTION

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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 09292 - PROGETTAZIONE URBANISTICA
CHANNEL: 02 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

### REQUIRED PRELIMINARY COURSES

None

### PREREQUISITES

None

### LEARNING GOALS

The objective of the course, part of the Design Studio “Laboratorio di Sintesi Finale”, and in agreement with its integrated courses, is to provide students with cultural and technical tools for the valorization, regeneration and adaptive reuse of urban and territorial resources, through innovative design experimentations, with a multiscale approach. The course employs a theoretical framework which, combining the themes of urban metabolism and circular economy aims to provide students with specialized knowledge on:

- Metabolism of material and spatial waste, considering waste and wastescape as new urban planning subjects;

- regeneration of 'wastescape', for the improvement of the functionality of the urban metabolism and therefore of the quality of life in the territories object of the study;
- reading, interpretation and adaptive reuse of wastescapes in case studies mainly identified within the Campania regional context. In the academic year 2022-2023 the Municipality of Sarno will be investigated.

The course employs a systemic and multiscale approach aimed at identifying eco-innovative solutions and strategies that can ensure developments without further consumption of virgin land, and capable of valorising the discarded resources, through the recycling and adaptive reuse of urban parts subjected to a process of decay or abandonment. Therefore, the teaching course aims to identify and integrate complex strategies - developed at the territorial scale - and transformative solutions and actions - developed on a neighborhood scale - able to guarantee a resilient and sustainable “different kind of growth” to meet the new needs of local communities. Wastescapes are therefore intended as urban laboratories where you can experiment with eco-innovative design interventions starting in the short term and with long-term effects.The course also aims to provide students with different perspectives and specific insights on the indicated topics also by making use of seminars by researchers and experts in the field.

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

At the end of the training experience, through design experimentation, students will have to demonstrate:

(1) to be able to analyze and interpret the spatial, socio-economic, environmental, and metabolic characteristics of the different case-study contexts;

(2) knowing how to elaborate and define possible sustainable and resilient transformations, based on different theories and techniques of urban design and planning.

**Applying knowledge and understanding**

The course encourages a sense of autonomy in students, while ensuring adequate guidance and support from the teacher; in fact, students will be accompanied in the application of a multiscale methodological approach linked to the reading and interpretation of the specificity of the study-case.Students will have to demonstrate that they have acquired the appropriate methodology to:

(1) interpret the complexity of urban systems through the knowledge of the state of places and of law and the interpretative reading of contexts;

(2) develop scenarios for urban transformation based on the integration of programs, actions and strategies at different territorial scales, on social inclusion and on the planning of interventions in the short, medium and long term;

3) effectively communicate the project proposal, through a synthetic elaboration of graphics, diagrams, mappings.

## COURSE CONTENT/SYLLABUS

**Contents and synthetic program**

The Course focuses on: analysis, definition, and mapping of the complex characteristics of the study area at the different scales; identification and definition of eco-innovative solutions and strategies for improving the quality of life in urban and peri-urban areas; identification of local stakeholders and deepening of further methodologies for the experimentation of co-creation activities (for example through the study of the Urban Living Lab methodology); current challenges and natural and anthropic risks; climate change; resource scarcity.
The teaching activity is organized including a series of lectures, among them:
- Definition, mapping and reinterpretation of wastescape;
- 'Research by Design' framework for understanding and interpreting the territory at different scales, for understanding urban systems and identifying the different opportunities for change, through explorative paths, and defining visions to improve them;
- Urban metabolism and circular economy: the enhancement of waste streams for urban and territorial regeneration, with particular reference to construction and demolition waste flow;
- Eco-innovative solutions and strategies; co-creation processes and Urban Living Labs: the experimentation of the European project Horizon 2020 "REPAiR. Resource Management in Periurban Areas. Going beyond urban metabolism";
- The regeneration of wastescapes through circular metabolism approach at different scales in the Dutch example;
- Planetary boundaries and SDGs. Towards sustainability for a new different kind of growth;
- Participatory urban planning for the inclusion of all stakeholders in the urban regeneration processes;
- Regenerative and Adaptive Design;
- Ecological transition and energy: the example of the energy communities.

As part of the teaching experience, a design exercise will be carried out on a site that will be described and presented in the first calendar lesson. The design exercise, is structured in three main parts:
1. KNOWLEDGE FRAMEWORK | Understanding and definition of the site
2. CONCEPT AND VISION | Interpretation and design of the site
3. STRATEGY | Developing a Spatial strategy

## READINGS/BIBLIOGRAPHY

As part of each lesson, the bibliographic references will be indicated. Among these, some general bibliographical references are reported here:

*Amenta, L., &van Timmeren, A. (2018). Beyond Wastescapes: Towards Circular Landscapes. Addressing the Spatial Dimension of Circularity through the Regeneration of Wastescapes. Sustainability, 10(12), 4740.*

*Berger, A. Drosscape: Wasting Land in Urban America; Princeton Architectural Press: New York, NY, USA, 2006; ISBN 1568987137.*

*Corboz, A. (1998). Il territorio come palinsesto. In P. Viganò (Ed.), Ordine Sparso. Saggi sull'Arte, il Metodo, la Città, il Territorio (Vol. Ordine Spa). Milano: Franco Angeli.*

*EC. (2014). Towards a circular economy: A zero waste programme for Europe. European Commission.*

*Ellen MacArthur Foundation. (2015a). Growth within: a circular economy vision for a competitive europe.*
*GeementeRotterdam, IABR, FABRIC, JCFO, &TNO. (2014). URBAN METABOLISM Sustainable development of Rotterdam. Rotterdam.*
*Girardet, H. (2010). Regenerative Cities. World Future Council and HafenCity University Hamburg (HCU) Commission on Cities and Climate Change.*
*REPAiR (2018). D5.3 Eco-Innovative Solutions Naples; EU Commission Participant Portal: Brussels, Belgium, 2018; Grant Agreement No 688920.*
*Russo, M. (Ed.). (2014). Urbanistica per una diversa crescita. Progettare il territorio contemporaneo. Una discussione della Società italiana degli urbanisti. Roma: Donzelli Editore.*
*Secchi, B. (2000). Prima lezione di urbanistica. (Laterza, Ed.). Bari.*
*Secchi, B. (2013). La città dei ricchi e la città dei poveri. Bari: Editori Laterza.*
*Steen, K., &Bueren, E. van. (2017). Urban Living Labs. A living lab way of working. Amsterdam Institute for Advanced Metropolitan Solutions Delft University of Technology.*
*Williams, J. (2019) Circular cities. Urban Stud. 2019, 004209801880613.*
*Wolman, A. (1965). The Metabolism of Cities. Scientific American, 213(3), 178–190.*

Due to the exploratory nature of this course, additional readings might be proposed throughout the course.The materials which will be shown in class (e.g. power point presentations) will be made available by the teacher to support individual study at the end of each lesson.

## TEACHING METHODS OF THE COURSE (OR MODULE)

The teacher will employ:
a) lectures, for about 50% of the total hours;
b) exercises to practically deepen theoretical aspects and laboratory activities to deepen the applied knowledge, for about 50% of the total hours;
c) possible seminars in collaboration with researchers and/or national and international experts to investigate specific issues.

## 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 development of the project is organized into laboratory activities carried out in group and individual reflections/research carried out by the single student. The progress and the assessment of the knowledge acquired by the students are evaluated weekly during the laboratory activities.A final interview is foreseen with an illustration of the documents of the urban project, deepening the reasons for the design choices on the basis of the theoretical knowledge acquired during the Laboratory.

The final grade will be weighted on the CFU of each course composing the Laboratory.

# COURSE DESCRIPTION
# URBAN PLANNING DESIGN

# SSD: URBANISTICA (ICAR/21)

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

## COURSE DESCRIPTION

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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 09292 - PROGETTAZIONE URBANISTICA
CHANNEL: 03 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

### REQUIRED PRELIMINARY COURSES

No

### PREREQUISITES

No

### LEARNING GOALS

The Final Synthesis Laboratory consists of the following courses: Architectural and Urban Design, Urban Planning, Construction Technique, Environmental Control Technique, Executive Design, Economics and Environmental Assessment. The multiplicity of the aspects involved allows students to develop a proposal for the transformation of the existing context, deepening the various levels of complexity of the project The Final Synthesis Laboratory aims to: - increase the students' design skills through work based on a critical-interpretative approach to places and a methodological-experimental approach to design strategies; - provide methods and tools to tackle the architectural project by controlling the process of definition and development from the urban to

the detailed scale.
The urban planning course, in particular, is aimed at exploring the urban context in which the architectural design will be situated. Urban morphology, street-level uses and practices, and interactions between inhabitants and their urban environment will be analyzed in order to situate the project in light of the spatial and socio-ecological features of the urban context

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The student becomes familiar with the urban context by interpreting the spatial relations among residential areas, the surrounding open spaces and the set of public facilities. The survey aims to recognize citizens' expectations about possible local regeneration projects in which urban facilities are at the core.

**Applying knowledge and understanding**

The processing of urban maps in which mobility plans and different kind of planning requirements are included, ensures the project to be related with the wide context under exploration, without ignoring its feasibility in the light of public regenerative policies and institutional requirements. Territorial knowledge and outputs due to active listening and participant observation aim to implement collaborative design proposals in order to turn transformation into an opportunity for civic confront and public aspirations. Perceptions about interactions between public facilities and residential settlements can be measured by means of qualitative methodologies of surveying .

## COURSE CONTENT/SYLLABUS

Lectures will be organized according to the subsequent steps:
1. local survey in which historical settlements, standard equipment of public services and open spaces will be identified
2. Qualitative surveying methodology: observation and listening protocols (who, what, where, how. and why)
3. To put observation and listening to work: neighborhood walks and listening of local stakeholders
4. Kevin Lynch: image survey, good city form theory, in-depth interview, mapping cases, coding and spatial representation

## READINGS/BIBLIOGRAPHY

Didactic materials will be provided each time during the course by means of power points and scientific references aimed at in depth exploring specific dimensions of the survey.
Short quotations will be provided from the subsequent references:
Lynch K. (1960), *The image of the City*, Cambridge, MIT Press
Lynch K. (1972), *What time is this place?*, Cambridge, MIT Press
Lynch K. (1981), *A Theory of Good City Form*, Cambridge, MIT Press

Sclavi M. (2000), *Arte di ascoltare e mondi possibili*, Le vespe, Milano
Sclavi M. et al. (2014), A*vventure urbane. Progettare la città con gli abitanti*, Eléuthera, Milano

## TEACHING METHODS OF THE COURSE (OR MODULE)

Classroom-taught lessons will be interchanged with practical exercises and readings in order to test the understandings of theoretical contents by students. Several lessons will be devoted to on field investigations and meetings with local stakeholders

## EXAMINATION/EVALUATION CRITERIA

**b) Evaluation pattern**

# COURSE DESCRIPTION
# URBAN PLANNING DESIGN

# SSD: URBANISTICA (ICAR/21)

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

## COURSE DESCRIPTION

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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 09292 - PROGETTAZIONE URBANISTICA
CHANNEL: 04 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

### REQUIRED PRELIMINARY COURSES

none

### PREREQUISITES

none

### LEARNING GOALS

The Final Synthesis Workshop consists of the following courses: Architectural and Urban Design, Urban Planning, Construction Technique, Environmental Control Technique, Executive Design, Economics and Environmental Assessment. The multiplicity of the aspects involved allows students to develop a proposal for the transformation of the existing context, deepening the various levels of complexity of the project
The Final Synthesis Workshop aims to:
- increase the students' design skills through work based on a critical-interpretative approach to places and a methodological-experimental approach to design strategies;

- provide methods and tools to tackle the architectural project by controlling the process of definition and development from the urban to the detailed scale
Based on the experiences gained during the course of study, from a theoretical, practical and technical point of view, the urban planning module aims to guide the student in a process that starts from the interpretative knowledge of the study area to the final project. An analysis of the territorial and urban context is envisaged that defines the "rule of law" of the areas to be designed, or the overlapping of constraints, rules and forecasts deriving from the planning tools in force. The analytical phase includes the study of the urban fabric, the infrastructure and mobility system and the system of environmental and landscape values, as well as the framework of the relevant actors of urban policies.
The organization of these cognitive data allows the construction of an interpretative framework that provides the basis for the strategies of the urban, landscape and territorial project, through an approach capable of reading the transformations at the different scales, and to select adequate techniques to make planning contents operational, in the inter-scalar and intersectoral relationships between architecture, urban planning and landscape. Particular attention is paid to scenarios of transformation in relation to time, events and conditions that allow the transition.
The student must be able to critically integrate the contributions of other disciplines within the urban project, and experiment with innovative methods in individual and group work.

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The student must have an advanced knowledge of: the theories and techniques in the field of urban and territorial planning; methods for critically analyzing urban problems; methods for the social construction of plans and projects.

**Applying knowledge and understanding**

The student must be able to recognize the main configurations of urbanization processes. He has to know how to integrate field investigation and design activities and how to theoretically and methodologically structure planning and urban planning activities, while interpreting constraints, rules and planning tools.

## COURSE CONTENT/SYLLABUS

This year's Workshop will be focused on the urban redevelopment of an area along via Palmiro Togliatti, in Rome, currently used for car demolitions.

**Contents**

Each of the following topics has one or more lessons associated with it.
1. Introduction to the course and discussion on the stages of the interscalar project.
2. How to carry out an urban inquiry

3. How to report the urban inquiry
4. Green Infrastructure and climate change
5. The right to the city
6. Regeneration of cities and territories
7. Focus on the study area chosen for the workshop: opportunities and criticalities of the area
8. Reconstruction of the rule of law for the studied context.
9. Design Strategies
10. Scenarios, actors and times of transformations

## READINGS/BIBLIOGRAPHY

Gary Hack, *Site Planning. International Practice*, The MIT Press, Cambridge MA, 2018.
Additional bibliographical references will be provided during the lessons.

## TEACHING METHODS OF THE COURSE (OR MODULE)

Lectures and laboratory activities are foreseen (classroom and field exercises, group and individual work). Practical activities will be aimed at guiding the student in the investigations in the study area and in the drafting of verb-visual texts that return the outcomes of the investigation as well as an interpretation of the studied context and its possible developments. There will be moments of practice after the frontal lessons with the function of formative evaluation. Attendance is mandatory.
Moments of common evaluation with the other teachers of the workshop will be scheduled.

## EXAMINATION/EVALUATION CRITERIA

**b) Evaluation pattern**

The final grade will be weighted on the credits of each course.

# COURSE DESCRIPTION
# ECONOMICS AND ENVIRIONMENTAL ESTIMATE

# SSD: ESTIMO (ICAR/22)

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

## COURSE DESCRIPTION

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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 52888 - ECONOMIA ED ESTIMO AMBIENTALE
CHANNEL:
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

### REQUIRED PRELIMINARY COURSES

Courses preparatory to the Final Synthesis Laboratory

### PREREQUISITES

Nothing

### LEARNING GOALS

LEARNING GOALS
The Final Synthesis Laboratory consists of courses in: Architectural and Urban Design, Urban Planning, Technologies for Construction, Technologies for Construction Environmental Control, Executive Design, and Environmental Economics and Evaluation. The multiplicity of aspects covered enables students to develop a proposal for the transformation of the existing asset by exploring the various levels of complexity of the project in its entirety. The Final Synthesis Laboratory aims to:

- improve students' design skills through work based on a critical-interpretative approach to places and methodological-experimental approach to setting the intervention strategy;
- provide methods and tools for dealing with architectural design by controlling the process of its definition and development from the urban to the detailed scale.
The Environmental Economics and Evaluation course aims to make students acquire, in depth, the methodological approaches and operational tools for the evaluation of design alternatives (through multicriteria evaluations) and for the elaboration of a financial feasibility study of an architectural project, articulated in its different phases (technical and economic feasibility, final and executive).

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)
Knowledge and understanding
The "Environmental Economics and Evaluation" course aims to provide students with the methodological approaches and operational tools to develop a financial feasibility study of an architectural project, articulated in its different phases. The assessment takes into account the acquired methodologies also with reference to the application work developed in relation to the topic of the Final Synthesis Laboratory. The expected results refer to the acquisition of skills for the analysis and assessment of the financial feasibility of architectural projects. In particular:
•- the estimation of production costs of the architectural product;
•- the socio-economic analysis of the context in which the project will be implemented to define the intended uses;
- the multidimensional evaluation of project alternatives.
Learning ability: The student has to be able to update or expand his/her knowledge by drawing independently on scientific texts and papers, and has to be able to gradually acquire the ability to attend specialized seminars, conferences, master's degrees, etc. in the field of valuation and economics. The course provides the student with necessary guidance and suggestions to enable him/her to deal with other topics related to those in the program.
Communication skills: The student has to be able to illustrate the work produced highlighting the results achieved, using the terms proper to the discipline. The student’s expository skill has to be such as to communicate, even to non-experts in the subject, the procedure adopted and the possible alternatives in a clear and concise way.

**Applying knowledge and understanding**

Applying knowledge and understanding
Ability to apply knowledge and understanding:The student is expected to demonstrate knowledge and understanding of the procedures for assessing construction costs at the various design levels, and of the various expenditures that contribute to production costs. The student has to be able to synthesize the data collected into information useful for financial and socio-economic analysis of the project, as well as develop outcome and performance indicators for a multicriteria evaluation of impacts.
Autonomy of judgment: The student has to be able to independently assess the market dynamics

behind project choices so as to propose new solutions that are more financially and socio-economically convenient. The student has also to be able to understand the logical links between objectives, project and results, including through the choice of performance and outcome indicators.

## COURSE CONTENT/SYLLABUS

COURSE CONTENT/SYLLABUS

Section one (2 CFU): Cost estimation. Work scheduling (parametric costs). Design of works (time schedule and economic framework). Technical and economic feasibility design (summary costing, standardized costs). Final and executive design (estimated metric calculation and price analysis). Section Two (2 CFU): Evaluation of design alternatives. Financial analysis and cost-benefit analysis (Net Present Value; Internal Rate of Return; sensitivity analysis and risk analysis). Multidimensional evaluations (multicriteria and multigroup). Travel Cost Method, Contingent Valuation Method and Haedonic Price Method for the estimation of influential externalities. Examples of evaluation for architectural design.

## READINGS/BIBLIOGRAPHY

Book and teaching materials posted on the teacher's webpage.

## TEACHING METHODS OF THE COURSE (OR MODULE)

The course will be implemented in: a) face-to-face lectures for about 50%of the total hours; b) laboratory for the development of the design work by students for 50% of the total hours.

## 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**

b) Evaluation pattern

The exam consists of the discussion of the design work. The final mark will be weighted on the CFU of each course and thus composed as follows: Urban architectural design (8CFU), Urban planning (4CFU), Executive design (4CFU), Technologies for Construction (2CFU), Technologies

for Construction Environmental Control (6CFU), Environmental Economics and Evaluation (4CFU).

# COURSE DESCRIPTION
# ECONOMICS AND ENVIRIONMENTAL ESTIMATE

# SSD: ESTIMO (ICAR/22)

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

## COURSE DESCRIPTION

TEACHER: NOCCA FRANCESCA
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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 52888 - ECONOMIA ED ESTIMO AMBIENTALE
CHANNEL: 04 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

### REQUIRED PRELIMINARY COURSES

Courses preparatory to the Final Synthesis Laboratory

### PREREQUISITES

Nothing

### LEARNING GOALS

The Final Synthesis Laboratory consists of courses in: Architectural and Urban Design, Urban Planning, Technologies for Construction, Technologies for Construction Environmental Control, Executive Design, and Environmental Economics and Evaluation. The multiplicity of aspects covered enables students to develop a proposal for the transformation of the existing asset by exploring the various levels of complexity of the project in its entirety. The Final Synthesis Laboratory aims to:

- improve students' design skills through work based on a critical-interpretative approach to places and methodological-experimental approach to setting the intervention strategy;

- provide methods and tools for dealing with architectural design by controlling the process of its definition and development from the urban to the detailed scale.

The Environmental Economics and Evaluation course aims to make students acquire, in depth, the methodological approaches and operational tools for the evaluation of design alternatives (through multicriteria evaluations) and for the elaboration of a financial feasibility study of an architectural project, articulated in its different phases (technical and economic feasibility, final and executive).

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The "Environmental Economics and Evaluation" course aims to provide students with the methodological approaches and operational tools to develop a financial feasibility study of an architectural project, articulated in its different phases. The assessment takes into account the acquired methodologies also with reference to the application work developed in relation to the topic of the Final Synthesis Laboratory. The expected results refer to the acquisition of skills for the analysis and assessment of the financial feasibility of architectural projects. In particular:

- the estimation of production costs of the architectural product;
- the socio-economic analysis of the context in which the project will be implemented to define the intended uses;
- the multidimensional evaluation of project alternatives.

**Learning ability:** The student has to be able to update or expand his/her knowledge by drawing independently on scientific texts and papers, and has to be able to gradually acquire the ability to attend specialized seminars, conferences, master's degrees, etc. in the field of valuation and economics. The course provides the student with necessary guidance and suggestions to enable him/her to deal with other topics related to those in the program.

**Communication skills:** The student has to be able to illustrate the work produced highlighting the results achieved, using the terms proper to the discipline. The student's expository skill has to be such as to communicate, even to non-experts in the subject, the procedure adopted and the possible alternatives in a clear and concise way.

**Applying knowledge and understanding**

**Ability to apply knowledge and understanding:**The student is expected to demonstrate knowledge and understanding of the procedures for assessing construction costs at the various design levels, and of the various expenditures that contribute to production costs. The student has to be able to synthesize the data collected into information useful for financial and socio-economic analysis of the project, as well as develop outcome and performance indicators for a multicriteria evaluation of impacts.

**Autonomy of judgment:** The student has to be able to independently assess the market dynamics behind project choices so as to propose new solutions that are more financially and socio-economically convenient. The student has also to be able to understand the logical links between objectives, project and results, including through the choice of performance and outcome indicators.

## COURSE CONTENT/SYLLABUS

Section one (2 CFU): Cost estimation. Work scheduling (parametric costs). Design of works (time schedule and economic framework). Technical and economic feasibility design (summary costing, standardized costs). Final and executive design (estimated metric calculation and price analysis). Section Two (2 CFU): Evaluation of design alternatives. Financial analysis and cost-benefit analysis (Net Present Value; Internal Rate of Return; sensitivity analysis and risk analysis). Multidimensional evaluations (multicriteria and multigroup). Examples of evaluation for architectural design.

## READINGS/BIBLIOGRAPHY

Book and teaching materials posted on the teacher's webpage.

## TEACHING METHODS OF THE COURSE (OR MODULE)

The course will be implemented in: a) face-to-face lectures for about 50%of the total hours; b) laboratory for the development of the design work by students for 50% of the total hours.

## EXAMINATION/EVALUATION CRITERIA

**b) Evaluation pattern**

The exam consists of the discussion of the design work. The final mark will be weighted on the CFU of each course and thus composed as follows: Urban architectural design (8CFU), Urban planning (4CFU), Executive design (4CFU), Technologies for Construction (2CFU), Technologies for Construction Environmental Control (6CFU), Environmental Economics and Evaluation (4CFU).

# COURSE DESCRIPTION
# TECHNIQUE OF ENVIRONMENTAL CONTROL

# SSD: FISICA TECNICA AMBIENTALE (ING-IND/11)

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

## COURSE DESCRIPTION

TEACHER: DE ROSSI FILIPPO
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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 11096 - TECNICA DEL CONTROLLO AMBIENTALE
CHANNEL: 03 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 6

### REQUIRED PRELIMINARY COURSES

Environmental Technical Physics

### PREREQUISITES

The student must know and understand the energy relationships and physical laws that describe the heat exchange mechanisms between the confined environment, the envelope, and the outdoor environment, and must be able to evaluate the thermophysical properties of the opaque and transparent building envelope. It must know how to size simple components of the building envelope to contain heat loss and control solar radiation. It must also know how to carry out quantitative assessments relating to the main control parameters of the environments.

### LEARNING GOALS

The course Technique of Environmental Control is integrated into the Final Design Studio which deals with a multiplicity of aspects that allows students to develop a proposal for the transformation of the existing by deepening the various levels of complexity of the project in its

entirety.
The course aims at providing advanced theoretical and applicative tools to evaluate and design the building-plant systems and their integration into the urban context.
Students will know the theoretical and applicative tools to evaluate and design buildings and outdoor spaces in view of the essential needs of energy efficiency and environmental comfort, taking into account the EU Directives with reference to the need to reduce climate-change emissions and above all in harmony with objectives 7 (Ensure everyone has access to energy sources, in an economic, reliable, sustainable and modern way) and 11 (Make cities and human settlements inclusive, safe, resilient and sustainable), proposed by the ONU for sustainable development (SDG - Sustainable Development Goals).
The course introduces materials and technologies for thermal and energy-efficient building envelopes, for new buildings, and for the refurbishment of existing ones. In addition, the design criteria for technological systems are introduced, with reference to heating, ventilation, and air conditioning systems (HVAC) and systems from renewable energy sources.
Students will participate in the development of methods aimed at satisfying energy needs, through the management and use of available sources and networks, with particular attention to renewable energy sources.
Students will interact in an interdisciplinary and participatory way in the various stages of drafting project proposals, both with reference to existing buildings and new architectures.

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The student must demonstrate knowledge and understanding of criticalities and thermal and energy interactions relating to the building envelope, technological systems, and renewable energy sources in buildings, taking into account energy optimization and environmental comfort. The student must also identify possible design solutions that guarantee maximum sustainability and integration with the architecture, by interacting actively and consciously with other specialists in the sector.

**Applying knowledge and understanding**

The student should know how to identify and propose solutions, at different scales, to satisfy the energy needs of the buildings and the quality conditions of the indoor environment, depending on the possible and intended uses. These objectives will be pursued by focusing attention on the rational use of energy, in the design phase of the building-plant system, taking into account the regulations in force, the reduction of environmental impact and climate-change emissions, and the contextual peculiarities relating to locally available resources, preferably renewable.

## COURSE CONTENT/SYLLABUS

**A. General information on the energy efficiency of the Building-Plants-Renewable Sources System (0.5 ECTS).** General overview of the reference context. Current legislation, the building envelope, and its thermophysical properties, systems for microclimatic control, and systems from renewable sources.

**B. Thermal comfort and air quality (0.5 ECTS).** Definition of the thermal comfort of the occupants. Identification of descriptors and indices of the occupant well-being. Local discomfort factors. Measurement of environmental parameters. Adaptive comfort.

**C. Thermophysics of the building envelope and outline of the relevant legislation (0.5 ECTS).** The building envelope, both transparent and opaque, and its thermophysical properties. Outline of the relevant legislation (Legislative Decree 192/2005 and 311/2006 and Presidential Decree 59/2009, Law 90/2013, Ministerial Decree 26/06/2015).

**D. Components and Technologies for the opaque building envelope (0.5 ECTS).** Energy efficiency interventions, feasible for new buildings and/or for existing buildings, aimed at improving the thermal behavior, in winter and/or summer, of the building envelope including: products and systems for thermal insulation, thermal plasters insulators, special blocks (thermoblocks), nanotechnological paints and finishes.

**E. Components and Strategies for the transparent building envelope (0.5 ECTS).** Traditional technologies for the transparent envelope: windows, frames, bins, solar screens.

**F. Opaque and transparent envelope in bioclimatic buildings (0.5 ECTS).** Bioclimatic technologies for the opaque envelope (vented facades, ventilated roofs, green roofs, Trombe-Michel walls) and for the transparent envelope (double-skin facades, solar greenhouses, curtain walls, the exploitation of the greenhouse effect).

**G. The calculation of Humid Air properties and the Psychrometric Diagram (0.5 ECTS).** Definitions of the humid air properties. Thermodynamic properties: dry bulb, wet bulb, adiabatic and dew saturation temperatures. Specific enthalpy. Specific volume. Specific humidity. Relative humidity. Hygrometric degree. Psychrometric chart. The transformations of humid air: simple heating and cooling, cooling with dehumidification, adiabatic mixing, liquid water, and steam humidification.

**H. The calculation of the heating and cooling loads of the buildings (0.5 ECTS).** Definition and calculation of summer and winter thermal loads. The winter thermal load and the calculation of the thermal power dispersed through the surfaces of the envelope, due to external air infiltrations, through thermal bridges. The summer heat load and the calculation of the incoming thermal power through the surfaces of the building envelope, due to lighting devices and electrical devices, and due to the infiltration of outdoor air and people.

**I. Air conditioning systems (0.5 ECTS).** Air conditioning systems for civil use. Regulatory references on energy efficiency from European Directives to National ones. The design conditions for the sizing of an air conditioning system. Types of air conditioning systems. Full-air systems. Mixed air to water systems. The water systems. The refrigerant systems.

**J. The air handling units (0.5 ECTS).** The components of an air handling unit (fans, filter sections, mixing chamber, control dampers, air preheating coil, air cooling and dehumidification coil, humidifiers and droplet separator, post-heating coil). The terminals of the air systems.

**K. The generation of energy (0.5 ECTS).** Direct energy generators (gas stoves, electric stoves, fireplaces, split-systems) and generators with intermediate fluid (water, air, HFC, refrigerant fluids). The fuel generators, the reversible heat pumps, the thermo-refrigeration unit, the chimneys, and flue pipes. Advantages and disadvantages of power generation systems.

**L. Renewable sources in the construction sector (0.5 ECTS).** The reference regulatory framework on renewable sources in the construction sector: the legislative overview, obligations, and incentives. Heat Pumps/Chillers and the partial "renewability" of energy. The conversion of thermal and cooling energy from solar sources. The production of domestic hot water from a solar source. Solar heating and solar cooling. The production of electricity from solar sources. The production of electricity from the wind. The production of thermal energy by low enthalpy geothermic. Reversible heat pump and ground coupling: borehole. The sizing of a photovoltaic system and a micro-wind system. The dimensioning of a field of vertical borehole.

## READINGS/BIBLIOGRAPHY

The professor will provide students with the necessary teaching material in the form of notes, handouts, tables, and diagrams.
Book for further information on humid air, air and mixed air conditioning systems, and heat exchange through the envelope: L. Bellia, P. Mazzei, F. Minichiello, D. Palma: ARIA UMIDA - Climatizzazione ed involucro edilizio. Liguori Editore.
Further reference texts:
- Gli impianti nell'architettura. Giuliano Dall'Ò, Edizioni UTET, Collana Architettura, 2000.
- Fabrizio Ascione, Energy conservation and renewable technologies for buildings to face the impact of the climate change and minimize the use of cooling, Solar Energy, Volume 154, 2017, pp. 34-100.

## TEACHING METHODS OF THE COURSE (OR MODULE)

The professor will carry out:
- frontal lessons for about 75% of the course, including numerical exercises.
- laboratory activities for about 25% of the course.

## EXAMINATION/EVALUATION CRITERIA

**a) Exam type**

- [ ] Written
- [x] Oral
- [x] Project discussion
- [ ] Other

**In case of a written exam, questions refer to**

- [ ] Multiple choice answers
- [ ] Open answers
- [ ] Numerical exercises

**b) Evaluation pattern**

The final grade will be weighted on the credits (ECTS) of each course and module: Architectural and Urban Design (8 ECTS), Executive Architectural Design (4 ECTS), Urban Planning (4 ECTS), Economics and Environmental Assessment (4 ECTS), Environmental Control (6 ECTS),

Construction Technique (2 ECTS).

# COURSE DESCRIPTION
# TECHNIQUE OF ENVIRONMENTAL CONTROL

# SSD: FISICA TECNICA AMBIENTALE (ING-IND/11)

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

## COURSE DESCRIPTION

TEACHER: MASTELLONE MARGHERITA
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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 11096 - TECNICA DEL CONTROLLO AMBIENTALE
CHANNEL: 04 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 6

### REQUIRED PRELIMINARY COURSES

Environmental Technical Physics

### PREREQUISITES

The student must know and understand the energy relationships and physical laws that describe the heat exchange mechanisms between the confined environment, the envelope, and the outdoor environment, and must be able to evaluate the thermophysical properties of the opaque and transparent building envelope. It must know how to size simple components of the building envelope to contain heat loss and control solar radiation. It must also know how to carry out quantitative assessments relating to the main control parameters of the environments.

### LEARNING GOALS

The course Technique of Environmental Control is integrated into the Final Design Studio which deals with a multiplicity of aspects that allows students to develop a proposal for the transformation of the existing by deepening the various levels of complexity of the project in its

entirety.
The course aims at providing advanced theoretical and applicative tools to evaluate and design the building-plant systems and their integration into the urban context.
Students will know the theoretical and applicative tools to evaluate and design buildings and outdoor spaces in view of the essential needs of energy efficiency and environmental comfort, taking into account the EU Directives with reference to the need to reduce climate-change emissions and above all in harmony with objectives 7 (Ensure everyone has access to energy sources, in an economic, reliable, sustainable and modern way) and 11 (Make cities and human settlements inclusive, safe, resilient and sustainable), proposed by the ONU for sustainable development (SDG - Sustainable Development Goals).
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Students will participate in the development of methods aimed at satisfying energy needs, through the management and use of available sources and networks, with particular attention to renewable energy sources.
Students will interact in an interdisciplinary and participatory way in the various stages of drafting project proposals, both with reference to existing buildings and new architectures.

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The student must demonstrate knowledge and understanding of criticalities and thermal and energy interactions relating to the building envelope, technological systems, and renewable energy sources in buildings, taking into account energy optimization and environmental comfort. The student must also identify possible design solutions that guarantee maximum sustainability and integration with the architecture, by interacting actively and consciously with other specialists in the sector.

**Applying knowledge and understanding**

The student should know how to identify and propose solutions, at different scales, to satisfy the energy needs of the buildings and the quality conditions of the indoor environment, depending on the possible and intended uses. These objectives will be pursued by focusing attention on the rational use of energy, in the design phase of the building-plant system, taking into account the regulations in force, the reduction of environmental impact and climate-change emissions, and the contextual peculiarities relating to locally available resources, preferably renewable.

## COURSE CONTENT/SYLLABUS

**A. General information on the energy efficiency of the Building-Plants-Renewable Sources System (0.5 ECTS).** General overview of the reference context. Current legislation, the building envelope, and its thermophysical properties, systems for microclimatic control and systems from renewable sources.

**B. Thermal comfort and air quality (0.5 ECTS).** Definition of the thermal comfort of the occupants. Identification of descriptors and indices of the occupant well-being. Local discomfort factors. Measurement of environmental parameters. Adaptive comfort.

**C. Thermophysics of the building envelope and outline of the relevant legislation (0.5 ECTS).** The building envelope, both transparent and opaque, and its thermophysical properties. Outline of the relevant legislation (Legislative Decree 192/2005 and 311/2006 and Presidential Decree 59/2009, Law 90/2013, Ministerial Decree 26/06/2015).

**D. Components and Technologies for the opaque building envelope (0.5 ECTS).** Energy efficiency interventions, feasible for new buildings and/or for existing buildings, aimed at improving the thermal behavior, in winter and/or summer, of the building envelope including: products and systems for thermal insulation, thermal plasters insulators, special blocks (thermoblocks), nanotechnological paints and finishes.

**E. Components and Strategies for the transparent building envelope (0.5 ECTS).** Traditional technologies for the transparent envelope: windows, frames, bins, solar screens.

**F. Opaque and transparent envelope in bioclimatic buildings (0.5 ECTS).** Bioclimatic technologies for the opaque envelope (vented facades, ventilated roofs, green roofs, Trombe-Michel walls) and for the transparent envelope (double-skin facades, solar greenhouses, curtain walls, the exploitation of the greenhouse effect).

**G. The calculation of Humid Air properties and the Psychrometric Diagram (0.5 ECTS).** Definitions of the humid air properties. Thermodynamic properties: dry bulb, wet bulb, adiabatic and dew saturation temperatures. Specific enthalpy. Specific volume. Specific humidity. Relative humidity. Hygrometric degree. Psychrometric chart. The transformations of humid air: simple heating and cooling, cooling with dehumidification, adiabatic mixing, liquid water, and steam humidification.

**H. The calculation of the heating and cooling loads of the buildings (0.5 ECTS).** Definition and calculation of summer and winter thermal loads. The winter thermal load and the calculation of the thermal power dispersed through the surfaces of the envelope, due to external air infiltrations, through thermal bridges. The summer heat load and the calculation of the incoming thermal power through the surfaces of the building envelope, due to lighting devices and electrical devices, and due to the infiltration of outdoor air and people.

**I. Air conditioning systems (0.5 ECTS).** Air conditioning systems for civil use. Regulatory references on energy efficiency from European Directives to National ones. The design conditions for the sizing of an air conditioning system. Types of air conditioning systems. Full-air systems. Mixed air to water systems. The water systems. The refrigerant systems.

**J. The air handling units (0.5 ECTS).** The components of an air handling unit (fans, filter sections, mixing chamber, control dampers, air preheating coil, air cooling and dehumidification coil, humidifiers and droplet separator, post-heating coil). The terminals of the air systems.

**K. The generation of energy (0.5 ECTS).** Direct energy generators (gas stoves, electric stoves, fireplaces, split-systems) and generators with intermediate fluid (water, air, HFC, refrigerant fluids). The fuel generators, the reversible heat pumps, the thermo-refrigeration unit, the chimneys, and flue pipes. Advantages and disadvantages of power generation systems.

**L. Renewable sources in the construction sector (0.5 ECTS).** The reference regulatory framework on renewable sources in the construction sector: the legislative overview, obligations, and incentives. Heat Pumps/Chillers and the partial "renewability" of energy. The conversion of thermal and cooling energy from solar sources. The production of domestic hot water from a solar source. Solar heating and solar cooling. The production of electricity from solar sources. The production of electricity from the wind. The production of thermal energy by low enthalpy geothermic. Reversible heat pump and ground coupling: borehole. The sizing of a photovoltaic system and a micro-wind system. The dimensioning of a field of vertical borehole.

## READINGS/BIBLIOGRAPHY

The professor will provide students with the necessary teaching material in the form of notes, handouts, tables, and diagrams.
Book for further information on humid air, air and mixed air conditioning systems, and heat exchange through the envelope: L. Bellia, P. Mazzei, F. Minichiello, D. Palma: ARIA UMIDA - Climatizzazione ed involucro edilizio. Liguori Editore.
Further reference texts:
- Gli impianti nell'architettura. Giuliano Dall'Ò, Edizioni UTET, Collana Architettura, 2000.
- Fabrizio Ascione, Energy conservation and renewable technologies for buildings to face the impact of the climate change and minimize the use of cooling, Solar Energy, Volume 154, 2017, pp. 34-100.

## TEACHING METHODS OF THE COURSE (OR MODULE)

The professor will carry out:
- frontal lessons for about 75% of the course, including numerical exercises.
- laboratory activities for about 25% of the course.

## EXAMINATION/EVALUATION CRITERIA

**a) Exam type**

- [ ] Written
- [x] Oral
- [x] Project discussion
- [ ] Other

**In case of a written exam, questions refer to**

- [ ] Multiple choice answers
- [ ] Open answers
- [ ] Numerical exercises

**b) Evaluation pattern**

The final grade will be weighted on the credits (ECTS) of each course and module: Architectural and Urban Design (8 ECTS), Executive Architectural Design (4 ECTS), Urban Planning (4 ECTS), Economics and Environmental Assessment (4 ECTS), Environmental Control (6 ECTS),

Construction Technique (2 ECTS).

# COURSE DESCRIPTION
# TECHNIQUE OF CONSTRUCTIONS (UNIT)

# SSD: TECNICA DELLE COSTRUZIONI (ICAR/09)

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

## COURSE DESCRIPTION

TEACHER: D'ANIELLO MARIO
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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 27221 - TECNICA DELLE COSTRUZIONI
CHANNEL: 01 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 2

### REQUIRED PRELIMINARY COURSES

The following disciplines are strongly recommended: Structural mechanics and Structural Design

### PREREQUISITES

Good knowledge of Structural Mechanics and Strucutral Design

### LEARNING GOALS

The course aims to provide students with the basic knowledge to proceed with the definition of the structural system, sizing and verification of the main structural components of the projects they will develop.

### EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

Knowledge of the conception, design and verification of structures.

**Applying knowledge and understanding**

Application of the acquired knowledge to the exam project

## COURSE CONTENT/SYLLABUS

- materials (reinforced concrete, steel, timber, masonry)
- structural types and constraints
- structural conception
- verification criteria and methods in accordance with Italian and European standards,
- basis of seismic design

## READINGS/BIBLIOGRAPHY

slides

NTC2018

Eurocode 0,1,2, 3, 4, 5, 6, 8

## TEACHING METHODS OF THE COURSE (OR MODULE)

Frontal lectures, seminars, tutoring

## EXAMINATION/EVALUATION CRITERIA

**b) Evaluation pattern**

The exam evaluation will be based on the knowledge acquired by the student through the discussion of the project

# COURSE DESCRIPTION
# TECHNIQUE OF CONSTRUCTIONS (UNIT)

# SSD: TECNICA DELLE COSTRUZIONI (ICAR/09)

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

## COURSE DESCRIPTION

TEACHER: TARTAGLIA ROBERTO
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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 27221 - TECNICA DELLE COSTRUZIONI
CHANNEL: 02 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 2

### REQUIRED PRELIMINARY COURSES

The following exams are strongly recommended:
- Structural mechanics (Scienza delle Costruzioni);
- Structural Analysis and Design (Technica delle costruzioni).

### PREREQUISITES

Good knowledge of the following disciplines:
- Structural mechanics;
- Structural Analysis and Design

### LEARNING GOALS

The course aims to provide students with the basic knowledge to proceed with the definition of the structural system, dimensioning and verification of the main structural components of the projects that they will develop within the Laboratorio di Sintesi Finale course.

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

Knowledge of the conception, design and verification of structures

**Applying knowledge and understanding**

Application of the knowledge acquired in the pratical design application

## COURSE CONTENT/SYLLABUS

- materials (reinforced concrete, steel, wood, masonry);
- structural typologies and constraints;
- structural conception;
- verification criterias and methods in accordance with Italian and European standards;
- basic concepts of seismic design.

## READINGS/BIBLIOGRAPHY

Slides provided by the teacher

Codes:

NTC2018

Eurocode 0,1,2, 3, 4, 5, 6, 8

## TEACHING METHODS OF THE COURSE (OR MODULE)

Lectures, seminars, tutoring

## EXAMINATION/EVALUATION CRITERIA

**b) Evaluation pattern**

# COURSE DESCRIPTION
# TECHNIQUE OF CONSTRUCTIONS (UNIT)

# SSD: TECNICA DELLE COSTRUZIONI (ICAR/09)

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

## COURSE DESCRIPTION

TEACHER: CASCINI LUCREZIA
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## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 07142 - LABORATORIO DI SINTESI FINALE
MODULE: 27221 - TECNICA DELLE COSTRUZIONI
CHANNEL: 04 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 2

### REQUIRED PRELIMINARY COURSES

Laboratorio di Composizione Architettonica e Urbana 4, Progettazione dei sistemi costruttivi, Laboratorio di Urbanistica, Scienza delle costruzioni, Fisica Tecnica Ambientale.

### PREREQUISITES

Competences acquired in the Theory of Structure (Scienza delle Costruzioni) and Structural Design Lab. (Laboratorio di Tecnica delle Costruzioni) Courses. An attendance rate of 75% at the Structural Design Lab. Course is required for the final exam.

### LEARNING GOALS

The "Laboratorio di Sintesi finale" course (herein Final Synthesis Workshop) consists of the following courses: Architectural and Urban Design, Urban Planning, Structural design, Environmental Control Technique, Executive Design, Economics and Environmental Assessment. The multiplicity of the aspects involved allows students to develop a proposal for the transformation of the existing context, deepening the various levels of complexity of the project.

The Final Synthesis Workshop aims to: - increase the students' design skills through work based on a critical-interpretative approach to places and a methodological-experimental approach to design strategies; - provide methods and tools to tackle the architectural project by controlling the process of definition and development from the urban to the detailed scale.
The main goal of the **Structural Design module** (Tecnica delle Costruzioni in Italian) is to properly conceive the structures of the buildings under development in the overall project. To this end, the students shall identify the optimal structural solutions in terms of materials, structural typology, floor systems and vertical structures. A special focus will be devoted to the design criteria in seismic zones, according to the current codes, and to the principles of sustainability applied to structural design. By the end of the course, students are expected to better understand the relationships between the architectural design and structural design and properly defend the adopted design solutions at the final examination.

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The students need to show ability to know and understand problems related to the selection of the most suitable structural systems for each architecture. They need to elaborate arguments related to relationships between structure and architecture and recognize the implications of a design choice on the structural safety and serviceability. Students shall be able to independently consult the structural codes and identify the basic requirements of the structural design process

**Applying knowledge and understanding**

The course delivers ability and tools needed to analyze the peculiarities of different structural systems and select the most appropriate one for the ongoing architectural project. Students shall be able to prepare technical drawings and reports to completely describe the structural system (plan, sections, schemes, construction details etc.)

## COURSE CONTENT/SYLLABUS

- The structural design process: from the conceptual design to the pre-dimensioning stage;
- Sustainability principles applied to structures: lyfe cycle structural desing;
- Structural codes;
- Seismic design basic criteria;
- Ordinary and long-span;
- Thumb rules in strucutural enigneering;
- Structural drawing and reporting.

## READINGS/BIBLIOGRAPHY

1) Schodek, Daniel L, Dario Coronelli, and Luca Martinelli. Strutture. 4.th ed. Bologna: Patron, 2004. (in italian, english version: Schodek, Daniel L.; Bechthold, Martin. Structures. Pearson (2013))
2) Norme Tecniche per le Costruzioni, DM 17 gennaio 2018 (in italian)

## TEACHING METHODS OF THE COURSE (OR MODULE)

The course is held over one semester. Teaching methods involve frontal lectures, to deliver the content of the Syllabus, and group class activities, aimed at preparing the final project work.
During the first part of the course, the students will analyse the structural codes, with the aim to identify the basic structural safety requirements of interest and will cooperatively work to identify the general criteria of their structural project. In this context, students will be asked to carry out a bibliographic research to select a few number of case studies with similar features of the building being designed. A critical analysis of the structural system of the case studies is expected.
Collective discussion concerning the case studies will be carried out during the lessons and a final presentation, given by each group, will be planned during the course.
In the second part of the course, students will identify the structural system to be used in their group project and will develop all the drawings required to properly describe the design choices.
Students will also prepare a shot report, summarising the main findings of bibliographic research carried out in the first part of the course, explaining the structural safety requirements identified for the development of the project, the choices made to identify the proposed structural system and a technical description of the structures conceived.

## EXAMINATION/EVALUATION CRITERIA

**a) Exam type**

- [ ] Written
- [x] Oral
- [x] Project discussion
- [ ] Other

**In case of a written exam, questions refer to**

- [ ] Multiple choice answers
- [ ] Open answers
- [ ] Numerical exercises

**b) Evaluation pattern**

*The final mark will be weighted on CFU of each module. The structural design module accounts for 2 CFU.*

# COURSE DESCRIPTION
# TOWN PLANNING LEGISLATION

# SSD: DIRITTO AMMINISTRATIVO (IUS/10)

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

## COURSE DESCRIPTION

TEACHER: MARI GIUSEPPINA
PHONE: 081-2538914
EMAIL: giuseppina.mari@unina.it

## GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: NOT APPLICABLE
MODULE: NOT APPLICABLE
CHANNEL: A-Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 6

### REQUIRED PRELIMINARY COURSES

There are no required preliminary courses.

### PREREQUISITES

There are no prerequisites.

### LEARNING GOALS

The course aims to provide basic knowledge on the regulatory and administrative system in the area of territorial governance and to increase the student's comprehension skill of the main intervention tools.

### EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The course aims to provide students:

- with the basic knowledge of the main institutes of urban planning and building activity, of the legislation on cultural heritage and of jurisprudence

- with the ability to address and solve legal issues related to practical cases
- with the technical language of the discipline.

**Applying knowledge and understanding**

The student must demonstrate that he is able to know and apply the rules on territorial governance and to express the knowledge acquired with argumentative consistency and systematic rigor.

## COURSE CONTENT/SYLLABUS

The course, after a general introductory part on the law sources and on the division of legislative and administrative competences, is divided into the following parts:
- legislative and administrative competences in the field “governo del territorio” (land-use planning and building activity)
- property and eminent domain procedure, urban planning constraints
- the national and regional laws on territorial planning: the different levels of territorial and urban planning (approval procedures, contents and reciprocal relationships), urban planning by projects and new urban regeneration tools
- environmental protection (Strategic Environmental Assessment; Environmental Impact Assessment; Basin Plans)
- the rules on landscape protection (legal notion of landscape and tools for protection and enhancement)
- the rules on cultural heritage (legal notion, protection and enhancement tools relevant to territorial development)
- protected natural areas (legal notion and protection tools), Natura 2000 network
- public works design and public procurement
- basic knowledge of administrative procedure (l. no. 241/1990)
- regulation of building activity: building certificates, building permit, “SCIA” and “CILA”; sanctions for building abuses

## READINGS/BIBLIOGRAPHY

M.R. Spasiano, M. Calabrò, G. Mari, F. Gambardella, P. Tanda, A.G. Pietrosanti, *Fondamenti di diritto per l’architettura e l’ingegneria civile*, Editoriale scientifica, 2020.
Furthermore, lecture slides will be provided online.

## TEACHING METHODS OF THE COURSE (OR MODULE)

The teaching is structured in lectures and in-depth studies on jurisprudencial cases.

## 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 exam consists of a written test with multiple-choice and open-ended questions on theoretical arguments. The written test is supplemented by an oral interview on the written test.