



COURSE DESCRIPTION ARCHITECTURAL AND URBAN DESIGN

SSD: COMPOSIZIONE ARCHITETTONICA E URBANA (ICAR/14)

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 20076 - LABORATORIO DI PROGETTAZIONE ARCHITETTONICA 3
MODULE: 15587 - PROGETTAZIONE ARCHITETTONICA E URBANA
TEACHING LANGUAGE: ITALIANO
CHANNEL: 01 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

REQUIRED PRELIMINARY COURSES

Architectural Design Workshop 2

PREREQUISITES

There are no prerequisites.

LEARNING GOALS

The objective of the third-year design workshop is to introduce students to the theories of urban design combined with cost-related issues.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student addresses the compositional issues (distributive, typological, morphological and linguistic) that underlie the architectural project and its various thematic articulations. The course is developed through theoretical lectures, seminars, on-site visits and laboratory activities that direct

the student to understand the relationships between architecture and the other disciplines that contribute to the shaping of the architectural project with regard to aspects of architectural and urban design evaluation.

Applying knowledge and understanding

The student develops the ability to theoretically and methodologically organise design activity and to create projects with different degrees of complexity in relation to the different scales of architectural design. The student also develops the ability to apply economic and evaluative knowledge to the design activity, in its various articulations, confronting the different degrees of complexity and the different fields of application of architectural design and urban design.

COURSE CONTENT/SYLLABUS

The main goal of the course is to orient students to the understanding and controlling a system of closed and open spaces that will contribute to design a building for residences and spaces intended for sociality and sharing; it will be located in one of the "unresolved" areas of the urban texture in the city of Naples. Students will acquire a critical method useful for questioning, choosing and constructing design themes based on the character of architecture, i.e. its ability to build space around man, relating that same space to its purpose: its ability to be inhabited. Critical practice will search for the most appropriate solution starting from an in-depth investigation of the theme, which by encountering the rules of architecture will lead the project to define its form. In this process, method and critical spirit - the two key words of "modernity" - destabilise each other, again and again aiming at the task at hand. The different scales of the proposed theme will offer the didactic opportunity to delve into the design down to the small scale in order to measure its congruence with the whole of the choices made. The issues of drawing, as of any other form of representation and modelling of space, will be addressed by defining a communication strategy that overcomes the gap between graphic abstraction and the real physical configuration of architecture. The didactic activity will be organised in exercises (each concluded by a collegial assessment) that will cover the main moments identifiable in the design process and among which the number of CFUs of the final exam will be divided:

- context analysis and identification of the design theme through the study of section hypotheses; (1 CFU)
- first morphological type choices; (1 CFU)
- thematisation of the theme: the ordering paths and components, the rules, the exceptions, the moments of singularity, i.e. marking the character that each theme can express; (1 CFU)
- verifications: critical/design exercises on functional, constructive, compositional and estimative aspects; (1 CFU)
- recomposition of the project idea due to the maturation of the project activated through the verifications and drafting of the examination papers. (4 CFU)

The project activity will be carried out in the classroom according to the timetable scheduled for each exercise, in order to complete the year's theme by the end of the course. The majority of the course hours will be devoted to laboratory work, the activities of which will be supported by theoretical lectures given by the course's reference professor and by external professionals and

lecturers.

READINGS/BIBLIOGRAPHY

In addition to a handbook such as USIS-CNR or Neufert and an illustrated book on the history of architecture, here are some brief bibliographical indications. Further specific readings will be indicated by the needs and developments of the course, however, it will be the responsibility of each student to learn how to build their own personal library as their operational interests and cultural input grows.

1. A. Campo Baeza, *Light is much more*, disponibile in:
https://oa.upm.es/38937/1/INVE_MEM_2014_215223.pdf
2. A. Loos, *Parole nel Vuoto*, Adelphi, Milano 1992.
3. A. Rossi, *Introduzione a E-L. Boullée*, *Architettura. Saggio sull'arte*, Einaudi, Torino 2005.
4. Le Corbusier, *Verso un'architettura*, Longanesi, Milano 2003.
5. L. I. Kahn, *Architettura è*, M. Bonaiti (ed.), Electa, Milano 2002.

TEACHING METHODS OF THE COURSE (OR MODULE)

The didactic activity will be organised in exercises (each concluded by a collective verification) that will concern the main moments identifiable in the design process:

- analysis of the context and identification of the programme;
- first morphological type choices;
- the ordering paths and components, rules, exceptions, moments of singularity.
- verifications: critical/design exercises on the functional, constructive and compositional aspects and the recomposition of the design idea for the examination.

The design activity will be carried out in the classroom in accordance with the timetable scheduled for each exercise, in order to complete the year's theme by the end of the course. The majority of the course hours will be dedicated to the workshop, whose activities will be supported by theoretical lectures given by the course's reference professor and external professionals and professors.

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 take into account not only the quality of the project and its graphic rendering, but also the student's growth path with respect to the products rendered for each exercise, his or her ability to acquire a critical method useful for working on design issues and the skills acquired in the use of construction principles as the main tools for the composition of space. The evaluation will take into account, together with the results of the design experimentation, the skills and knowledge acquired thanks to the disciplinary contributions deriving from the Integrative Module of Quantity Surveying. The examination will take the form of an exhibition of the course projects. In addition to the professor and tutors, external professors and professionals will be involved in the final critique of the project experiments. During the examination, the students will present the work carried out by means of graphs, models and digital models useful for describing the choices that guided the design process and the result achieved. The didactic activity will be organised in exercise-tests (each concluded by a collegial assessment) that will cover the main moments identifiable in the design process and between which the number of CFUs of the final examination will be divided:

- Context analysis and identification of the design theme through the study of section hypotheses; Time location: beginning of the course (1 CFU)
- First morphological type choices; (1 CFU) Temporal collocation: beginning of the course (1 CFU)
- Theme thematisation: the ordering paths and components, rules, exceptions, moments of singularity, i.e. marking the character that each theme can express; Timing: mid-course (1 CFU)
- Tests: critical/design exercises on functional, constructive, compositional and estimative aspects; Time allocation: mid-course (1 CFU)
- Recomposition of the project idea due to the maturation of the project activated through the verifications and drafting of the examination papers; Time allocation: end of course (4 CFU)



COURSE DESCRIPTION ARCHITECTURAL AND URBAN DESIGN

SSD: COMPOSIZIONE ARCHITETTONICA E URBANA (ICAR/14)

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 20076 - LABORATORIO DI PROGETTAZIONE ARCHITETTONICA 3
MODULE: 15587 - PROGETTAZIONE ARCHITETTONICA E URBANA
TEACHING LANGUAGE: ITALIANO
CHANNEL: 02 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

REQUIRED PRELIMINARY COURSES

Architectural Design Workshop 2

PREREQUISITES

Not required.

LEARNING GOALS

Architectural Design Studio 3 Course aims to provide students with the cultural and technical tools to deal with an architectural project, also through the contribution of the Estimation and cost appraisal Course, which is integrating part of Architecture Design Studio teaching. The main expected result is the acquisition by the student of a critical and in-depth ability to interpret the architectural project design process. At the end of the Course, students are supposed to: - know cultural and technical materials and the essential tools (also in relation to the contents of the Estimation and cost appraisal Course) to deal with the complexity of contemporary architectural

transformation project; - demonstrate that they are aware of the close relationship that links the architectural and urban design issues and requests from the community; - be aware of the need to consider all the social, economic, political, environmental aspects of the architectural design process, which are leading elements to guide design development of cities and territories; - demonstrate critical skills in the interpretation of the design question and in developing of an appropriate project answer that can explain the relationships between architectural and urban space, through the compositional, distributive and constructive articulation at different scales; - to use tools and techniques in order to organize documents of different types and at different scales, from the urban to the technological detail one (two-dimensional and three-dimensional drawings, diagrams, collages, models, etc.); - be aware that the different levels of complexity of the degree course constitute an knowledge and skills progress in relation to the previous course of study.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student addresses the compositional issues (distributive, typological, morphological and linguistic) that underlie the architectural project and its various thematic articulations. The course is developed through theoretical lectures, seminars, on-site visits and laboratory activities that direct the student to understand the relationships between architecture and the other disciplines that contribute to the shaping of the architectural project with regard to aspects of architectural and urban design evaluation.

Applying knowledge and understanding

The student develops the ability to theoretically and methodologically organise design activity and to create projects with different degrees of complexity in relation to the different scales of architectural design. The student also develops the ability to apply economic and evaluative knowledge to the design activity, in its various articulations, confronting the different degrees of complexity and the different fields of application of architectural design and urban design.

COURSE CONTENT/SYLLABUS

The Architectural Design Studio course aims to address the complexities of architectural design as a tool for knowledge and refinement of technical and construction skills, promoting a dialogue between historical stratification, modernist poetics and the contributions of contemporary research on the language of architecture. The complex articulation of the urban layout of Naples, which has always represented an opportunity of great cultural interest for the architectural project, is the main theme of the course, which, in particular, will be explained through the design of an urban complex that will provide, from a functional point of view, both residences and other functions of a public nature. The area of intervention will be determined following the overtaking and reading of urban conditions that determine the need for new plants. The project proposal will be determined by actions that precede and condition the formal result, namely the correct interpretation of the aims of the project, the analysis of the specificities of the area and the context and the dialogue between modernist language and identity of the place. Architecture interprets social, historical and cultural dynamics and, through the project, returns a subjective and synthetic vision of the city,

then determining, through the act of construction, an action full of great civil responsibility. Consolidating this awareness and contributing to the maturation of the disciplinary tools that students already possess are goals that the project to be developed during the course aims to achieve.

READINGS/BIBLIOGRAPHY

G. Foti, C. Pagliaro, D. Peruzzo, L. Semerani, Progetto eloquente, Marsilio editori, Venezia, 1981, K. Frampton, Storia dell'architettura moderna, Zanichelli, quarta edizione, 2008;
B. Zevi, Saper vedere l'architettura. Saggio sull'interpretazione spaziale dell'architettura, Einaudi, ed. 2009.
S. Holl, Urbanism. Working with doubt, Princeton Architectural Press, 2009
C. Diener, J. Herzog, M. Meili, P. de Meuron, M. Herz, C. Schmid, M. Topalovic, The Inevitable Specificity of Cities. ETH Studio Basel, 2015

TEACHING METHODS OF THE COURSE (OR MODULE)

In addition to the design activity to be carried out in the classroom, the hours of the laboratory will be administered in such a way as to guarantee an adequate number of lessons that will address critical and theoretical issues. Among these, a first group will deal with the reading of the study area and the project needs; the second will retrace the analysis of the elements of architectural and urban composition; finally, the third group of lessons, parallel to the second, will have as its purpose the critical analysis of works related to the different declinations of modern poetics in the project of contemporary architecture, assumed as possible references for the project of the Architecture Design Studio Course. In fact, during the theoretical and design process, constant attention will always be paid to similar themes but differently declined for historical and geographical conditions.

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 evaluation will be weighted on the credits of the Architectural Design Studio module corresponding to 8 credits and of the Estimation and Cost Appraisal module corresponding to 4 credits.



COURSE DESCRIPTION ESTIMATE

SSD: ESTIMO (ICAR/22)

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 20076 - LABORATORIO DI PROGETTAZIONE ARCHITETTONICA 3
MODULE: 04650 - ESTIMO
TEACHING LANGUAGE: ITALIANO
CHANNEL: 01 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

REQUIRED PRELIMINARY COURSES

Architectural design studio 2.

PREREQUISITES

There are no prerequisites.

LEARNING GOALS

The objective of the third-year architectural design studio is to introduce the student to urban design theories and to combine the proposed design themes with cost-related aspects.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

Through theoretical lectures, seminars, site visits and laboratory activities, the student is acquainted with the compositional issues (distributive, typological, morphological and linguistic) that underlie the architectural design and its various thematic articulations, and he/she

understands its relationships with the other disciplines that contribute to the formation of the architectural project, in particular with regards to the evaluation aspects of the architectural and urban design.

Applying knowledge and understanding

The student develops the ability to theoretically and methodologically structure the design activity and to produce design work confronting the different degrees of complexity of the architectural project at different scales. The student also develops the ability to apply economic and evaluative knowledge to the design activity, in its different articulations, confronting the different degrees of complexity and the different fields of application of architectural and urban design.

COURSE CONTENT/SYLLABUS

1. *Estimation and valuation (1 CFU)*: The principles of estimation theory. Economic aspects of assets. Use value, market value, cost value, complementary value, transformation value, subrogation value. Sustainable development and valuations. Total Economic Value and Complex Social Value.
2. *Elements of microeconomics and financial mathematics (1 CFU)*: Production cost theory, market models, consumer and producer surplus, company equilibrium, financial mathematics.
3. *Appraisal Procedures (2 CFU)*: Analytical procedures for estimating the market value of a properties, agricultural lands, and building areas. Synthetic and intermediate procedures for estimating the market value of a property. Analytical, synthetic and intermediate procedures for estimating the cost value of building, urban and infrastructure interventions. International valuation standards.

READINGS/BIBLIOGRAPHY

Lecturer's teaching materials posted on the teacher's webpage.

TEACHING METHODS OF THE COURSE (OR MODULE)

Lectures and exercises. Laboratory design activities.

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 outcome of the written test is not binding for the purpose of the admission the oral exam; the number of answers will not be evaluated but their general correctness.

The final grade will be weighted on the CFUs of each teaching and thus composed as follows:

Architectural Design Module 8CFU 66%, Estimation and Appraisal Module 4CFU 33%.



COURSE DESCRIPTION TECHNIQUE OF CONSTRUCTIONS

SSD: TECNICA DELLE COSTRUZIONI (ICAR/09)

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: NOT APPLICABLE
MODULE: NOT APPLICABLE
TEACHING LANGUAGE: ITALIANO
CHANNEL: 01 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 6

REQUIRED PRELIMINARY COURSES

Theory of structures

PREREQUISITES

None

LEARNING GOALS

Attainment of operative tools for verification and design of structural elements.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

On the basis of face-to-face lectures and classroom exercises, the student will get knowledge of the issues related to conceptual design and verification of structures within the elaboration of the architectural project in the various fields of its application. The student will also understand the relationships with the other disciplines that contribute to the development of the architectural

project.

Applying knowledge and understanding

The student will develop the ability to apply theoretical and methodological knowledge related to the structural aspects of the architectural project

COURSE CONTENT/SYLLABUS

The course programme is organized as follows:

- Design approach and verification methods of structural systems;
- The geometric model, the mechanical and the load model;
- Measurement methods of structural safety: random variables, characteristic values of material strength and loads;
- The semi-probabilistic limit state method;
- Actions on structures and load combinations;
- Steel structures: structural types, material properties and constitutive models;

Verification of tensile, bending and shear strength of steel elements

Stability of compressed members;

Verifications for combined resultant forces;

Connections and joints;

Displacement verification at service limit state;

- Software tools for the structural analysis of beam systems;
- Reinforced concrete structures: structural types, materials properties and constitutive models;

Verification of axial strength;

Verification of flexural strength with and without axial forces;

Shear strength mechanisms;

Verification of normal stresses at service limit state;

- Seismic actions;
- Fundamentals and tools for safety assessment of existing masonry structures.

READINGS/BIBLIOGRAPHY

- Bernuzzi, C. Proporzionamento di strutture di acciaio. Hoepli, 2018
- Ballio, G., Mazzolani F., Bernuzzi, C., Landolfo, R. Strutture di acciaio. Teoria e progetto. Hoepli, 2020
- Cosenza, E., Manfredi, G., Pecce, M. Strutture in Cemento Armato, Hoepli, 2019
- Mezzina, M. (a cura di) Fondamenti di Tecnica delle Costruzioni. CittàStudi, 2021

TEACHING METHODS OF THE COURSE (OR MODULE)

Face-to-face lectures and exercises.

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



COURSE DESCRIPTION RESTORATION

SSD: RESTAURO (ICAR/19)

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

TEACHER: POLLONE STEFANIA
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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: NOT APPLICABLE
MODULE: NOT APPLICABLE
TEACHING LANGUAGE: ITALIANO
CHANNEL: 02 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 6

REQUIRED PRELIMINARY COURSES

None

PREREQUISITES

None

LEARNING GOALS

The course provides the acquisition of specific criteria and methodologies of the conservation project concerning, firstly, the knowledge of the fundamentals of the history and theories of restoration; secondly, the comprehension of materials and traditional construction techniques of historic buildings; finally, the diagnosis of instability and decay and the consolidation project. It also allows to build the awareness about the relationships between the restoration project and the framework of the protection legislation and public works.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

Through lectures, seminars and inspections, the student knows the issues related to the restoration of architecture in the theoretical and methodological aspects, understanding the relationships with other disciplines that contribute to the definition of the restoration project. In particular, the training course aims to transfer the knowledge and the basic methodological and technical tools necessary to analyze and understand the evolution of the theories and practices of architectural and urban restoration in relation to the contemporary disciplinary debate, as well as critically interpret material characteristics, vulnerabilities and main forms of damage of the historical built heritage. These tools, accompanied by examples and an in-depth study of specific cases over the centuries, will allow the student to understand the specificities of each stratified factory in its process, to be interpreted as a synthesis of a historical sedimentation of transformative/conservative interventions, implemented with different degrees of awareness of the cultural values it conveys and due to the progressive evolution of sensitivity towards the built heritage.

Applying knowledge and understanding

The student develops the ability to theoretically and methodologically structure the design activity aimed at the restoration of buildings. In particular, the students must show:

- to be able to understand the origin of the fabric and its evolution, relating to the time and distinguishing the transformation interventions, restoration and conservation in relation to the degree of awareness of the different epochs.
- To be able to understand the palimpsest and the historical values of the layers of a fabric, highlighting the different tracks and relating them to the historical context that produced them, in order to transmit them to the further generations.
- To recognize the specificities of the historical construction site together with the most recurring problems of instability and decay that affect the historical built heritage.

COURSE CONTENT/SYLLABUS

Articulation:

I. CONTEMPORARY ISSUES IN CONSERVATION OF ARCHITECTURAL HERITAGE AND LANDSCAPE

- The term "restoration" in all its different forms.
- The meaning of "monument" as a "document". The 'cultural goods' and their protection.
- Architectural restoration, urban restoration and landscape restoration.
- Methodological issues and restoration activity: compatibility, reversibility, distinguishing and minimal intervention.
- Architectural restoration and new design: recent experiences in Italy and Europe.

II. HISTORICAL EVOLUTION AND THEORETICAL CONTRIBUTIONS TO RESTORATION

- History of architecture and restoration.

- Interventions on existing architecture before 19th century: "restoration" between Antiquity and Renaissance.
- Interventions on existing architecture before 19th century: restoration issues during the Baroque Age.
- The birth of "restoration" modern sense. Issues of archeological restoration between 18th and 19th centuries in Paestum, the Vesuvian area and Rome.
- The birth of the "stylistic restoration". The contribution of the French intellectuals. Eugène Emmanuel Viollet-le-Duc: writings and restoration yards.
- The English restoration culture. John Ruskin, William Morris and the Society for Protection of Ancient Buildings (SPAB).
- Restoration and architectural debate in Italy in the mid 19th century. Camillo Boito and the dialectic between conservation and restoration.
- The protagonists of the "historical restoration" in Italy.
- Gustavo Giovannoni: thoughts and principles of architectural restoration. The "Athens Charter" of 1931 and the "Carta italiana del restauro" of 1932.
- Restoration works in Naples between the two World Wars: the contribution of Gino Chierici.
- Destructions and reconstructions in Italy and Europe after the World War II: the debate between conservation and innovation.
- The "critical restoration" in the contribution by Roberto Pane. The "Venice Charter" of 1964.
- Restoration and "value judgment" : the considerations of Cesare Brandi.

III. HISTORICAL ARCHITECTURE AND BUILDING TECHNIQUES. KNOWLEDGE AND APPROACH TO THE STRENGTHENING DESIGN

- Constructive methods and damage phenomenology.
- Overview on the diagnostic and monitoring project . The diagnosis of masonry instability.
- The role of structural strengthening in the restoration project.
- The soil and the foundation structures in built heritage: materials, construction types and foundational subsidences.
- The vertical masonries: materials and constructive types with particular reference to the Campania context. Mortars in old buildings.
- Architectural surfaces: plasters, stuccos and painting. Material, construction techniques and decay phenomena. The UNI-Nor.Ma.L 1/88 (2006 update) Recommendations
- Masonry arches and vaults: materials, constructive types and instability issues.
- Wooden ceilings and roofs. Main problems of deterioration and instability. Notes on methods of conservation.

IV. THE PROTECTION OF THE CULTURAL HERITAGE

- Restoration, recovery, protection and "integrated conservation". Theoretical and methodological evolution through the Restoration Charters.
- The European Charter of Architectural Heritage (1975) and the Amsterdam Declaration (1975).
- The meaning of "landscape" and the European Landscape Convention (2000).
- The development of guidelines in the field of protection in the last decades. The Cultural Heritage and Landscape Code" (D.L. 42/2004).

READINGS/BIBLIOGRAPHY

References:

I. CONTEMPORARY ISSUES IN CONSERVATION OF ARCHITECTURAL HERITAGE AND LANDSCAPE

J. Jokilehto, *A History of Architectural Conservation*, Butterworth-Heinemann, Oxford 1999, pp. 295-318 ("Area Architettura" Library).

G. Carbonara, *An Italian contribution to architectural restoration*, in «Frontiers of Architectural Research», 2012.

II. HISTORICAL EVOLUTION AND THEORETICAL CONTRIBUTIONS TO RESTORATION

J. Jokilehto, *A History of Architectural Conservation*, Butterworth-Heinemann, Oxford 1999, pp. 1-40; 42-50; 56-88; 101; 127-132; 137-157; 174-181; 184-191; 200-206; 215-237; 283-292 ("Area Architettura" Library).

V. Russo, *Architecture and Memory of Ancient Times: Renewal, Re-Use, Restoration in Seventeenth Century Neapolitan Churches*, in A. Roca de Amicis and C. Varagnoli (eds.), *Alla moderna. Old Churches and Baroque Renovations: a European Perspective*, Artemide, Roma 2015, pp. 69-93 ("Roberto Pane" Library).

S. Pollone, *Materials tested by time. Quality and durability of the restorations of the temples of Paestum from the nineteenth-century approaches to the contemporary issues of conservation*, in Proceedings of the 4th WTA International PhD Symposium (Delft, 13-16 settembre 2017), R. Van Hees, W. Quist, S. Granneman (eds.), WTA Nederland-Vlaanderen, Delft-Heverlee 2017, pp. 107-114 (academia.edu).

C. Brandi, *Theory of Restoration* (trad. Cynthia Rockwell; rev. Dorothy Bell; cur. Giuseppe Basile), Nardini, Firenze 2005.

•see also: M. Glendinning, *The conservation movement. A history of architectural preservation: antiquity to modernity*, Routledge, London-New York 2013 (<https://books.google.it>).

III. HISTORICAL ARCHITECTURE AND BUILDING TECHNIQUES. KNOWLEDGE AND APPROACH TO THE STRENGTHENING DESIGN

D. Fiorani, *Seismic issues in historical constructions and sites: the conservation aspects*, in *International Workshop on Seismic Risk. Preparedness and Mitigation of Archeological and Historical Sites*, Jerusalem 2014, pp. 1-4 (www.academia.edu).

E. Coisson and F. Ottoni, *Structural monitoring of historical construction: increasing knowledge to minimize interventions*, in L. Toniolo, M. Boriani, G. Guidi (eds.), *Built Heritage: Monitoring Conservation Management*, Springer, London 2015, pp. 83-92.

J. Leafblad, *The weathering process. Understanding the science when developing a conservation approach*, in G. Tampone (eds.), *Conservation of historic wooden structures*, Proceeding of the international conference, Firenze 2005, pp. 11-15 ("Roberto Pane" Library).

P. Touliatos, *The box framed entity and function of the structure: the importance of wood's role*, in G. Tampone (ed.), *Conservation of historic wooden structures*, Proceeding of the International Conference, Firenze 2005, pp. 52-64 ("Roberto Pane" Library).

R. Picone, *L'arte del costruire tra Restauro e Sicurezza strutturale. Complessi religiosi in aggregato nel centro storico di Napoli*, in R. Picone, V. Russo (eds.), *L'arte del costruire in Campania tra restauro e sicurezza strutturale*, Clean, Napoli 2017, pp. 23-50.

V. Russo, *Pratiche costruttive nei borghi della Campania. Questioni di metodo e percorsi di ricerca per la trasmissione al futuro di un patrimonio vulnerabile*, in R. Picone, V. Russo (eds.), *L'arte del costruire in Campania tra restauro e sicurezza strutturale*, Clean, Napoli 2017, pp. 221-236.

IV. THE PROTECTION OF THE CULTURAL HERITAGE

J. Ziesemer, M. Petzet, *International charters for conservation and restoration*, ICOMOS 2004, pp. 7-9; 13-15 ("Roberto Pane" Library).

All documents (Charters and regulations) reported in the program are easily available online.

TEACHING METHODS OF THE COURSE (OR MODULE)

The course is divided into lectures, seminars and on-site visits.

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

Through a final oral exam, the theoretical knowledge acquired by the student about the contemporary debate on the conservation and protection of architectural heritage is assessed with insights into the origin of modern restoration and the codifications of the discipline over the centuries, up to the twentieth-century formulations. Furthermore, the skills acquired are assessed in relation to the understanding of the material-construction specificities of the historical built heritage and the recognition of the main phenomena of decay and instability.



COURSE DESCRIPTION ENVIRONMENTAL TECHNICAL PHYSICS

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

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

TEACHER: MINICHIELLO FRANCESCO
PHONE: 081-2538665 - 081-7682335
EMAIL: francesco.minichiello@unina.it

GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: NOT APPLICABLE
MODULE: NOT APPLICABLE
TEACHING LANGUAGE: ITALIANO
CHANNEL: 01 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 8

REQUIRED PRELIMINARY COURSES

Istituzioni di Analisi matematica e Geometria.

PREREQUISITES

None.

LEARNING GOALS

Acquisition of knowledge and operational skills that allow the student to identify the thermal and energy aspects related to the design of the building components and the overall building, to illustrate the connected problems with autonomy and language properties and to propose solutions in harmony with the architectural project.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must show to know and understand the energy relationships that exist between the indoor environment, the building envelope, and the outdoor environment, with reference to the different contexts in which the aforementioned relationships can be configured. The student must show familiarity with the main physical parameters describing the conditions of indoor comfort, at the basis of thermo-technical and system design.

Applying knowledge and understanding

The student must show to be able to verify and size simple components of the building envelope, with the aim of containing heat loss and controlling solar radiation. Student must also show the ability to evaluate the possible solutions with reference to the thermal and energy behavior of the building-plant system, as well as awareness in applying calculation models, in harmony with the architectural project.

COURSE CONTENT/SYLLABUS

Topic A. Units of measurement (0.3 CFU): References on the main physical quantities (displacement, speed, acceleration, force, energy, power, pressure, density, temperature, mass and specific volume). Fundamental quantities. Systems of units of measurement. The International System. Multiples and submultiples. Conversions between units of measures. References to linear interpolation. Numerical exercises.

Topic B. Basic concepts and definitions (0.3 CFU): System and environment. Closed, open and isolated system. Thermodynamic equilibrium. Properties, thermodynamic state. Internal and external properties. Total, specific, extensive and intensive parameters. Thermodynamic state, transformations. State postulate. Pure substance, phase, simple compressible system. Equations of state. The ideal gas. Numerical exercises.

Topic C. Calculation of properties (0.4 CFU): Graphic Pressure-Temperature. Saturated steam. Undercooled liquid. Superheated steam. Determination of the phase of a substance. Internal energy and enthalpy. Calculation of properties in cases of ideal gas, incompressible liquid, solid. Specific heat. Thermal capacity. Numerical exercises.

Topic D. Mass and energy balances for closed systems (1 CFU): Thermal and mechanical energy. Balance equation. Mass balance. Energy balance. Numerical exercises.

Topic E. Mass and energy balances for open systems (1.0 CFU): Hypothesis of local equilibrium. One-dimensional motion. Steady regime. The control volume. Mass balance. Mass flow rate. Volumetric flow rate. Energy balance. Pulse energy. Thermal and mechanical power. Numerical exercises.

Topic F. Introduction to heat transfer and conduction (1.0 CFU): The mechanisms of heat exchange: conduction, convection and radiation. Heat flow. Fourier's law. Indefinite flat sheet: temperature trend, flow and thermal power, conductance and thermal resistance. Mechanisms in series and in parallel. Numerical exercises.

Topic G. Heat exchange for combined mechanisms (0.5 CFU): Examples of combined mechanisms. Calculation of the thermal power exchanged for combined mechanisms. Mean unitary conductance (radiative, convective, total). Thermal resistance of air gaps. Overall heat transfer coefficient (stationary unitary thermal transmittance). Notes on the current legal

requirements. Numerical exercises.

Topic H. Radiative heat exchange (1 CFU): Wave, speed, frequency, period and length of wave. Electromagnetic radiations and frequencies. Total and monochromatic radiative quantities: emissive power, irradiation and radiance. Absorption, reflection and transmission factors (monochromatic and total). Black body. The laws of radiative heat exchange: Planck, Stefan-Boltzmann, Wien. Total and monochromatic emissivity. Gray body. The geometric configuration factor. Energy balance in the evaluation of radiative heat exchange. Greenhouse effect. Numerical exercises.

Topic I. Humid Air (1 CFU): Definitions. thermal-hygrometric properties: dry bulb, wet bulb, adiabatic saturation and dew point temperatures. Specific enthalpy. Specific volume. Specific humidity and relative humidity. Psychrometric chart. Transformations of humid air: heating, simple cooling, cooling with dehumidification. Adiabatic humidification. Adiabatic mixing. Numerical exercises.

Topic L. Thermo-hygrometric verification of building envelopes (1 CFU): The condensation of water vapor in the walls, simplified procedure for the thermal and hygrometric analysis of building envelopes. Corrective actions for a wall that has condensation formation. Thermo-hygrometric verification of roofs. Notes on the ISO 13788 standard. Numerical exercises.

Topic M. Notes on thermal bridges and dynamic thermal parameters of the building envelope (0.5 CFU): Thermal criticalities of the building envelope (thermal bridges) and hints on dynamic behaviour of building envelope opaque components, through the thermal parameters that allow to evaluate the transient heat exchange (so-called dynamic thermal parameters of the walls, to optimize above all the thermal behavior of buildings in summer: surface mass, phase shift, attenuation, dynamic thermal transmittance).

READINGS/BIBLIOGRAPHY

- Notes, handouts, tables and diagrams made available by the teachers.
- About humid air thermo-hygrometric verification of building envelopes, the following book will be used: L. Bellia, P. Mazzei, F. Minichiello, D. Palma: Aria umida. Climatizzazione ed involucro edilizio –Ed. Liguori, 2006.

TEACHING METHODS OF THE COURSE (OR MODULE)

The teaching consists of lectures, including numerical exercises.

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 test includes exercises to be carried out and oral interview, during which the student is asked to illustrate and verify the skills and knowledge expected, through questions on the topics of the program.



COURSE DESCRIPTION ENVIRONMENTAL TECHNICAL PHYSICS

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

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

TEACHER: ASCIONE FABRIZIO
PHONE: 081-7682292
EMAIL: fabrizio.ascione@unina.it

GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: NOT APPLICABLE
MODULE: NOT APPLICABLE
TEACHING LANGUAGE: ITALIANO
CHANNEL: 02 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 8

REQUIRED PRELIMINARY COURSES

Institutions of Mathematical Analysis and Geometry (Istituzioni di Analisi Matematica e Geometria).

PREREQUISITES

None.

LEARNING GOALS

Acquisition of knowledge and operational skills that allow the student to identify the thermal and energy aspects related to the design of the building components and the overall building, to illustrate the connected problems with autonomy and language properties, and to propose solutions in harmony with the architectural project.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must show to know and understand the energy relationships that exist between the indoor environment, the building envelope, and the outdoor environment, with reference to the different contexts in which the aforementioned relationships can be configured. The student must show familiarity with the main physical parameters describing the conditions of indoor comfort, at the basis of thermo-technical and system design.

Applying knowledge and understanding

The student must show to be able to verify and size simple components of the building envelope, with the aim of limiting heat loss and controlling solar radiation. Student must also show the ability to evaluate the possible solutions with reference to the thermal and energy behavior of the building-plant system, as well as capability in applying calculation models, in harmony with the architectural project.

COURSE CONTENT/SYLLABUS

Topic A. Units of measurement (0.3 CFU): References to the main physical quantities (displacement, speed, acceleration, force, energy, power, pressure, density, temperature, mass, and specific volume). Fundamental quantities. Systems of units of measurement. The International System. Multiples and submultiples. Conversions between units of measures. References to linear interpolation. Numerical exercises.

Topic B. Basic concepts and definitions (0.3 CFU): System and environment. Closed, open, and isolated system. Thermodynamic equilibrium. Properties, thermodynamic state. Internal and external properties. Total, specific, extensive and intensive parameters. Thermodynamic state, transformations. State postulate. Pure substance, phase, simple compressible system. Equations of state. The ideal gas. Numerical exercises.

Topic C. Calculation of properties (0.4 CFU): Graphic Pressure-Temperature. Saturated steam. Undercooled liquid. Superheated steam. Determination of the phase of a substance. Internal energy and enthalpy. Calculation of properties in cases of ideal gas, incompressible liquid, solid. Specific heat. Thermal capacity. Numerical exercises.

Topic D. Mass and energy balances for closed systems (1 CFU): Thermal and mechanical energy. Balance equation. Mass balance. Energy balance. Numerical exercises.

Topic E. Mass and energy balances for open systems (1.0 CFU): Hypothesis of local equilibrium. One-dimensional motion. Steady regime. The control volume. Mass balance. Mass flow rate. Volumetric flow rate. Energy balance. Pulse energy. Thermal and mechanical power. Numerical exercises.

Topic F. Introduction to heat transfer and conduction (1.0 CFU): The mechanisms of heat exchange: conduction, convection, and radiation. Heat flow. Fourier's law. Indefinite flat sheet: temperature trend, flow and thermal power, conductance, and thermal resistance. Heat transfer mechanisms in series and in parallel. Numerical exercises.

Topic G. Heat exchange for combined mechanisms (0.5 CFU): Examples of combined heat transfer mechanisms. Calculation of the thermal power exchanged for combined mechanisms. Mean unitary conductance (radiative, convective, total). The thermal resistance of air gaps. Overall

heat transfer coefficient (stationary unitary thermal transmittance). Notes on the current legal requirements. Numerical exercises.

Topic H. Radiative heat exchange (1 CFU): Wave, speed, frequency, period, and wavelength. Electromagnetic radiations and frequencies. Total and monochromatic radiative quantities: emissive power, irradiation, and radiance. Absorption, reflection, and transmission factors (monochromatic and total). Black body. The laws of radiative heat exchange: Stefan-Boltzmann, Planck, Wien. Total and monochromatic emissivity. Gray body. The geometric configuration factor. Energy balance in the evaluation of radiative heat exchange. Greenhouse effect. Numerical exercises.

Topic I. Humid Air (1 CFU): Definitions. Thermal-hygrometric properties: dry bulb, wet bulb, adiabatic saturation, and dew point temperatures. Specific enthalpy. Specific volume. Specific humidity and relative humidity. Psychrometric chart. Transformations of humid air: heating, simple cooling, cooling with dehumidification. Adiabatic humidification. Adiabatic mixing. Numerical exercises.

Topic L. Thermo-hygrometric verification of building envelopes (1 CFU): The condensation of water vapor in the walls, simplified procedure for the thermal and hygrometric analysis of building envelopes. Corrective actions for a wall that has condensation formation. Thermo-hygrometric verification of roofs. Notes on the ISO 13788 standard. Numerical exercises.

Topic M. Notes on thermal bridges and dynamic thermal parameters of the building envelope (0.5 CFU): Thermal criticalities of the building envelope (thermal bridges) and hints at the dynamic behavior of building envelope opaque components, through the thermal parameters that allow evaluation of the transient heat exchange (i.e., the so-called dynamic thermal parameters of the walls, to optimize above all the thermal behavior of buildings in summer: surface mass, phase shift, attenuation, dynamic thermal transmittance).

READINGS/BIBLIOGRAPHY

- Notes, handouts, tables, and diagrams are provided by the teachers.
- For what concerns the humid air and the thermo-hygrometric verification of building envelopes, the following book will be used: L. Bellia, P. Mazzei, F. Minichiello, D. Palma: ARIA UMIDA - Climatizzazione ed involucro edilizio –Ed. Liguori, 2006.

TEACHING METHODS OF THE COURSE (OR MODULE)

The teaching consists of lectures, including numerical exercises.

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 test includes exercises to be carried out and oral interviews, during which the student is asked to illustrate and verify the skills and knowledge expected, through questions concerning the topics of the program.



COURSE DESCRIPTION INDUSTRIAL DRAWING

SSD: DISEGNO INDUSTRIALE (ICAR/13)

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

TEACHER: MORONE ALFONSO
PHONE: 081-2538402
EMAIL: alfonso.morone@unina.it

GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: NOT APPLICABLE
MODULE: NOT APPLICABLE
TEACHING LANGUAGE: ITALIANO
CHANNEL:
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 6

REQUIRED PRELIMINARY COURSES

No preliminary courses are required

PREREQUISITES

A basic knowledge of the main graphics and drawings software is required.

LEARNING GOALS

The course, through a specific design process, aims to provide the student with the theoretical, methodological, and operational tools for the implementation of temporary exhibitions. Students will have to consider environmental needs, easy to adapt to different contexts and contents for the realization of a temporary exhibition. The course aims to introduce students to the understanding of the role of design as a tool to enhance the identity of a place, through small temporary exhibitions that push forward new kind of empathy and interaction with the selected places or experiences.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The course aims to provide students with contents about methods, processes, techniques, and tools focused on the entire design process. Understanding will be expanded through a series of lectures on the historical evolution of design.

Applying knowledge and understanding

At the end of the whole learning process, students should be able to manage techniques to fix flat sheets of cardboard and to have acquired the right skills to transfer the storytelling of the chosen subjects in a complete graphic layout.

COURSE CONTENT/SYLLABUS

- 01 STORYTELLING - 1 week
- 02_SETTING UP SPATIAL COMPONENTS - 1 week
- 03_SPATIAL COMPOSITION- 1 weeks
- 04_FIX CARTBOARD SHEETS - 1 week
- 05_MENABO'- 1 week
- 06_ GRAPHIC COMPOSITION - 1 week
- 07 _ FINAL EXECUTIVE INTEGRATION - 1 week

READINGS/BIBLIOGRAPHY

R.De Fusco, Storia del design, Laterza, Bari, 1981
Baroni D., Il manuale del design grafico, Longanesi, Milano, 2015.
D'Ambrosio G., Grimaldi P., Lo Studio Grafico, da Gutemberg al piano di identità visiva, Edizioni 10/17, Salerno, 1995.

TEACHING METHODS OF THE COURSE (OR MODULE)

The learning path includes theoretical lectures (about 10 hours/25% of the total amount of the teaching hours) and, at the same time, a project work.

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



COURSE DESCRIPTION ARCHITECTURE OF LANDSCAPE

SSD: ARCHITETTURA DEL PAESAGGIO (ICAR/15)

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

TEACHER: GIOFFRE' VINCENZO
PHONE: 081-2532190
EMAIL: vincenzo.gioffre@unina.it

GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: NOT APPLICABLE
MODULE: NOT APPLICABLE
TEACHING LANGUAGE: ITALIANO
CHANNEL:
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 6

REQUIRED PRELIMINARY COURSES

no required preliminary courses

PREREQUISITES

no prerequisites

LEARNING GOALS

The aim of the course is to train technicians able to know and be able to apply environmental engineering techniques, park and garden construction techniques, techniques aimed at the restoration of historic parks and gardens.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student knows the issues related to the aspects of Landscape Architecture and understands the relationships with the other disciplines that contribute to its definition.

Applying knowledge and understanding

Ability to apply knowledge and understanding

The student develops the ability to address issues, including planning, relating to Landscape Architecture by addressing theoretical topics and design elaborations that are confronted with the specificities of landscape architecture in relation to the different degrees of complexity and different scales.

COURSE CONTENT/SYLLABUS

The most avant-garde landscape architecture has been transformed into a therapeutic tool, it repairs the innumerable damages present in the urban environment, abandoned places and places of indefinite use, inventing new spaces more suited to life under the banner of industrial decline.

(Michael Jakob, 2009)

Landscape Architecture is a 'young' discipline, in Italy the first courses were included in degree courses about 15 years ago to supplement the courses of 'Garden Art', a discipline that has historically always been present since the beginning of architectural studies. In the same way, the concept of landscape has recently undergone a radical reinterpretation: from a category with a prevalent aesthetic-perceptual character, it is now considered an interpretative/operational category capable of reading and intervening in the complex interrelation between social, productive and ecological characteristics of contemporary cities and territories. An essential contribution in this conceptual evolution is determined by the European Landscape Convention, a Council of Europe document of 2000, which has welcomed and synthesised the most original and innovative contributions of the international debate on the meaning of landscape in a contemporary key. The Convention defines landscape as an ever-changing entity, encompassing both places of extraordinary quality and heritage excellence and those of everyday life and even degradation. Furthermore, the Convention states that the community of inhabitants plays a central role in any process of landscape interpretation or transformation. In line with the most current theoretical and applied research in the field of Landscape Architecture on the international scene, the Course intends to propose an approach to the transformation of the contemporary human habitat centred on the renewed relationship between human activities and natural elements (animals, plants, minerals, water, wind, light, soil); in the study and interpretation of behavioural and social aspects of communities of inhabitants (also with the aid of participatory practices); in the consideration of perceptual aspects and aesthetic quality (not only of landscapes of excellence, but also and above all of everyday and degraded landscapes). Landscape Architecture is understood as an approach capable of providing some possible answers to the global crises we are experiencing in the contemporary world, from health to environmental and social crises, through a new design attitude, a new operating mode, a new sensitivity towards Nature in its multiple declinations and specificities. The teaching is divided into a series of theoretical lectures - on the etymological meaning and historical evolution of the concept of landscape - on the work of the great masters of landscape architecture of modern and

contemporary times; - on the most interesting and recent international experiences focused on the realisation of new landscapes that interpret the themes of ecological transition, urban agriculture, sustainable mobility, the valorisation of the material and immaterial heritage of communities of inhabitants, and new forms of public space. As part of the didactic experience, a design exercise will be carried out on a site that will be described and presented in the first lesson on the calendar.

READINGS/BIBLIOGRAPHY

Bibliographic references relating to the subject matter will be given in each lesson. Amongst these, some general bibliographical references are given here:

- V. Giofrè (2018) *Latent Landscape*, Letteraventidue edizioni
- Giofrè V (2019). Strategie rigenerative per paesaggi mediterranei negletti. In Archistor Extra
- Giofrè V (2020). Riciclare paesaggi: da rifiuto a risorsa. L'industria delle costruzioni,
- F. Zagari (1988), *L'architettura del giardino contemporaneo*, Mondadori
- V. Vercelloni (1990), *Atlante storico dell'idea del giardino europeo*, Jaca Book
- M. Venturi Ferriolo (2003), *Etiche del paesaggio, il progetto del mondo umano*, Editori Riuniti
- P. Grimal(2005), *L'arte dei Giardini, una breve storia*, Donzelli editore
- M. Jacob (2009), *Il paesaggio*, il Mulino
- M. Zardini (1996), *Paesaggi ibridi. Un viaggio nella città contemporanea*, Skira
- L. Kroll (1999), *Tutto è paesaggio*, Testo & immagine
- P. Donadieu (2006), *Campagne urbane. Una nuova proposta di paesaggio nella città*, Donzelli
- G. Clément (2005), *Manifesto del terzo paesaggio*, Quodlibet
- I. McHarg (2007), *Progettare con la natura*, Franco Muzzio Editore
- M. Desvigne (2009), *Intermediate natures. The landscapes of Micheal Desvigne*, Birkhäuser
- S. Marini (2010), *Nuove terre, Architetture e paesaggi dello scarto*, Quodlibet Studio
- G. Clément (2011), *Il giardino in movimento*, Quodlibet
- F. Zagari (2008), *Giardini. Manuale di progettazione*, Mancosu Editore

TEACHING METHODS OF THE COURSE (OR MODULE)

Lectures, tutorials, project activity.

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



COURSE DESCRIPTION

TECHNOLOGY OF ARCHITECTURE (FINAL SYNTHESIS STUDIO)

SSD: TECNOLOGIA DELL'ARCHITETTURA (ICAR/12)

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

TEACHER: LEONE MATTIA FEDERICO
PHONE: 081-2538726
EMAIL: mattia.leone@unina.it

GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 20028 - LABORATORIO DI SINTESI FINALE IN PROGETTAZIONE ARCHITETTONICA
MODULE: 20973 - TECNOLOGIA DELL'ARCHITETTURA (LAB SINT FIN)
TEACHING LANGUAGE: ITALIANO
CHANNEL:
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 4

REQUIRED PRELIMINARY COURSES

None

PREREQUISITES

None

LEARNING GOALS

The Final Synthesis Architectural Design Studio consists of the teachings of Architectural Design and Architectural Technology.

The Studio aims to increase students' design skills through a critical-interpretative approach to places, investigated in their social, economic and environmental dimensions, and a performance-based approach to set up the intervention strategy, providing methods and tools to control the quality of design solutions from the urban to the building scale.

In line with the objectives of the Degree Course, the Architectural Technology module aims to:

- a) understand the issues relating to the operational, procedural, construction and regulatory dimensions of the project, with particular reference to the technological, energy and environmental aspects;
- b) address and resolve issues concerning the control of design outcomes through appropriate technological solutions and related performance checks;
- c) autonomously evaluate the design choices and technological-environmental solutions;
- d) apply the methodological concepts and operational tools necessary to govern the interaction between formal, functional and technical aspects to guarantee the general quality of the work and the reduction of economic and environmental impacts along the life cycle;
- e) produce drawings, visuals/infographics and descriptive documents necessary for the development of the proposed design and for the correct and clear transmission of the project to expert and non-expert stakeholders.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The students must know and be able to understand the technological and environmental aspects of the architectural project, developing the ability to discuss the theoretical and operational advances in the field of technological and environmental design, in order to govern the project in relation to the complexity of the building process. The students will acquire the knowledge of theoretical and methodological tools necessary to analyze the interaction between formal, functional and technical aspects of the project, taking into account the relationship between project objectives and the construction of the work in anticipation of the entire life cycle.

Applying knowledge and understanding

The students must be able to apply the acquired knowledge by developing an architectural project, according to a systemic approach and in relation to the environmental and climatic context, user needs, technical procedures and the regulatory framework. The students will increase their ability to solve problems concerning the control of design outcomes through appropriate technological-constructive solutions and performance checks.

COURSE CONTENT/SYLLABUS

The course intends to provide the theoretical, methodological and operational tools to develop technical and design solutions characterized by levels of detail appropriate to the technological and environmental design of the architecture, controlled in the performance characteristics in relation to the main sector regulations, with particular reference to the themes of green building and the sustainability of the building process.

Students will develop specific skills related to the choice and control of the 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 reports.

Within the course, starting from the project theme of the Final Synthesis Studio, the students will develop a series of technological-constructive insights, integrating the architectural project with the appropriate performance specifications relating to structural elements, building envelope, plant systems and spaces open.

Specific focuses will concern the control of technological and environmental requirements, including aspects related to the sustainable management of material and energy resources, indoor and outdoor comfort, technical systems' integration, applying the Minimum Environmental Criteria for building and technical protocols for energy and environmental quality, such as the LEED and WELL certification systems

The course will be articulated through seminars, workshops and studio activities which will correspond to a series of deliverables, mainly carried out in the classroom and in teams, which will contribute to the final evaluation.

The course contents focus on the following topics:

- Environmental planning, sustainability and climate neutrality: the objectives of Agenda 2030 and the European Green Deal
- Technological design of architecture, materials and construction techniques
- Building envelope and environmental performance: sustainability, resilience and performance control (Climate resilience; Bioclimatic design and energy efficiency; Nature-Based Solutions; Acoustic design; Technical protocols and environmental criteria for project performance control)

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.
- Tucci F. (2018), *Costruire e abitare green*, Altralinea edizioni, Firenze.
- 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.
- Educational materials provided during the course

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) laboratory 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

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 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 in the final presentation (which may include tables, videos, real and virtual models) and in the discussion of the design documents of the course starting from the results of the design experiments conducted. The final assessment relating to the teaching module will contribute to the overall assessment for the Final Synthesis Studio, weighting the final grade on the basis of the credits provided for each course.



COURSE DESCRIPTION INDUSTRIAL DESIGN (UNIT)

SSD: DISEGNO INDUSTRIALE (ICAR/13)

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

TEACHER: RISPOLI ERNESTO RAMON
PHONE: 081-2532190
EMAIL: ernestoramon.rispoli@unina.it

GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: U1726 - LABORATORIO DI SINTESI FINALE IN ARCHITETTURA
DEGLI INTERNI E DISEGNO INDUSTRIALE
MODULE: 27862 - DISEGNO INDUSTRIALE (MODULO)
TEACHING LANGUAGE: ITALIANO
CHANNEL:
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 4

REQUIRED PRELIMINARY COURSES

those established in the course regulations

PREREQUISITES

The student starting the final laboratory in Interior Architecture must have knowledge of two-dimensional drawing and rendering techniques, as well as aptitude for working with material study models.

LEARNING GOALS

To train a student who is aware of the construction processes of architecture from the inside (the human body) to the outside, whether built (architectural interior) or natural (landscape).

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

At the end of the course the student will know how to dimension an interior space (domestic and non-domestic) starting from the needs (not only physical and quantitative but also emotional and psychological) of people, the form of architecture being an overall service, both material and psychological, to the human being.

Applying knowledge and understanding

At the end of the course the student will be able to understand phenomenological methodologies for approaching the project, while also paying attention to the technical-constructive aspects that are typical of the small-scale architectural design.

COURSE CONTENT/SYLLABUS

- Objects and things: material culture and symbolic investments.
- Design as a rhetorical practice. The language of objects: denotation and connotation.
- Commodity fetishism: design and aesthetisation in the age of advanced capitalism.
- Kitsch and cheap design. Non-conventional aesthetics: camp design.
- Introduction to human-centered design and human-machine interaction. Visibility and comprehensibility in design, from affordance to mental models.
- Design for social innovation, transition design, systemic design.
- Design and the myth of neutrality. Hostile design and architecture.
- Design and politics: adversarial design, technological disobedience, radical cartographies.

READINGS/BIBLIOGRAPHY

Bodei, R. (2009). *La vita delle cose*. Laterza.

Davis, J. (2020). *How Artifacts Afford. The Power and Politics of Everyday Things*. MIT Press.

DiSalvo, C. (2012). *Adversarial Design*. MIT Press.

Kuang, C., & Fabricant, R. (2019). *User Friendly: How the Hidden Rules of Design Are Changing the Way We Live, Work, and Play*. WH Allen.

Manzini, E. (2015). *Design, when Everybody Designs: An Introduction to Design for Social Innovation*. MIT Press.

Norman, D.A. (2014). *La caffettiera del masochista. Il design degli oggetti quotidiani*. Giunti editore.

Further readings will be provided by the teacher in due course.

TEACHING METHODS OF THE COURSE (OR MODULE)

The course is structured in theoretical lectures (70% of the total amount of hours) and exercises (30% of the amount of hours) aimed at the concrete application of the theoretical contents. The exercises will subsequently be gathered into a dossier.

EXAMINATION/EVALUATION CRITERIA

a) Exam type

- ☐ Written
- ☒ Oral
- ☐ Project discussion
- ☒ Other : dossier of exercises

In case of a written exam, questions refer to

- ☐ Multiple choice answers
- ☐ Open answers
- ☐ Numerical exercises

b) Evaluation pattern

The final examination of the course - an integral part of the evaluation of the Final Synthesis Workshop - will consist of an oral interview on the theoretical contents as well as on the dossier of exercises prepared by each student.



COURSE DESCRIPTION TECHNOLOGY OF ARCHITECTURE (UNIT)

SSD: TECNOLOGIA DELL'ARCHITETTURA (ICAR/12)

DEGREE PROGRAMME: SCIENZE DELL'ARCHITETTURA (N13)
ACADEMIC YEAR 2023/2024

COURSE DESCRIPTION

TEACHER: PONE SERGIO
PHONE: 081-2538727
EMAIL: sergio.pone@unina.it

GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 20033 - LABORATORIO DI SINTESI FINALE IN TECNOLOGIA DELL'ARCHITETTURA
MODULE: 27858 - TECNOLOGIA DELL'ARCHITETTURA (MODULO)
TEACHING LANGUAGE: ITALIANO
CHANNEL:
YEAR OF THE DEGREE PROGRAMME: III
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 6

REQUIRED PRELIMINARY COURSES

Studio Technological Design of Architecture

PREREQUISITES

None

LEARNING GOALS

The objective of the third year course of the Bachelor's degree in "Architecture Sciences" "Final Synthesis Laboratory" is aimed at providing the student architect, now in the last semester of the three-year student career and therefore close to graduation, the tools and methodologies to create a harmony between the many disciplines that over time has studied and faced.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The "synthesis" between the various skills of a future designer has to be formed with implementation of a complex formative experience that requires the student to combine, not only the various disciplines present in this laboratory, but also the results of the numerous previous examinations, studied and successfully completed, through the deepening of a theme of architecture.

The peculiarity of this synthesis laboratory, in addition to the presence of the aforementioned modules, is identified with the will to introduce the students to some current priorities in the field of digital fabrication and parametric design.

Applying knowledge and understanding

The Laboratory aims to broaden the knowledge and skills of students in the field of digital in architecture. In particular in the field of computational design will be used, with the support of the teaching staff, parametric design software particularly useful to manage complex shapes and to control, throughout the whole process, the design development thanks to the necessary use of the so-called "computational thinking". Then in the field of digital construction, students will be asked to deepen the main issues about digital fabrication through the study of dedicated texts; they will know the main tools to be used to design the constructive system of pavilion that will be those inspired by the paradigm of "subtractive manufacturing" such as numerical control milling machine and laser cutters. The fundamental objective of the Laboratory will be to allow students to experience the mutual influences between the building system and the architectural form in an iterative path that provides continuous references from one sector to another.

COURSE CONTENT/SYLLABUS

The project work begins with the analysis of some pavilions designed and built recently, starting with Serpentine Pavillion (2005) by Álvaro Siza and Eduardo Souto de Moura with Cecil Balmond, a true paradigm of the genre. The analysis will be filtered through the type of device to be used for construction and through the influences of the constructive system on the final shape of the architecture. In this sense the typologies adopted will be the Folded Surfaces, the Developable Surfaces, the Weaving Patterns, the Reciprocal Frames, the Polyhedral Shapes, the systems based on Cross Panels and Modular Boxes, and finally those deriving from Active Bending. Once chosen one of the possible types of reference students, divided into groups, will begin the metaphorical dialog between compositional issue and technological issue to deepen the structural typology and the constructive strategy up to the elaboration of the files to factory necessary (to guide the CNC machines - Computer Numerical Control) and nesting and labeling processes aimed at minimising production waste.

READINGS/BIBLIOGRAPHY

Pone S., Colabella S., Maker, La fabbricazione digitale per l'architettura e il design, Progedit, Bari 2017.

Tedeschi A. (2014). AAD_Algorithms-Aided Design. Le Pensur Publisher, Potenza.

Baricco A., The games, Einaudi, Torino 2018.

Anderson C., Makers. Il ritorno dei produttori. Per una nuova rivoluzione industriale, Rizzoli Etas, Milano 2013.

Carpo M., The Digital Turn in Architecture 1992-2012, AD Reader, Wiley Editions, Sussex (UK), 2012.

TEACHING METHODS OF THE COURSE (OR MODULE)

The teaching staff will hold lectures about digital design and about the evolution of digital manufacturing with particular reference to techniques and tools. It will then be developed a theme of the year that will focus on the design of a pavilion that will be conceived for the architectural part using the tools of computational design and for the constructive part using the techniques of digital fabrication.

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 evaluation will be weighted 60 percent on the results obtained in the course "Architectural Technology" and 40 percent on the outcome of the integrated course "Architectural Design."