COURSE DESCRIPTION
HISTORY OF ARCHITECTURE

SSD: STORIA DELL'ARCHITETTURA (ICAR/18)

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

COURSE DESCRIPTION

TEACHER: BUCCARO ALFREDO
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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: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

REQUIRED PRELIMINARY COURSES

NONE

PREREQUISITES

NONE

LEARNING GOALS

The course aims to provide the critical and methodological tools for the knowledge of the history of European architecture and city between the fifteenth and nineteenth centuries, with reference to the main stylistic categories and theories of architecture that have characterized the debate in Modern Europe, outlining its peculiar aspects in terms of places, works and authors. The course starts from a broad premise concerning the ancient and medieval age, useful for introducing a more in-depth discussion of linguistic and theoretical phenomena, authors and works of the Modern age with reference to the European debate from the Renaissance to Neoclassicism. The historiographic analysis will be addressed both at the architectural and urban scale, using the

bibliographic and iconographic tools available for the knowledge of the paradigmatic cases of places and testimonies of the various eras. In this sense, in concert with the Laboratory of History of Architecture I (prof. F. Capano), the Naples case will be adopted as a precious 'open book' of the history of architecture and city, offering students, through inspections and seminars, the opportunity to learn the historical and cultural events that, in this extraordinary city, characterized the relationship between architectural emergencies, building fabric and urban layout.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The teaching aims at a useful integration of historical disciplines within the course of study, analyzing the evolution of the architectural debate in different times and places in relation to the main themes, works and protagonists that animated it. The knowledge and the ability to understand history must be considered in close relationship with the themes addressed in the courses of architectural and urban design, urban planning, restoration.
The student will develop critical skills and knowledge of architectural and urban phenomena in relation to the currents and protagonists of European architecture in the Modern age. Within the course, are adopted didactic tools of a bibliographic and iconographic knowledge related to the historical reality of places, works and architects.

Applying knowledge and understanding

Students develop historical-critical skills and knowledge about the relationships between historical disciplines and architectural and urban design, and the relationships with the conservation and restoration project. So the student must demonstrate that he has acquired a satisfactory command of the methods of historiographic analysis applied to architecture and to the city. The training course is in fact aimed at fostering the ability to fully use the methodological tools of the discipline, as well as familiarizing with the linguistic and stylistic aspects of historical architecture.

COURSE CONTENT/SYLLABUS

1. Introduction. History and historiography of architecture. General concepts on ancient and medieval architecture and town planning. - Definitions of history and historiography. - The use of sources and direct interpretative analysis for the reconstruction of the evolutionary phases of architecture and urban centers in time and space. - Methodologies for the iconographic approach to the study of urban history. - Definitions of "classic" and "classicism". - The significance of Greek architecture and town planning. - The evolution of technology in the Roman city. - Space and sacredness in medieval architecture: the Romanesque and Gothic construction. 2. Renaissance and Mannerism - Diffusion of Vitruvian thought in the early Renaissance. - F. Brunelleschi’s works and L.B. Alberti’s architectural theory; G. da Sangallo in Florence and Rome. - Urban interventions in Pienza, Urbino, Ferrara. - Filarete and F. di Giorgio Martini’s activity. - Leonardo and Bramante in Milan. - Bramante's work in Rome; A. da Sangallo the Younger. - Raffaello and his pupils: the first Mannerism in B. Peruzzi and G. Romano’s works. - Michelangelo and the crisis of Renaissance values. - Architecture in Veneto: the A. Palladio’s works. - Counter-Reformation churches in Rome and Milan. - The treatises: S. Serlio and the codification of orders; the *Regola*

by J. Barozzi da Vignola; the *Quattro Libri* by Palladio. 3. Baroque, Late Baroque and Rococo - The first Baroque architecture. P. da Cortona, G.L. Bemini, F. Borromini. - Theory and works by G. Guarini. - The Rome plan by Sisto V in the D. Fontana's design. - Paris and the theme of the *place royale*. The new capital in Versailles. - The Ch. Wren's works and the plan of London. - The birth of the academies in France; the "querelle des anciennes et des modernes": F. Blondel and C. Perrault; the eastern facade of Louvre by Perrault. - Origins of Palladianism in England: I. Jones' works. - The Austrian Rococo: J.B. Fischer von Erlach and the Schönbrunn experience. - Late Baroque classicism: architecture in Rome at the beginning of the eighteenth century. - F. Juvarra and B. Vittone's works in Piedmont. - Examples of urban planning in Italy and Europe in the first half of the eighteenth century. 4. Enlightenment rationalism and neoclassicism - The theoretical debate in France. - J.G. Soufflot and the church of S.te Gènèviéve in Paris. - «Architecture parlante» and «revolutionary» architects: E.L. Boullée and C.N. Ledoux. - The role of archeology in neoclassical thought. - Neoclassicism in England: developments of Palladianism; the picturesque and the romantic garden. - Paris of Napoleon I. - Napoleonic Italy.
The course is integrated with the Laboratory of History of Architecture I (prof. F. Capano), in which the main themes concerning the evolution, history and architecture of the city of Naples will be addressed through illustrative inspections.

READINGS/BIBLIOGRAPHY

A selection of the bibliographic reference material about the various points of the program will be reported to the students during the lessons.
Recommended general bibliography: - J. Summerson,*Il linguaggio classico dell'architettura,* Torino, Einaudi, 1970. - P. Murray, *Architettura del Rinascimento,* Milano, Electa, 1978. - M. Tafuri, *L'architettura dell'Umanesimo,* Bari, Laterza. 1978. - G.C. Alisio, *Urbanistica napoletana del Settecento*, Bari, Dedalo, 1979. - C. Norberg-Schulz, *Architettura barocca*, Milano, Electa, 1979. - C. Norberg-Schulz, *Architettura tardobarocca*, Milano, Electa, 1980. - C. De Seta, *Le città nella storia d'Italia. Napoli*, Roma-Bari, Laterza, 1981. - L. Benevolo, *Storia dell'architettura del Rinascimento,* Bari, Laterza. 1984. - A. Buccaro (a cura di), *Il borgo dei Vergini. Storia e struttura di un ambito urbano,* Napoli, CUEN, 1991. - A. Buccaro, *Opere pubbliche e tipologie urbane nel Mezzogiorno preunitario*, Napoli, Electa Napoli, 1992. - R. De Fusco, *Mille anni di architettura in Europa,* Roma-Bari, Laterza, 1994. - D. Watkin, *Storia dell'architettura occidentale,* Bologna, Zanichelli, 1996. - G.C. Alisio-A. Buccaro, *Napoli millenovecento. Dai catasti del XIX secolo ad oggi: la città, il suburbio, le presenze architettoniche*, Napoli, Electa Napoli, 2000. - *Storia dell'architettura italiana. Il secondo Cinquecento*, a cura di C. Conforti e R. Tuttle, Milano, Electa, 2001. - *Storia dell'architettura italiana. Il primo Cinquecento*, a cura di A. Bruschi, Milano, Electa, 2002. - A. Buccaro-G. Matacena, *Architettura e urbanistica dell'età borbonica. Le opere dello Stato, i luoghi dell'industria*, Napoli, Electa Napoli, 2004. - A. Buccaro, *Leonardo da Vinci. Il Codice Corazza nella Biblioteca Nazionale di Napoli*, Poggio a Caiano/Napoli, CB Ediz./Ediz. Scientifiche Italiane, 2011.

TEACHING METHODS OF THE COURSE (OR MODULE)

Attendance and enrollment in the course are mandatory. The teaching will be divided into lectures, seminars, exercises and study inspections in the historical nucleus of the city of Naples, useful for

the field verification of architectural and urban phenomena throughout history. Seminars relating to research methodology in the field of historical-urban and architectural analysis will be held within the course, with reference to the recovery of documentary and cartographic sources for the study of the historic city and its buildings. In concert with the Laboratory of History of Architecture I (prof. F. Capano), some illustrative inspections will be carried out in the historic center of Naples, at the Caserta palace and in the historic center of Rome.

EXAMINATION/EVALUATION CRITERIA

a) Exam type

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

In case of a written exam, questions refer to

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

b) Evaluation pattern

VOTE IN THIRTIES

COURSE DESCRIPTION
HISTORY OF ARCHITECTURE

SSD: STORIA DELL'ARCHITETTURA (ICAR/18)

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

COURSE DESCRIPTION

TEACHER: VILLARI SERGIO
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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: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

REQUIRED PRELIMINARY COURSES

None

PREREQUISITES

None

LEARNING GOALS

The course aims to provide the critical and methodological tools for the knowledge of the history of European architecture and city between the fifteenth and nineteenth centuries, with reference to the main stylistic categories and theories of architecture that have characterized the debate in Modern Europe, outlining its peculiar aspects in terms of places, works and authors. The course starts from a broad premise concerning the ancient and medieval age, useful for introducing a more in-depth discussion of linguistic and theoretical phenomena, authors and works of the Modern age with reference to the European debate from the Renaissance to Neoclassicism. The historiographic analysis will be addressed both at the architectural and urban scale, using the

bibliographic and iconographic tools available for the knowledge of the paradigmatic cases of places and testimonies of the various eras. In this sense, in concert with the Laboratory of History of Architecture I (prof. F. Capano), the Naples case will be adopted as a precious 'open book' of the history of architecture and city, offering students, through inspections and seminars, the opportunity to learn the historical and cultural events that, in this extraordinary city, characterized the relationship between architectural emergencies, building fabric and urban layout.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The teaching aims at a useful integration of historical disciplines within the course of study, analyzing the evolution of the architectural debate in different times and places in relation to the main themes, works and protagonists that animated it. The knowledge and the ability to understand history must be considered in close relationship with the themes addressed in the courses of architectural and urban design, urban planning, restoration.
The student will develop critical skills and knowledge of architectural and urban phenomena in relation to the currents and protagonists of European architecture in the Modern age. Within the course, are adopted didactic tools of a bibliographic and iconographic knowledge related to the historical reality of places, works and architects.

Applying knowledge and understanding

Students develop historical-critical skills and knowledge about the relationships between historical disciplines and architectural and urban design, and the relationships with the conservation and restoration project. So the student must demonstrate that he has acquired a satisfactory command of the methods of historiographic analysis applied to architecture and to the city. The training course is in fact aimed at fostering the ability to fully use the methodological tools of the discipline, as well as familiarizing with the linguistic and stylistic aspects of historical architecture.

COURSE CONTENT/SYLLABUS

Some fundamental issues will be analyzed analytically through which a complex and far from undisputed idea of modernity has established itself over the centuries, especially in the relationship between the linguistic "ratio" of architecture and the semantic / structural values of the urban space. Particular attention will be paid to the Neapolitan architectural events, in its three most significant historical phases of the Aragonese kingdom (1443-1503), of the first Bourbon monarchy (1734-1799) and of the Napoleonic decade (1806-1815).

READINGS/BIBLIOGRAPHY

The most reliable bibliography consists of the notes taken by each student during the lessons. However, to make up for any discontinuity in attendance, students regularly enrolled in the course will be able to download an electronic handout from the docenti.unina/sergio.villari website containing the teaching materials (texts, anthological passages, images, videos, etc.) necessary to prepare the exam. Lastly, those wishing a more in-depth study of one or more topics can refer to the general bibliography that will be given at the beginning of the course and reproduced in the

electronic handout.

TEACHING METHODS OF THE COURSE (OR MODULE)

The course is divided into lectures and visits/inspections dedicated to the in-depth study of specific aspects of the Neapolitan architecture and urban planning. Attendance in class is mandatory, as well as the initial online registration, on the website docenti.unina.it/sergio.villari, at the opening of the course. Later registrations will be allowed only because of justified reasons, and must be discussed with the teacher at office hours or at the end of the lessons.

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
HISTORY OF ARCHITECTURE

SSD: STORIA DELL'ARCHITETTURA (ICAR/18)

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

COURSE DESCRIPTION

TEACHER: DI LIELLO SALVATORE
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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: II
PERIOD IN WHICH THE COURSE IS DELIVERED:
CFU: 8

REQUIRED PRELIMINARY COURSES

There are no required preliminary courses.

PREREQUISITES

It is advisable to refer to a textbook of Western Architectural History and a Dictionary of Architecture.

LEARNING GOALS

The course aims to train students in the basic knowledge of the History of Western Architecture in the Modern Age, analysing the linguistic meanings of historical buildings, the stratification of the built environment and the urban processes that govern their form and meaning. In the time span between the 15th and the 18th century, the course aims to provide the basic notions for the knowledge and interpretation of architecture in the different historical phases investigated, fostering the understanding of the formal and spatial significance of the works studied and nourishing a critical reflection on the meaning of the design exercise.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The course aims to provide the basic methodological tools for the knowledge of the characteristics of architecture between the 15th and 18th centuries, within the framework of the processes of formation and transformation of the built environment and landscape in relation to the political, social, economic and cultural reality of the periods investigated. The study of these topics will enable the student to describe and critically interpret the meaning of the formal characteristics of architecture and the relationships between these and the historical dimension of reference, linking works, authors and cultural geographies.

Applying knowledge and understanding

At the end of the course of study, the student will have to show knowledge of the meaning of the linguistic code of architecture in the Modern Age, controlling the critical value of the architectural project in the time span investigated and in the framework of the political, social and cultural processes of the period. They will also have to know the history of thought and theories on architecture between the 15th and 18th centuries, between Humanism and the Enlightenment, being able to connect theoretical formulation and design practice.

COURSE CONTENT/SYLLABUS

Preceded by an introduction on the outlines of the History of Greek and Roman architecture, with references to the classical architectural orders and the main exempla of the period, the programme focuses on the memory of antiquity in European architecture from the Renaissance to Neoclassicism: in the time span between the 15th and 18th centuries, the teaching illustrates the historical dimension within which architectural thought and works mature, evaluating the cultural geographies and contributions of individual authors. The construction of stylistic categories in the modern age - the Renaissance, the Baroque and Neoclassicism - will then be treated with particular attention to the historical context of each period, evaluating the outcomes of architectural theories and illustrating the works and authors of relevant interest destined to influence research in art and architecture. An in-depth study will also be devoted to the urban and architectural dimension of Naples. A crossroads of Mediterranean contaminations of ancient ancestry, the city is an extraordinary case study of how historical events and cultural systems have determined, over the centuries, an indissoluble bond between architecture, urban form and landscape in every phase of the historical sedimentation of the urban layout, from the Greek foundation to developments in the medieval, modern and contemporary ages. On this topic, particular attention will be devoted to the 16th century and the work of Giovan Battista Cavagna (Rome c. 1530 - Loreto 1613), a central figure in the updating of Neapolitan classicism in the mirror of 16th century Rome.

The programme is structured around the following topics:

PREMISE. OUTLINES OF THE HISTORY OF ARCHITECTURE FROM THE CLASSICAL WORLD TO THE MIDDLE AGES: Elements of Greek architecture between the Archaic and Hellenistic ages. The architectural orders. The lesson of Roman architecture: the sense of space.

Vitruvius: De Architectura libri decem and Vitruvianism. The 'renaissance of antiquity' between Late Antiquity and the Middle Ages. Elements of Gothic architecture.
THE ARCHITECTURE OF THE RENAISSANCE: Themes and centres of the Renaissance. Florence and the work of F. Brunelleschi. L. B. Alberti and Filarete. The ideal city: theories and praxis. Realisations in Pienza, Urbino and Ferrara. The work of D. Bramante. The building site of the reconstruction of St. Peter's Basilica. Raphael, B. Peruzzi and A. da Sangallo the Younger. Mannerism in architecture: the work of G. Romano and Michelangelo. Architecture in the age of the Counter-Reformation. Albertian ancestry in the work of Vignola. The mature Renaissance and the work of Andrea Palladio. The spread of the Renaissance in France and England.
SEMINAR ARCHITECTURE AND THE CITY IN NAPLES FROM THE ORIGINS TO THE XVI CENTURY: The origins of the city: the Greek foundation, the Roman city, developments in the Middle Ages. Urban expansion in Angevin programmes. The Aragonese city and the spread of the Renaissance. The Spanish viceregal age (1503-1707): don Pedro de Toledo's plan and the formation of extramoenia villages. 16th century architecture in Naples: a long Renaissance. The architecture of the Counter-Reformation and the Neapolitan work of G. B. Cavagna.
THE BAROQUE AGE: Themes, centres, protagonists. Rome: G. L. Bernini, F. Borromini, P. da Cortona. Turin: G. Guarini, F. Juvarra. Naples: C. Fanzago, F. Sanfelice, D. A. Vaccaro. The European Baroque: the work of J.-H. Mansart and J. B. Fischer von Erlach. The Baroque city and the theatre of Absolutism: the model of the capital city. Paris and the model of the place royale. The European fortune of the project for Versailles. C. Wren's plan for London.
CLASSICISM IN THE 18TH CENTURY: Enlightenment and architecture: the themes, centres and protagonists. Marc-Antoine Laugier and the Essai sur l'Architecture (1753). Antiquity and nature in the mirror of the Grand Tour. The Poetics of the Picturesque. Neoclassicism in France from J.-A. Gabriel to J.-G. Soufflot. The work of E.-L. Boullée and C.-N. Ledoux. The influence of Rome and the work of G. B. Piranesi. F. Milizia and the Principles of Architecture (1781). Neoclassicism in England: R. Adam, G. Dance and J. Soane.

READINGS/BIBLIOGRAPHY

D. Watkin, History of Western Architecture, Bologna, Zanichelli 2016, from which chapters related to the topics covered in the lectures will be selected.
Critical selection of writings on architecture between the 16th and 18th centuries from: L. Benevolo, Le città italiane nel Rinascimento in, Id., Storia della città, Roma-Bari, Laterza 1975. A. Bruschi, Bramante, Roma-Bari, Laterza 1985. P. Murray, Architettura del Rinascimento, Milan, Electa 1989. C. Norberg-Schulz, Architettura barocca, Milan, Electa 1978. L. Patetta, Storia dell'architettura. Antologia critica, Milan, Etas Libri 1975. G. Villetti, L'architettura paleocristiana, in Lineamenti di storia dell'architettura, Roma, Carucci 1978. R. Wittkower, Arte e Architettura in Italia: 1600-1750, Turin, Einaudi 1972.
S. Di Liello, Giovan Battista Cavagna. Un architetto pittore fra classicismo e sintetismo tridentino, Naples, Fridericiana Editrice Universitaria 2012.

TEACHING METHODS OF THE COURSE (OR MODULE)

Teacher will give ex cathedra lectures with PowerPoint presentations for approximately 80 % of the total 64 teaching hours; the remaining hours (20 %) will be devoted to study visits.

EXAMINATION/EVALUATION CRITERIA

a) Exam type

- [ ] Written
- [x] 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
APPLICATIONS OF DESCRIPTIVE GEOMETRY

SSD: DISEGNO (ICAR/17)

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

COURSE DESCRIPTION

TEACHER: PAGLIANO ALESSANDRA
PHONE: 081-2538415
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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: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 9

REQUIRED PRELIMINARY COURSES

Architectural drawing

PREREQUISITES

None

LEARNING GOALS

Descriptive Geometry is based on a theoretical and practical apparatus used for the representation, the interpretation of three-dimensional configurations and the study of those rules on which the construction of shape is based. The applications of the Descriptive Geometry Methods are fundamental for the analysis of the existing buildings and for the development and control of the architectural project Objective of the Applications of Descriptive Geometry Course is the study of scientific methods aimed at the representation, interpretation of the existing and definition of the architectural project.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

Upon completion of the course, the student should know in particular: 1. The fundamentals of Projective Geometry; 2. The methods of representation of Descriptive Geometry, namely, the method of orthogonal projections, the method of axonometric projection, the method of perspective projection, and shadow theory. 3. The geometric classification of surfaces, notable properties and methods used for generation. Upon completion of the course the student will be able to recognize the forms of architecture in their geometric peculiarities and use the most appropriate methods of representation for the purpose of adequate description of the configurations analyzed.

The student will be expected to demonstrate an understanding of the stereometric nature of space, to be able to use methods of representation critically, with scientific awareness and with graphic sensitivity, so as to highlight the fundamental characters of the spatial configurations analyzed. He/she should know the principles underlying the geometric genesis of surfaces and be able to apply them to control the creative process

Applying knowledge and understanding

The student will be expected to demonstrate an understanding of the stereometric nature of space, to be able to use methods of representation critically, with scientific awareness and with graphic sensitivity, so as to highlight the fundamental characters of the spatial configurations analyzed. He/she should know the principles underlying the geometric genesis of surfaces and be able to apply them to control the creative process

COURSE CONTENT/SYLLABUS

lesson n.1: Elements of descriptive geometry
lesson n.2: Construction and applications of homology. Exercise
lesson n.3: THE MONGE METHOD Representation of fundamental entities
lesson n.4: THE MONGE METHOD Representation of fundamental entities
lesson n.5: Graphical problems, intersections, plane reversal
lesson n.6: Conic sections
lesson n .7: Conic sections in Monge's method
lesson n.8: Conic sections in Monge's method
lesson n.9: AXONOMETRY Isometric axonometry.
lesson n.10: The cavalier axonometry sections as homological transform of Mongian projections.
lesson n.11: Curves and surfaces: Flat and oblique lines, flat and oblique curves: geometric genesis, surfaces of rotation and quadric

surfaces: configurative genesis, Ruled surfaces: undevelopable and undevelopable ruled surfaces;
lesson n.12: Geometry of complex surfaces in contemporary architecture: the example of the masters. Presentation of the theme of the year.
lesson n.13: Basics of 3D solid modeling with Rhinoceros software and tutorial: geometric principles
lesson n.14: Basics of 3D solid modeling with Rhinoceros software and tutorial: geometric principles
lesson n.15: Basics of 3D solid modeling with Rhinoceros software and exercise: geometric principles
lesson n.16: Archs and vaults: cylindrical vaults, spherical vaults, annular vaults: geometric genesis
lesson n.17: First collegiate verification in the classroom of the progress of the year's theme: presentation of the drawings by the students
lesson n.18: Perspective with a vertical picture lesson n.19: Perspective with an inclined picture
lesson n.20: Perspective with the overturning method and perspective heights
lesson n.21: Second collegial verification in the classroom of the progress of the year's theme: presentation of the papers by the students

lesson n.22: The theory of shadows, shadows in Monge's method, Shadows of flat figures and
lesson n.23: Shadows of compositions of solid figures. Self-made shadows. Shadows on the elevations and floor plans. Geometrical principles for the apparent motion of the Sun.
lesson n.24: Last collegiate verification in the classroom of the progress of the year's theme and conclusion of the course.

READINGS/BIBLIOGRAPHY

F.F.Buonfantino, A. Pagliano (2019), Disegnare un mondo migliore. Il campus universitario di Oscar Niemeyer a Costantine, Franco Angeli. A. Gesuele, A Paliano, V. Verza (2018), La geometria animata. Lezioni multimediali di Geometria descrittiva, Cafoscarina, Venezia R. Migliari (2009), Geometria descrittiva, Città studi ed. A. Pagliano (2011), Oscar Niemeyer. La geometria della forma, Franco Angeli. A. Sgrosso (1996), La rappresentazione geometrica dell'architettura, UTET, Torino.

TEACHING METHODS OF THE COURSE (OR MODULE)

a) frontal lessons for about 70% of the total hours, b) exercises to practically deepen theoretical aspects for about 20% of the hours, c) classroom checks for the remaining 10% of the hours

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

COURSE DESCRIPTION
APPLICATIONS OF DESCRIPTIVE GEOMETRY

SSD: DISEGNO (ICAR/17)

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

COURSE DESCRIPTION

TEACHER: CAPONE MARA
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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: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 9

REQUIRED PRELIMINARY COURSES

Architectural drawing

PREREQUISITES

Students have to know the basic principles of drawing and the fundamental graphic conventions.

LEARNING GOALS

Descriptive Geometry is based on a theoretical and practical apparatus used for representation, interpretation of 3D configurationsand for rules study on which form construction is based.
The aim of the Descriptive Geometry Applications Course is the study of scientific methods aimed at representation, interpretation of the existing and the definition of the architectural project.
At the end of the course the student must know:
1. The fundamentals of Projective Geometry;
2. The representation methods of Descriptive Geometry: the method of orthogonal projections, the method of axonometric projection, the method of perspective projection and the shadows theory;

3. Geometric classification of lines and surfaces, their properties and the methods used for lines and surfaces generation. At the end of the course, students will be able to recognize the forms in their geometric features and to use the representation methods in order to describe different configurations.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

Student must demonstrate that he is able to understand the stereometric nature of space, to be able to use the methods of representation with a critical spirit, with scientific awareness and with graphic sensitivity, in order to highlight the fundamental characteristics of the spatial configurations analyzed.

He will have to know the principles on which the geometric genesis of surfaces is based and be able to apply them to control the creative process

Applying knowledge and understanding

Knowledge acquired by student in the field of projective methods and geometric configuration of the architecture allows to control and to prefigure the spaces designed, and to proportion and obtain an effective and rigorous communication of the project. The same knowledge will also allow student to critically interpret existing architectures, for the purposes of surveying and representing them.

Further expected learning outcomes are:

Autonomy of judgment: Student must be able to independently choose the most appropriate representation methods for the spatial configurations analyzed or designed, he must have acquired skills in order to model shapes in space and he is be able to manage configurations as well complex.

Communication skills: Student is stimulated to elaborate with clarity and scientific rigor the communicative artifacts need to transmit the metric and geometric qualities of the spatial configurations analyzed, both in the technical field, respecting the graphic conventions, and through effective and / or plausible representations that are also comprehensible to non-experts.

Learning skills: digital modeling used for the construction of shapes in space offers student the basis for deepening areas strongly linked to applied geometry, to experiment with the use of generative algorithmic tools and to define dynamic and / or interactive representation systems.

COURSE CONTENT/SYLLABUS

1. ELEMENTS OF PROJECTIVE GEOMETRY

The fundamental geometric entities: point, line, plane. The fundamental operations: projection and section. The entities of the projective space. Projective invariants. Perspective and projectivity between lines and planes. Homology

2. DOUBLE ORTHOGONAL PROJECTIONS

The reference in 3D space and 2D plane. Representation of the fundamental geometric entities: point, line, plane. Conditions of belonging, parallelism and orthogonality. Elementary graphical problems solving. Intersections, Overturning of a projecting floor and a generic plan. measurement

problems.
3. AXONOMETRIC PROJECTIONS
Isometric orthogonal axonometry. Oblique cavalier axonometry. Military oblique axonometry
4. CENTRAL PROJECTIONS
Vertical picture plane perspective. Inclined inclined picture plane perspective. Horizontal picture plane perspective
5. GEOMETRIC GENESIS OF SURFACES
Rotating surfaces. Translation surfaces. Rototranslation surfaces. Ruled surfaces
6. ARCHES AND VAULTS
Nomenclature. Simple vaults. Composed vaults
7. 2D LINES AND 3D LINES
8. THEORY OF SHADOWS

READINGS/BIBLIOGRAPHY

Capone M., *La genesi dinamica della forma. Applicazioni di Geometria descrittiva nell'era informatica*, Fridericiana, Napoli 2010

Capone M., *Geometria per l'Architettura*, Giannini Editore, Napoli 2012

Capone M., *Corso di Geometria Descrittiva*, Corsi della Facoltà di Architettura Federica web learning, http://www.federica.unina.it/courseware/

Dell'Aquila M., *Il luogo della geometria,* Arte Tipografica, Napoli 1999

Migliari R. *Geometria Descrittiva*, Città studi edizioni, Novara 2009

Sgrosso A., *La rappresentazione geometrica dell'architettura,* Utet, Torino 1996.

Capone M., *Prospettiva e misura*, Arte Tipografica, Napoli 2005

TEACHING METHODS OF THE COURSE (OR MODULE)

The teacher will use:
a) theoretical lessons for about 60% of the total hours,
b) 30% to illustrate and carry out some of the applications of fundamental descriptive geometry
c) 10% to deepen some specific topics in relation to the chosen case studies.
Three-dimensional modeling software will be used and online teaching materials will be provided relating to specific topics chosen for the 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
APPLICATIONS OF DESCRIPTIVE GEOMETRY

SSD: DISEGNO (ICAR/17)

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

COURSE DESCRIPTION

TEACHER: PALOMBA DANIELA
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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: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 9

REQUIRED PRELIMINARY COURSES

Architectural drawing.

PREREQUISITES

Students have to know the basic principles of drawing and the fundamental graphic conventions.

LEARNING GOALS

Descriptive Geometry is based on a theoretical and practical apparatus used for representation, interpretation of 3D configurationsand for rules study on which form construction is based.
The aim of the Descriptive Geometry Applications Course is the study of scientific methods aimed at representation, interpretation of the existing and the definition of the architectural project.
At the end of the course the student must know:
1. The fundamentals of Projective Geometry.

2. The representation methods of Descriptive Geometry: the method of orthogonal projections, the method of axonometric projection, the method of perspective projection and the shadows theory.
3. Geometric classification of lines and surfaces, their properties and the methods used for lines and surfaces generation.
At the end of the course, students will be able to recognize the forms in their geometric features and to use the representation methods in order to describe different configurations.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

Knowledge and understanding Student must demonstrate that he is able to understand the stereometric nature of space, to be able to use the methods of representation with a critical spirit, with scientific awareness and with graphic sensitivity, in order to highlight the fundamental characteristics of the spatial configurations analyzed.
He will have to know the principles on which the geometric genesis of surfaces is based and be able to apply them to control the creative process.

Applying knowledge and understanding

Knowledge acquired by student in the field of projective methods and geometric configuration of the architecture allows to control and to prefigure the spaces designed, and to proportion and obtain an effective and rigorous communication of the project. The same knowledge will also allow student to critically interpret existing architectures, for the purposes of surveying and representing them.
Further expected learning outcomes are:

Autonomy of judgment:

Student must be able to independently choose the most appropriate representation methods for the spatial configurations analyzed or designed, he must have acquired skills in order to model shapes in space and he is be able to manage configurations as well complex.

Communication skills:

Student is stimulated to elaborate with clarity and scientific rigor the communicative artifacts need to transmit the metric and geometric qualities of the spatial
configurations analyzed, both in the technical field, respecting the graphic conventions, and through effective and / or plausible representations that are also comprehensible to non-experts.

Learning skills:

digital modeling used for the construction of shapes in space offers student the basis for deepening areas strongly linked to applied geometry, to experiment with the use of generative algorithmic tools and to define dynamic and / or interactive representation systems.

COURSE CONTENT/SYLLABUS

1. ELEMENTS OF PROJECTIVE GEOMETRY

The fundamental geometric entities: point, line, plane. The fundamental operations: projection and section. The entities of the projective space. Projective invariants. Perspective and projectivity between lines and planes. Homology.

2. DOUBLE ORTHOGONAL PROJECTIONS

The reference in 3D space and 2D plane. Representation of the fundamental geometric entities: point, line, plane. Conditions of belonging, parallelism and orthogonality. Elementary graphical problems solving. Intersections, Overturning of a projecting floor and a generic plan. Measurement problems. Representation and sections of prisms, pyramids and spheres. Conic sections.

3. AXONOMETRIC PROJECTIONS

Isometric orthogonal axonometry. Oblique cavalier axonometry. Military oblique axonometry.

4. CENTRAL PROJECTIONS

Vertical picture plane perspective. Inclined inclined picture plane perspective. Horizontal picture plane perspective.

5. 2D LINES AND 3D LINES

6. GEOMETRIC GENESIS OF SURFACES

Rotating surfaces. Translation surfaces. Rototranslation surfaces. Ruled surfaces.

7. ARCHES AND VAULTS

Nomenclature. Simple vaults. Composed vaults.

8. THEORY OF SHADOWS

READINGS/BIBLIOGRAPHY

Dell'Aquila M. (1999), *Il luogo della geometria,* Arte Tipografica, Napoli.

Sgrosso A. (1996), *La rappresentazione geometrica dell'architettura,* Utet, Torino.

Capone M. (2012), *Geometria per l'Architettura*, Giannini Editore, Napoli.

Capone M. (2010), *La genesi dinamica della forma. Applicazioni di Geometria descrittiva nell'era informatica*, Fridericiana, Napoli 2010.

Gesuele A., Paliano A., Verza V. (2018), *La geometria animata. Lezioni multimediali di Geometria Descrittiva*, Cafoscarina, Venezia.

Migliari R. (2009), *Geometria Descrittiva*, Città studi edizioni, Novara.

Capone M., Corso di Geometria Descrittiva, Corsi della Facoltà di Architettura Federica web learning, http://www.federica.unina.it/courseware/

TEACHING METHODS OF THE COURSE (OR MODULE)

The teacher will use:

a) theoretical lessons for about 60% of the total hours,

b) 30% to illustrate and carry out some of the applications of fundamental descriptive geometry,

c) 10% to deepen some specific topics in relation to the chosen case studies.

Three-dimensional modeling software will be used.

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 assessment will be made on the basis of the oral test and the graphics produced during the course.

COURSE DESCRIPTION
CALCULUS 2

SSD: ANALISI MATEMATICA (MAT/05)

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

COURSE DESCRIPTION

TEACHER: ANATRIELLO GIUSEPPINA
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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: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

REQUIRED PRELIMINARY COURSES

Analisi matematica I e Geometria

PREREQUISITES

Differential and integral calculus for scalar functions of one real variable. Elements of analytic geometry in the plane and in the space 3D. Algebraic structures. Basic notions of vector space with the application to linear systems.

LEARNING GOALS

Acquisition of the basic methodological tools necessary for the advanced study of applied disciplines of physical-engineering content. The objective of the teaching is to make the student acquire the language and mathematical tools suitable for the formulation of application problems and for their resolution, completing the path started with Mathematical Analysis I and Geometry. The contents concern the differential calculus of scalar and vector functions, measurement and integration, and ordinary differential equations.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must demonstrate knowledge and understanding of the fundamental elements of differential calculus for scalar and vector functions of 2 and more variables, of measurement and integration and of some classes of ordinary differential equations.

Applying knowledge and understanding

The student must demonstrate that he has acquired the basic methodological knowledge and tools necessary for the advanced study of applied disciplines of physical-engineering content.

COURSE CONTENT/SYLLABUS

Linear differential equations. Cauchy's problem. Existence and uniqueness theorem. General integral. General integral of a linear differential equation of the first order. Examples of non-linear differential equations: with separable variables, of the Bernoulli type. The regular curves. the Frenet trihedron. Notable curves. Functions of two variables. Limits and continuity. Linearization of the graph. Differentiability and partial derivatives. Directional derivatives. Compound function derivation. Plane tangent to the graph as the plane of lines tangent to curves plotted on the graph. Higher order approximations: Taylor's formula. Hessian. Relative minimums and maximums. Regular parametric surfaces. Integration. Extension of the concept of measurement. Integral extended to an interval. Integrability of continuous functions. Fundamental theorem of integral calculus. Length of a regular curve. Curvilinear integral. Curvilinear integrals on vector fields. Double integrals. Reduction formulas on particular domains. Change of variables. Area of regular surfaces and surface integral. Masses, centers of gravity, wires and sheets. Differential operators. Green's theorem, divergence theorem, rotor theorem

READINGS/BIBLIOGRAPHY

Reference text: G. Anatriello, DA EUCLIDE ALL'ANALISI DIFFERENZIALE DI CURVE E SUPERFICI, Aracne 2020.

Other material will be distributed during the course

TEACHING METHODS OF THE COURSE (OR MODULE)

Lectures (42 hours) and related exercises also with the use of specialized software (22 hours).

EXAMINATION/EVALUATION CRITERIA

a) Exam type

- [x] Written
- [x] 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 purposes of access to the oral exam and accounts for 10% of the
overall rating.

COURSE DESCRIPTION
CALCULUS 2

SSD: ANALISI MATEMATICA (MAT/05)

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

COURSE DESCRIPTION

TEACHER: CIRILLO LUCA
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EMAIL: luca.cirillo@unina.it

GENERAL INFORMATION ABOUT THE COURSE

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

REQUIRED PRELIMINARY COURSES

Mathematical Analysis I

PREREQUISITES

Numerical Sets. Sequences and limits of sequences. Functions and limits of functions. Continuity. Derivability. Graph of the main elementary functions.

LEARNING GOALS

Provide the main tools of mathematical analysis for functions of two or more variables and the basic notions of probability spaces and random variables, in order to be able to use this knowledge to interpret and describe engineering problems.
In detail:
The course intends to provide the foundations of differential and

integral calculus for functions of two or more variables, differential equations and series. In particular, students will have to develop the following operational skills: understanding of the concepts and demonstrations carried out in class and ability to solve exercises on topics related to teaching.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

Knowledge and understanding
Knowledge of the most commonly used mathematical fields in the various fields of Architecture: Differential calculus in one or more variables, Functions of complex variable, Linear Algebra and Analytical Geometry. These tools are acquired in the mathematical disciplines and their acquisition is verified in the related oral tests.

Applying knowledge and understanding

Ability to apply knowledge and understanding Ability to control mathematical calculation tools relevant for correct modeling of physical phenomena, demonstrations of mathematical theories and resolution of mathematical problems related to architectural design.
These skills are acquired in classroom exercises. The assessment of skills takes place through written and/or contextual tests and that of knowledge through oral exams.

COURSE CONTENT/SYLLABUS

DEFINED INTEGRALS

The definite integral: notations and definition, geometric interpretation. First properties. The mean theorem.

Properties of definite integrals:additivity, linearity, comparison of integrals. Integrability of continuous functions (s.d) .

INDEFINITE INTEGRALS

Fundamental Theorem of Integral Calculus. Primitives. Characterization of the primitives of a function in a

interval. Fundamental formula of integral calculus. The Indefinite Integral: Definition. Integration for sum decomposition. Integration of rational functions. Integration by parts. Integration by substitution.

FUNCTIONS OF TWO OR MORE VARIABLES

Introduction to the vector space IRxIR: sum of vectors, product of a vector by a scalar, modulus of a vector,

dot product, Cauchy-Schwarz inequality . Topology elements of IRxIR: circular neighborhood, interior points,

external, frontier; accumulation points, isolated points; open, closed sets; closure of a set,

domains, sets
bounded, connected sets. Limits and continuity. Weierstrass theorem (s.d.). Existence theorem of intermediate values
(s.d.). Partial derivatives. Subsequent derivatives. Hessian matrix. Schwarz's theorem (s.d.) . Gradient. Functions
differentiable. Tangent plane equation. Theorem on the continuity of differentiable functions. The theorem of
differential. Compound functions. The derivation theorem of compound functions (s.d.). Directional derivatives.
Directional derivative of a differentiable function. Functions with zero gradient in a connected. Maximums and minimums
related: Necessary condition of the first order, Necessary condition of the second order (n.d.). sufficient condition
of the second order.

DIFFERENTIAL EQUATIONS

Introduction to differential equations and the Cauchy problem. General properties of linear differential equations.
Representation of the general integral of a linear differential equation. Linear differential equations of the former
order . General integral of first order homogeneous linear equations. General integral of equations linear first order. Differential equations with separable variables. Cauchy problem for an equation first order linear differential. Homogeneous second order linear differential equations. dependent functions,
independent and Wronskian determinant. Sufficient condition for the independence of two functions (s.d.).
Characterization of the independence of two solutions (s.d.). General integral of homogeneous linear equations of
second order. Cauchy problem for a second order linear homogeneous differential equation. Characterization of the general integral of homogeneous second order linear equations with constant coefficients.

CURVILINEAR INTEGRALS AND DIFFERENTIAL FORMS IN THE PLANE

Plane curves. Parametric equations. Support of a curve. Simple curves. Closed curves. Regular curves. Length of
a curve: definition and formula for calculation. Equivalent Parametric Representations. Permissible changes
of parameter. Oriented Curves. Curvilinear abscissa. Curvilinear integral of a function. Properties of the integral
curvilinear of a function. Center of gravity of a curve. Linear differential forms. Curvilinear integral of a form
differential. Exact differential forms. Characterization of the primitives of a differential form in an open set
connected. Integration theorem of exact forms. Exact forms characterization theorem. Shapes

closed differentials. Relationship between exact and closed differential forms. Differential Shapes in a Rectangle. Open up
just connected. Theorem on closed differential forms in a simply connected open set of IRxIR.
DOUBLE INTEGRALS
Normal domains. Double integrals on normal domains. Integrability of continuous functions. Properties of the double integral:
linearity andadditivity. Reduction formulas for double integrals. First formula of the area of a normal domain
with respect to the x axis. Center of gravity of a domain. Positive orientation of the boundary of a regular domain. Formulas of
Gauss-Green in the plane. Normal unit vector outside the boundary of a regular domain. Divergence of a field
vector flat. Divergence theorem. Stokes formula. Theorem on differential forms in an open set just connected

READINGS/BIBLIOGRAPHY

The teaching material proposed in class will also be uploaded in the appropriate exam folder on the teacher's page

TEACHING METHODS OF THE COURSE (OR MODULE)

The Analysis 2 course for the A.Y. 2022/23 provides frontal lessons in modules of 3 hours each on Tuesdays and Thursdays from 2 to 5 pm in room S1.2 during the first semester, from 20 September to 12 December 2022. During the lessons, topics relating to the exam program will be introduced from time to time, taking care to recover the knowledge and prerequisites necessary for the consolidation of new concepts.

EXAMINATION/EVALUATION CRITERIA

a) Exam type

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

In case of a written exam, questions refer to

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

b) Evaluation pattern

The evaluation will involve aspects related to the formal and substantial correctness of both the concepts expressed and the calculations and related results proposed in the paper

COURSE DESCRIPTION
BASIC INFORMATICS

SSD: INFORMATICA (INF/01)

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

COURSE DESCRIPTION

TEACHER: DI MARTINO FERDINANDO
PHONE: 081-2538904
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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: NOT APPLICABLE
MODULE: NOT APPLICABLE
SSD OF THE MODULE: NOT APPLICABLE
CHANNEL: 01 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 3

REQUIRED PRELIMINARY COURSES

No preparatory teaching

PREREQUISITES

No prerequisites

LEARNING GOALS

The aim of the course is to provide knowledge of the basic methods and tools for designing and analyzing data and managing and analyzing large geographic data. Particular emphasis is given to the processes of management, of acquisition from inhomogeneous institutional sources, reconciliation and normalization of data in a relational database, of data query through the use of queries created in the Standard Query Language, of acquisition and conversion in a single system of coordinates of vector and raster spatial data, of the use of thematic classification methods for the realization of thematic maps and of the use of geoprocessing operators in spatial analysis processes. At the end of the course, students will have acquired the fundamental knowledge and

skills necessary for the management and analysis of data organized in relational databases and the processes necessary for the design of GIS and the development of spatial analysis processes, acquiring the aptitude for problem solving with the advanced aid of GIS as decision support tools.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student will have to acquire the basic knowledge regarding the main structuring elements of ICT, the main tools for setting up GIS and for decision support.

Applying knowledge and understanding

The student must be able to use GIS applications in the construction of projects and policies.

COURSE CONTENT/SYLLABUS

The course teachings refer to relational databases for data analysis and the use of GIS as a decision support tool. Below is the program of the course which shows the topic of each lesson and its description.

Topic: Databases: needs and characteristics. Relational databases Description: the needs for using relational databases are highlighted with typical examples; in particular, the problems arising from the improper use and management of data such as inconsistencies and duplications are analyzed. Topic: Databases: needs and characteristics. Relational databases Description: the basic concepts of relational data theory are introduced starting from the set concept of relation. Topic: The relational data model and the operators of relational algebra. Description: the concept of table as a set relationship and the concept of primary key necessary to uniquely determine the instances is introduced. Topic: The relational data model and the operators of relational algebra. Description: the concept of foreign key is introduced and one-to-one and one-to-many associations (relationships) are discussed Topic: The relational data model and the operators of relational algebra. Description: many-to-many relationships are dealt with in their breakdown into two one-to-many relationships. Creating a database in MS Access is simulated. Topic: Creating a database in MS Access. Creating tables and relationships between tables. Referential integrity constraints. Description: using the RDMS Access tool, the tables and the relationships between them are created and the referential integrity constraints are applied. Topic: Designing a Relational Database in MS ACCESS. Creation of the ISTAT census data database of the municipality of Naples. Description: the reconciliation activities of data starting from inhomogeneous sources and their acquisition in relational database tables are explored. An experiment is carried out starting from the ISTAT census data of the population and building of the municipality of Naples. Topic: Designing a Relational Database in MS ACCESS. Creation of the ISTAT census data database of the municipality of Naples. Description: the creation of the database of the ISTAT census areas is carried out in MS Access with the composition of the relationships between the tables and the acquisition as instances of the reconciled data. Topic: Querying and Analyzing Data in a Relational Database The Standard Query Language and Query Query Creation. Description: The Standard Query Language is introduced. The main data query commands are analyzed. Topic: Querying and Analyzing Data in a Relational Database The

Standard Query Language and Query Query Creation. Description: By using the MS Access Query Builder different query query types are constructed. Topic: Querying and Analyzing Data in a Relational Database Creation of query queries and analysis of ISTAT census data of the municipality of Naples. Description: the different types of query queries are prepared for the ISTAT census analysis Topic: Spatial data - vector and raster data - geographic coordinates. Description: The concept of spatial data and geo-reference is introduced. Atomic vector spatial data types (point, polyline and polygon), raster data types (satellite images, digital orthophotos, data modeled on surfaces by spatial interpolation processes) are specified, and how they are implemented is analyzed. Topic: Spatial data - vector and raster data - geographic coordinates. Description: The main geographic coordinate systems are covered: UTM WGS84 - ETR 89, Gauss Boaga, UTM ED50, Cassini-Soldner. In addition, the methods of conversion between coordinate systems and georeferencing of non-georeferenced vector and raster data are explored. Topic: Data management and spatial selections in GIS. Description: The implementations of vector and raster spatial data types in GIS and their acquisition mode in legend and map display are analyzed. Topic: Data management and spatial selections in GIS. Description: It deals with the use of tables and the creation of fields connected to the features of vectorial themes. The methods of selection of features are analyzed through the use of queries on the fields. Topic: Data management and spatial selections in GIS. Description: It deals with the use of tables and the creation of fields connected to the features of vectorial themes. The methods for selecting features are analyzed by creating queries on fields (selection by means of attributes). Topic: Data management and spatial selections in GIS. Description: It deals with the use of tables and the creation of fields connected to the features of vectorial themes. The methods of selecting features are analyzed by creating queries on the fields. The creation and use of joins and relates between tables to associate external tables with features of a vector thematism are discussed. Furthermore, the Summarize function is analyzed and tested, which allows to obtain statistical data of synthesis of fields grouped by unique values of a field. Topic: Data management and spatial selections in GIS. Description: The types of spatial selection are discussed by applying the use of spatial operators (Intersect, completely contain, within, etc.). Numerous examples of spatial selection in GIS are analyzed. Topic: Data management and spatial selections in GIS. Description: The concept of thematic classification is introduced and its use for the creation of thematic maps. Thematic classification methods for unique values of fields are analyzed. Topic: Thematic classification methods. Description: Thematic classification methods of manual, equal interval and quantile type are analyzed, highlighting for which needs and problems their use is necessary and appropriate. Topic: Thematic classification methods. Description: The thematic classification methods natural reaks and standard deviation are analyzed, highlighting the importance of their use for the study of the spatial distribution of characteristics and phenomena related to the classified themes Topic: The Geoprocessing Operators. Description: The main geoprocessing operators Dissolve, merge, union, clip and intersect are introduced and examples of the use of geoprocessing operators in the solution of spatial analysis problems are discussed. Bibliographical references: Topic: The Geoprocessing Operators. Description: The geoprocessing buffer operator is discussed and the different types of buffer analysis are analyzed with examples for the determination of risk or constraint areas and the analysis of entities subject to the presence

of such risks or constraints. Topic: Creation of a GIS of the municipality of Naples and creation of thematic maps. Description: The creation of a GIS of the municipality of Naples including basic topographical data, districts and census areas is experimented and thematic maps are created linked to census information on the population, families, foreigners, buildings and on accommodation. Topic: Creation of a GIS of the municipality of Naples: experimentation of spatial analysis processes for urban analysis. Description: Spatial analysis processes applied to the GIS of the municipality of Naples are tested for the analysis of specific urban analysis problems.

READINGS/BIBLIOGRAPHY

· Slides provided in class related to relational databases · F. Di Martino, M. Giordano, S. Sessa, RDBMS Relational Database and Architectures, Aracne Editrice, pages 152, 2006, ISBN: 88-548-0583-1 · P. Atzeni, Databases. Models and query languages, Milan, McGraw Hill Companies, pages 766, 2009, ISBN: 88-386-9445-1 · Slides provided to the students related to GIS systems · F. Di Martino, M. Giordano, Geographic Information Systems - Theory and Methods, Aracne Editrice, pages 440, 2005, ISBN: 88-548-0172-0 · Seravalli, GIS. Theories and applications, Milan, La Mandragora Editrice, pages 224, 2011, ISBN: 8875863261

TEACHING METHODS OF THE COURSE (OR MODULE)

The teacher will use: a) Frontal lessons for about 50% of the total hours; b) Exercises to practically deepen theoretical aspects for 50% of the total hours. Instrumentation used: recorded lessons, multimedia supports, specialist software, online material.

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

There are no elapsed tests during the course

COURSE DESCRIPTION
ARCHITECTURAL CONSTRUCTION STUDIO

SSD: TECNOLOGIA DELL'ARCHITETTURA (ICAR/12)

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

COURSE DESCRIPTION

TEACHER: LOSASSO MARIO ROSARIO
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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: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 8

REQUIRED PRELIMINARY COURSES

ARCHITECTURAL BUILDING

PREREQUISITES

None

LEARNING GOALS

According to the objectives of the Degree Programme and to the training matured in the previous years within the disciplinary area of ARCHITECTURAL TECHNOLOGY, the teaching aims to:
a) understand the criteria, methods and tools of technological and environmental design in the development of the project in relation to the demanding framework and the socio-cultural, technical-productive and environmental context;
b) use basic methodological tools necessary for the control, of a systemic type, of the levels of complexity of the project
c) design within a sustainable development framework and with cognitive and design approaches

aimed at
innovation, experimentation, building renovation; recovery;
d) use the main methodologies pertinent to the evolution of the culture of living and building in relation to
settlement systems;
e) produce with clarity and rigour graphic-descriptive works and documents.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must understand the criteria, methods and tools of technological and environmental design in the development of the project, as well as the problems related to design and technical-constructive choices in relation to the demanding framework, and the socio-cultural, technical-productive and environmental context. The training course aims to provide students with the basic knowledge and methodological tools necessary for the systemic control of project complexity levels.

Applying knowledge and understanding

The student must be able to design within a framework of sustainable development and with cognitive and design approaches aimed at innovation and experimentation, with reference to the emerging aspects of environmental and digital culture, as well as the culture of maintenance and redevelopment. The teaching programme intends to transmit the operational skills necessary to concretely apply the knowledge, methodologies, strategies and solutions for living through the control of the different scales and levels of the project.

COURSE CONTENT/SYLLABUS

The Design Studio programme is structured to provide appropriate knowledge, operational methodologies and technical information for a technological culture approach to design, where technology represents an intellectual resource and an enabling component to achieve experimental, testable and measurable objectives in contemporary design research.
The teaching activity will be set up taking into account the current environmental challenges - in compliance with the national and international regulatory framework - with reference to the scenarios of green economy, circular economy, technological innovation, fight against pandemic and climatic risks, efficiency of building processes and products, waste reduction, as stated in the United Nations Agenda 2030 and the European Green Deal. The programme will cover the following topics:

- Relationship between theory and practice in architecture
- Culture, environmental ethics and the socio-technical context
- Distinctive topics of technological and environmental design;
- Evolving conceptions of contemporary design;
- Climatic and pandemic environmental impacts and design adaptation solutions;
- The transition to eco-districts: new scenarios for urban and building design;

- Design experimentation in the residential field;
- Technical information and implications in architectural design;
- Technological-environmental principles and solutions in contemporary housing;
- Design of model-technological solutions for the existing residential heritage;
- Design of technological retrofit for climate adaptation and mitigation.

READINGS/BIBLIOGRAPHY

- AA. VV., *Manuale di progettazione edilizia*, vol. 4, Tecnologie, Hoepli, Milano, 1997.
- Bologna F., Losasso M., Mussinelli E., &Tucci F. (eds), *Dai distretti urbani agli eco-distretti. Metodologie di conoscenza, programmi strategici, progetti pilota per l'adattamento climatico. From Urban Districts to Eco-districts Knowledge. Methodologies, Strategic Programmes,Pilot Projects for Climate Adaptation*, Maggioli, Santarcangelo di Romagna (RN), 2020 (e-book open access consultabileal link: http://www.sitda.net/index.php/biblioteca-sitda.html).
- D'Ambrosio, V. &Leone, M. (eds), *Progettazione ambientale per l'adattamento al Climate Change.* Volume 1*. Modelli innovativi per la produzione di conoscenza (2016)* e Volume 2*. Strumenti e indirizzi per la riduzione dei rischi climatici (2017),* Clean, Napoli, 2016 (e-book open access consultabile al link: http://www.sitda.net/index.php/biblioteca-sitda.html).
- Leone, M. &Tersigni, E., *Progetto resiliente e adattamento climatico. Metodologie, soluzioni progettuali e tecnologie digitali*, CLEAN, Napoli, 2018.
- Losasso M, Lucarelli, M T., Rigillo M. &Valente R., (eds) *Adattarsi al clima che cambia. Innovare la conoscenza per il progetto ambientale / Adapting to the Changing Climate. Knowledge Innovation for Environmental Design*, Maggioli, Santarcangelo di Romagna (RN), 2021(e-book open access consultabile al link: http://www.sitda.net/index.php/biblioteca-sitda.html).
- Russo Ermolli, S. &D'Ambrosio, V. (eds)*, The Building Retrofit Challenge. Programmazione, progettazione e gestione degli interventi in Europa*, Alinea Editrice, Firenze, 2012.

Supplementary material will be provided to students during the course.

TEACHING METHODS OF THE COURSE (OR MODULE)

Teaching modules organised in: face-to-face lessons, interactive teaching, self-study modes (group exercises, workshops, conferences, webinars, online forums, lessons recorded in repository on the Teams platform).
Students are expected to produce the following exercise tasks:
1.Relationship between theory and practice in architecture and between technology and design (report).
2.Contemporary culture, environmental ethics and socio-technical context (report).
3.The "Words" of Technological and Environmental Design (PPT).
4.Construction details of a standard reinforced concrete building (design exercise).
5.Eco-districts and contemporary housing: technological and environmental topics (PPT).
6.Technical information and technological design in residential complexes (file and model solutions).
7.Renovation building: design experiment of a climate proof and post pandemic intervention for residential housing (design exercise).

The expected results relate to the ability of students - to grasp the relationships between individuals, architectural interventions and the environment; - to know and govern the technological and environmental design of the building/open space system for climate adaptation and mitigation; - to design interventions responding to up-to-date environmental, social and economic requirements frameworks according to the targets of ecological transition and climate protection.

EXAMINATION/EVALUATION CRITERIA

b) Evaluation pattern

COURSE DESCRIPTION
ARCHITECTURAL CONSTRUCTION STUDIO

SSD: TECNOLOGIA DELL'ARCHITETTURA (ICAR/12)

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

COURSE DESCRIPTION

TEACHER: RUSSO ERMOLLI SERGIO
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GENERAL INFORMATION ABOUT THE COURSE

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

REQUIRED PRELIMINARY COURSES

Costruzione delle Opere di Architettura

PREREQUISITES

None

LEARNING GOALS

In line with the objectives of the study course and with the training gained in previous years in the area of Architectural Technology, the teaching aims to: a) understanding the criteria, methods and tools of technological and environmental design in the development of the project in relation to the requirement framework, and to the socio-cultural, technical-productive and environmental context; b) using basic methodological tools necessary for the systemic control of the levels of complexity of the project; c) designing within a framework of sustainable development and with cognitive and design approaches aimed at innovation, experimentation, recovery; d) using the main methodologies relevant to the evolution of the culture of living and building in relation to settlement

systems; e) producing drawings and graphic-descriptive documents with clarity and rigor.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must understand the criteria, methods and tools of technological and environmental design in the development of the project, as well as the problems relating to design and technical-construction choices in relation to the requirement framework, and to the socio-cultural, technical-productive and environmental context. The training course aims to provide students with the knowledge and basic methodological tools necessary for the systemic control of the levels of complexity of the project.

Applying knowledge and understanding

The student must be able to design within a framework of sustainable development and with cognitive and design approaches aimed at innovation and experimentation, with reference to the emerging aspects of environmental and digital culture, as well as maintenance and recovery culture. The course is aimed at transmitting the operational skills necessary to concretely apply knowledge, methodologies, strategies and solutions for living by controlling the different scales and different levels of the project.

COURSE CONTENT/SYLLABUS

The Studio develops and introduces the themes of "constructability" and "experimentability" in the relationship between architectural form, construction techniques and materials through the exploration of the "why" and "how" the elements of construction behave, the illustration of functional models of the main construction types, the proposition, experimentation and evaluation of technical alternatives, with particular attention to the issue of energy efficiency and living comfort. The Studio is organized around a design theme, aimed at identifying specific requirements to be met and at highlighting the relationship between the different components of the project, focusing on the relationships between technique, function and form.

READINGS/BIBLIOGRAPHY

Sergio RUSSO ERMOLLI, *The Digital Culture of Architecture. Note sul cambiamento cognitivo e tecnico tra continuità e rottura,* Maggioli, Santarcangelo di Romagna, 2020
Sergio RUSSO ERMOLLI (a cura di), *The changing architect. Innovazione tecnologica e modellazione informativa per l'efficienza dei processi,* Maggioli, Santarcangelo di Romagna, 2018
Paolo CIVIERO, *Tecnologie per la riqualificazione,* Maggioli, Santarcangelo di Romagna, 2017
Cesare SPOSITO, *Sul recupero delle aree industriali dismesse. Tecnologie materiali impianti ecosostenibili e innovativi,* Maggioli, Santarcangelo di Romagna, 2012
During the course, additional didactic material free of copyright will be provided.

TEACHING METHODS OF THE COURSE (OR MODULE)

The teacher will use:
a) Frontal lessons (about 25% of the total hours);

b) seminars (about 5% of total hours);
c) laboratory activities (about 70% of the total hours).

EXAMINATION/EVALUATION CRITERIA

b) Evaluation pattern

COURSE DESCRIPTION
ARCHITECTURAL CONSTRUCTION STUDIO

SSD: TECNOLOGIA DELL'ARCHITETTURA (ICAR/12)

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

COURSE DESCRIPTION

TEACHER: PINTO MARIA RITA
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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: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 8

REQUIRED PRELIMINARY COURSES

Construction of Architectural Buildings

PREREQUISITES

There are no prerequisites

LEARNING GOALS

In coherence with the objectives of the course of study and with the training in the previous years in the field of Architectural Technology, the teaching aims to make students:
a) understand the criteria, methods and tools of technological and environmental design in the development of the project in relation to the demanding framework, and the socio-cultural, technical-productive and environmental context;
b) use basic methodological tools for the control, of a systemic type, of the project's levels of complexity;

c) design within a sustainable development framework and with cognitive and design approaches aimed at innovation, experimentation and regeneration;
d) use the main methodologies in compliance to the evolution of the culture of living and building related to settlement systems;
e) produce with clarity and rigour graphic-descriptive works and documents.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must understand the criteria, methods and tools of technological and environmental design in the development of the project, as well as the problems related to design and technical-constructive choices in relation to the demanding framework, and the socio-cultural, technical-productive and environmental context. The training course aims to provide students with the basic knowledge and methodological tools for the systemic control of project complexity levels.

Applying knowledge and understanding

The student must be able to design within a framework of sustainable development and with cognitive and design approaches aimed at innovation and experimentation, with reference to the main aspects of environmental and digital culture, as well as maintenance and redevelopment culture. The training course is oriented towards transmitting the operational skills to concretely applying knowledge, methodologies, strategies and solutions for living through the control of the different scales and levels of the project.

COURSE CONTENT/SYLLABUS

The course contents cover:
- the systemic and demand-performance methodological approach developed by Architectural Technology Design;
- the evolution of the exigential framework in the light of new demands made by the actors of the building process on settlement systems;
- the methods and tools that regulate the relationship between design, construction and management of the building;
- the illustration of Good Practices related to interventions in the built environment;
- the definition of design scenarios for the improvement of performance levels, in relation to the constraints and potential of existing buildings;
- the control of design outcomes with reference also to the management and maintenance of buildings.

READINGS/BIBLIOGRAPHY

AA.VV. (2001), Dizionario degli elementi costruttivi, UTET, Torino.
Bosia D. (a cura di) (2013), L’opera di Giuseppe Ciribini, FrancoAngeli, Milano
Lauria A. (a cura di) (2018), Piccoli Spazi Urbani. Valorizzazione degli spazi residuali e qualità sociale, Liguori Editore, Napoli.

Pinto M.R., Viola S., Onesti A., Ciampa F., Artists Residencies (2021), Challenges and Opportunities for Communities' Empowerment and Heritage Regeneration, SUSTAINABILITY n. 12, 9651; pp. 1-20, doi:10.3390/su12229651, ISSN: 2071 –1050.
Torricelli M.C., Del Nord R., Felli P. (2001), Materiali e tecnologie dell'architettura, Laterza, Bari.
Viola S., Zain U. A. (2021), Cultural and creative industries. Technological innovation for the built environment, La Scuola di Pitagora, Napoli. During the course of the lectures, references for each topic covered and in-depth bibliographical references will be provided in detail.

TEACHING METHODS OF THE COURSE (OR MODULE)

The course concerns classroom exercises and theoretical lectures, aimed at experimenting the theoretical approaches covered and developing a project that meets new performance levels, compatible with pre-existing buildings. The lecturer will use: a) exercises to experiment and apply the methods and tools of Technological Design for approximately 75% of the total hours; b) frontal lectures for approximately 20% of the total hours; c) seminars to investigate specific topics for 5%.

EXAMINATION/EVALUATION CRITERIA

a) Exam type

- ☐ Written
- ☑ Oral
- ☑ Project discussion
- ☑ Other : The examination is aimed at ascertaining the achievement of the results, through an interview on the project developed in the classroom, recalling the topics covered in the theoretical lectures. The assessment will be aimed at verifying the acquisition and experimentation, through an exercise on a case study, of methods and tools of Technological Design to guarantee the feasibility of the architectural project.

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 the presentation of the project

COURSE DESCRIPTION
ARCHITECTURAL CONSTRUCTION STUDIO

SSD: TECNOLOGIA DELL'ARCHITETTURA (ICAR/12)

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

COURSE DESCRIPTION

TEACHER: D'AMBROSIO VALERIA
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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: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER II
CFU: 8

REQUIRED PRELIMINARY COURSES

Costruzione delle Opere di Architettura

PREREQUISITES

There are no prerequisites

LEARNING GOALS

According to the objectives of the Degree Programme and to the training matured in the previous years within the disciplinary area of ARCHITECTURAL TECHNOLOGY, the teaching aims to:
a) understand the criteria, methods and tools of technological and environmental design in the development of the project in relation to the demanding framework and the socio-cultural, technical-productive and environmental context;
b) use basic methodological tools necessary for the control, of a systemic type, of the levels of complexity of the project;
c) design within a sustainable development framework and with cognitive and design approaches

aimed at innovation, experimentation, building renovation, recovery;
d) use the main methodologies pertinent to the evolution of the culture of living and building in relation to settlement systems;
e) produce with clarity and rigour graphic-descriptive works and documents.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must understand the criteria, methods and tools of technological and environmental design in the development of the project, as well as the problems related to design and technical-constructive choices in relation to the demanding framework, and the socio-cultural, technical-productive and environmental context. The training course aims to provide students with the basic knowledge and methodological tools necessary for the systemic control of project complexity levels

Applying knowledge and understanding

The student must be able to design within a framework of sustainable development and with cognitive and design approaches aimed at innovation and experimentation, with reference to the emerging aspects of environmental and digital culture, as well as the culture of maintenance and redevelopment. The teaching programme intends to transmit the operational skills necessary to concretely apply the knowledge, methodologies, strategies and solutions for living through the control of the different scales and levels of the project.

COURSE CONTENT/SYLLABUS

The Design Studio aims to develop students' skills in the selection and application of both consolidated and innovative and sustainable technologies in relation to specific objectives of quality architectural quality and control of environmental consequences on architectural design in the awareness that formal, functional and technological aspects operate in a recursive and in an integrated manner. The course will be contextualized within the current environmental challenges set by the national and international regulatory framework regarding the objectives of energy transition towards climate neutrality and the and adaptation to the effects of climate change on the built environment.
The program will focus on the following topics:
- Significant aspects of technological and environmental design
- Environmental impacts and sustainability goals for the project
- Innovation and eco-sustainability of building products
- Technical information and implications in architectural design
- Technological-environmental principles and solutions in residential construction
- Building Integrated Photovoltaic for the energy transition of buildings
- Technological retrofit design for climate adaptation and mitigation

READINGS/BIBLIOGRAPHY

- AA. VV., *Manuale di progettazione edilizia*, vol. 4, Tecnologie, Hoepli, Milano, 1997.
- Bologna F., Losasso M., Mussinelli E., &Tucci F. (Eds.), *Dai distretti urbani agli eco-distretti. Metodologie di conoscenza, programmi strategici, progetti pilota per l'adattamento climatico. From Urban Districts to Eco-districts Knowledge. Methodologies, Strategic Programmes, Pilot Projects for Climate Adaptation*, Maggioli, Santarcangelo di Romagna (RN), 2021 (ebook consultabili al link: http://www.sitda.net/index.php/biblioteca-sitda.html).
- D'Ambrosio V., Losasso M., Tersigni E., Santomartino G., *Building Integrated Photovoltaics. Linee Guida per il progetto*, Report Ricerca di Sistema Elettrico, Università di Napoli "Federico II" –Dipartimento di Architettura, Dicembre 2021.
- D'Ambrosio V., Leone M. (a cura di), *Progettazione ambientale per l'adattamento al Climate Change.* Volume 2*. Strumenti e indirizzi per la riduzione dei rischi climatici (2017),* Clean, Napoli, (ebook consultabile al link: http://www.sitda.net/index.php/biblioteca-sitda.html).
- Russo Ermolli, S., Valeria D'Ambrosio, V. (a cura di)*, The Building Retrofit Challenge. Programmazione, progettazione e gestione degli interventi in Europa*, Alinea Editrice, Firenze, 2012. --

Additional material will be provided to students during the course.

TEACHING METHODS OF THE COURSE (OR MODULE)

Teaching modules organized in: face-to-face lectures, forms of interactive didactics, self-learning methods (group exercises, workshops, conferences, webinars, online forums, lessons recorded in repository on the Teams platform).
Students are expected to produce the exercise tasks listed below:
1 - Analysis of the technological system: construction details (graphic works)
2 - Technical information and eco-sustainable building production (file/type solutions)
3 - Project experimentation. Technological retrofit of public residential units for buildings responding to the main sustainability objectives (planning exercise)
4 - Quantitative checks of the goals achieved in the design experimentation by the use of dedicated software

EXAMINATION/EVALUATION CRITERIA

a) Exam type

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

In case of a written exam, questions refer to

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

b) Evaluation pattern

COURSE DESCRIPTION
ARCHITECTURAL AND URBAN COMPOSITION STUDIO 2

SSD: COMPOSIZIONE ARCHITETTONICA E URBANA (ICAR/14)

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

COURSE DESCRIPTION

TEACHER: ORFEO CAMILLO
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EMAIL: camillo.orfeo@unina.it

GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 27196 - LABORATORIO DI COMPOSIZIONE ARCHITETTONICA E URBANA 2-ARCHITETTURA DEGLI INTERNI
MODULE: 27181 - LABORATORIO DI COMPOSIZIONE ARCHITETTONICA E URBANA 2
CHANNEL: 01 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

REQUIRED PRELIMINARY COURSES

Architectural and Urban Composition Laboratory I - Course of Theory of Architectural Design.

PREREQUISITES

Nobody

LEARNING GOALS

The 2nd year Composition Workshop aims to provide students with the cultural and technical tools specialized in architectural and urban composition to tackle a concrete transformation project also through the supplementary contribution of the Interior Architecture course. The expected result is the acquisition by the student of a critical ability to interpret the transformation demand for its transcription in architectural terms with particular attention to the architectural interior.At the end of the course, the student must:- know cultural and technical materials and tools (also in relation to the contents of the Interior Architecture module) which are the basis of the architectural project;- demonstrate that they have acquired awareness of the close relationship that binds the

identification of themes of architectural and urban transformation and the instances of internal space commensurate with the physical scale of man;- know and have acquired awareness of the compositional processes in relation to the study of examples and typologies of modern and contemporary projects;- demonstrate critical skills in the interpretation of the question and in the development of a project that explains a detailed composition, distribution and construction at different scales;- know how to use some of the programs, tools and techniques of representation in order to draw up project drawings of different types and at different scales (two-dimensional and three-dimensional drawings, schemes, diagrams, models, etc.);- be aware that the learning introduced, the topics covered and the purposes of laboratory II open to the didactic articulation of laboratory III of the following year of the course.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

Knowledge and understanding

The student must return with the use of various techniques an autonomous interpretation of the project application that takes into account the complexity of the issues addressed in the preliminary phase of the work.It must be able to identify the main themes of the project also through the study of references, projects and similar cases, and the reference to possible processes, phases and actors.The student must demonstrate the ability to develop a specific project that explains the relationships between interior space, architectural space and urban space through a detailed composition, distribution and construction at different scales. And at the same time it must demonstrate the ability to identify and explain the methodological aspects that can be extended to other cases.The training course is aimed at transmitting the operational skills necessary to synthesize the different aspects that inform the project and to foster the ability to use different techniques of representation and description of the project.

Applying knowledge and understanding

Ability to apply knowledge and understanding The student must return with the use of various techniques an autonomous interpretation of the project application that takes into account the complexity of the issues addressed in the preliminary phase of the work.You must be able to identify the main themes of the project also through the study of references, projects and similar cases, and the reference to possible processes, phases and actors.The student must demonstrate the ability to develop a specific project that explains the relationships between interior space, architectural space and urban space through a detailed composition, distribution and construction at different scales. And at the same time you must demonstrate the ability to identify and explain the methodological aspects that can be extended to other cases.The training course is aimed at transmitting the operational skills necessary to synthesize the different aspects that inform the project and to foster the ability to use different techniques of representation and description of the project.

COURSE CONTENT/SYLLABUS

Interior Architecture Module (4 CFU)During the course, the methodological problems underlying the design of the teaching spaces of the Kindergarten will be analyzed, through an approach based on modularity, mobility and the transformability of the elements of architecture and furniture that make up the basic learning unit (the Section). The project of an equipped section represents an educational opportunity to provide the student with some methodological tools for critical analysis to be able to translate the regulatory requirements and, above all, the pedagogical indications into spaces and objects that must be understood as real pedagogical tools. The approach through the use of the principles of variable structure architecture allows the student to be able to modulate and adapt the equipped system of the Section, designed in the Interior module, to the spaces determined by the design exercise developed in the Composition Laboratory module. Laboratory Module of Architectural and Urban Composition II (8 CFU)The lectures will deal with the main theoretical issues that are the basis of architectural composition, including through the analysis and description of modern and contemporary architectural projects and the study of the works of the "masters". The application phases are aimed at observing the space of the city, also with inspections, and at analyzing the forms of architecture through analytical-design exercises. The theme of the final exercise will be the project for an innovative school for children, with particular attention to internal-external, closed-open, covered-uncovered relationships. Different typological models will be tested in relation to the morphology of the soil, the landscape and the specific urban context. The representation will take place with graphics and models capable of summarizing the control of the building at different scales.

READINGS/BIBLIOGRAPHY

A. Campo Baeza, *Principia architectonica*, C. Marinotti Edizioni, Milano 2018.
C. Martí Arís, *Le variazioni dell'identità. Il tipo in architettura*, Ed. CLUP, Milano, 1990.
C. Martí Arís, *La cèntina e l'arco. Pensiero, teoria, progetto in architettura*, C. Marinotti Edizioni, Milano 2007.
L. Mies ven der Rohe, Gli scritti e le parole, Einaudi, Giulio Einaudi Editore, Torino, 2010.
A. Monestiroli, *La metopa e il triglifo*, Laterza, Roma-Bari 2002.
G. Ponti, Amate l'architettura, Rizzoli Edizioni, Milano, 1957-2004.F. Purini, *Comporre l'architettura*, Laterza, Roma-Bari 2000.
A. Rossi, *L'architettura della città*, Il Saggiatore, Milano 2018.

TEACHING METHODS OF THE COURSE (OR MODULE)

The teaching takes place through theoretical lessons with discussion of the topics covered, seminars, inspections, exercises and laboratory activities. In particular, a) lectures will be held for about 20% of the total hours, b) exercises to practically deepen theoretical aspects for 10% of the total hours c) laboratory to deepen the applied knowledge for 60% of the total hours d) seminars to deepen specific topics for 10% of the total hours. The exercises and the laboratory will be carried out in the classroom through the use of suitable tools for the preparation of the documents and models.

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

During the course there are 4 intermediate tests in which the ability to analyze the place, analysis of an architectural project, admissible variations, autonomous ability to interpret the place and the landscape through an architectural project will be assessed. Each test will have a 10% impact on the final grade.

COURSE DESCRIPTION
ARCHITECTURAL AND URBAN COMPOSITION STUDIO 2

SSD: COMPOSIZIONE ARCHITETTONICA E URBANA (ICAR/14)

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

COURSE DESCRIPTION

TEACHER: BUONANNO DANIELA
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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 27196 - LABORATORIO DI COMPOSIZIONE ARCHITETTONICA E URBANA 2-ARCHITETTURA DEGLI INTERNI
MODULE: 27181 - LABORATORIO DI COMPOSIZIONE ARCHITETTONICA E URBANA 2
CHANNEL: 03 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

REQUIRED PRELIMINARY COURSES

Architectural and Urban Composition Studio 1

PREREQUISITES

No prerequisites

LEARNING GOALS

The 2th year Architectural and Urban Composition Studio aims to provide students with the specialized cultural and technical tools of architectural and urban composition in order to confront a concrete urban transformation design. It also benefits from the integrative contribution of the Interior Architecture course. The expected result is the acquisition by the student of a critical and in-depth ability to interpret the transformation demand for its transcription into architectural terms.
At the end of the teaching the student will have to:
- know materials and cultural and technical tools (also in relation to the contents of the Interior Architecture module integrated with the laboratory) that underlie architectural design and its

various articulations related to the themes of contemporary urban transformation;
- demonstrate awareness of the close relationship that links identification of architectural and urban design issues with community instances;
- be aware of the need to consider aspects arising from social, economic, political, environmental processes among the elements that guide the design development of architectures;
- demonstrate critical capacity in the interpretation of the demand and in the elaboration of a project that makes explicit the relationships between architectural space and urban space through a compositional, distributive and constructive articulation developed at different scales;
- know how to use programs, tools and techniques in order to draw up products of different type and at different scales from the urban one to the detailed one (two- and three-dimensional elaborations, schemes, diagrams, collages, models, etc.)
- be aware that the different levels of complexity introduced in the laboratory constitute an advancement of knowledge and skills acquired in the architectural and urban composition laboratories of the previous years and open to the didactic articulation of the third year Architectural and Urban Composition Studio.

The Architectural and Urban Composition Studio 2 provides the cultural and technical tools of architectural and urban composition to develop an urban transformation project. The goal is to acquire a critical ability to interpret the demand for urban transformation for its transcription in architectural terms with particular attention to the architecture of the interior spaces.
At the end of the course the students have to demonstrate:
- to know materials and tools (also in relation to the Interior Design module, integrated in the Studio 2) that are the basis of the architectural project;
- to have understood the relationship between architectural and interior design themes commensurate with the physical scale of man and community issues;
- to be aware of the need to consider the social, economic, political, environmental aspects, among the elements that define architectural and cultural projects;
- to have critical skills in interpreting the demand for architecture and in the development of a project that makes explicit the relationships between architectural space and urban space through a detailed composition, distribution and construction at different scales;
- to know how to use programs, tools and techniques in order to draw up documents of different types and at different scales from the urban one, to that of detail (bi-dimensional and 3d drawings, diagrams, collages, models, etc.).

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must demonstrate knowledge and understanding of the processes that drive contemporary architectural and urban transformation. He/she must make him/herself an interpreter of the proposed project demand for the area under study in order to thematize and direct the actions of knowledge, research, reading and interpretation underlying the design development.
The student must demonstrate understanding and ability to shape through the tools of architecture and urban design the compositional, distributive and constructive aspects of architecture at

different scales.
He/she must demonstrate critical ability to elaborate and present the acquired knowledge and all the phases of the work done by emphasizing the individual contribution and that of the collective work in accordance to the didactic organization of the laboratory.
The specialized training of the laboratory aims to provide the student with the cultural and technical tools proper to architectural and urban composition in order to deal with a concrete project of transformation also through the integration with the interior architecure module.

Applying knowledge and understanding
The student must return through the elaboration of drawings and models, an autonomous interpretation of the project demand that takes into account the complexity of the issues addressed in the cognitive and investigative phase of the work. He/she must be able to return the main themes of the design work also mentioning similar references, projects and cases, and communicate the architectural project in its articulations demonstrating awareness of the processes that determined it.
The student must demonstrate the ability to elaborate a specific project that explicates the relationships between architectural space and urban space through in-depth compositional, distributive and constructive articulation at different scales. At the same time, he or she must demonstrate the ability to identify and explain methodological aspects that can be extended to other cases.
The student must be able to apply the operational skills necessary to synthesize the different aspects that inform the design process and use different representation and descriptive techniques of the design work.

COURSE CONTENT/SYLLABUS
The program of the course is divided into three phases, integrated and consequential, which allow you to acquire knowledge of the main theoretical issues underlying the process of architectural composition.
The first phase is dedicated to the description of the state of affairs, through the tools of architecture: the survey, the morphological reading of the project area.
The second phase is dedicated to identifying the demand for architecture and its theming based on the design reading. The third phase is dedicated to the definition of the materials of the urban composition and to the architectural project.

READINGS/BIBLIOGRAPHY
Bibliographic informations will be provided during the lessons of the course. Much of the teaching material will be built together with the students during the course, to allow for a continuous comparison and debate on the topics that will be addressed.

TEACHING METHODS OF THE COURSE (OR MODULE)
At the center of the Course is laboratory activity which represents the largest percentage of total hours. The course is structured by lectures, punctually alternated with a series of exercises carried

out in the form of ex-tempore in the classroom, and some exercises that students develop at home. Part of the hours are used to discuss in the classroom, always in collegial form, the documents produced during the exercises. Some lessons can be held on a digital platform and recorded.

EXAMINATION/EVALUATION CRITERIA

a) Exam type

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

In case of a written exam, questions refer to

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

b) Evaluation pattern

COURSE DESCRIPTION
ARCHITECTURAL AND URBAN COMPOSITION STUDIO 2

SSD: COMPOSIZIONE ARCHITETTONICA E URBANA (ICAR/14)

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

COURSE DESCRIPTION

TEACHER: BERNIERI ADRIANA
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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 27196 - LABORATORIO DI COMPOSIZIONE ARCHITETTONICA E URBANA 2-ARCHITETTURA DEGLI INTERNI
MODULE: 27181 - LABORATORIO DI COMPOSIZIONE ARCHITETTONICA E URBANA 2
CHANNEL: 04 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

REQUIRED PRELIMINARY COURSES

Architectural and Urban Design Studio 1/Theory of Architectural Design

PREREQUISITES

The student will have to demonstrate what they have learned during Architectural and Urban Design Studio 1, also in terms of software and representation skills.
It is essential that the student shows particular curiosity to deepen the practice of architectural design, starting from the interpretative reading of the urban scale to the building and its details.
Also important will be the propensity for laboratory work in the studio with colleagues.

LEARNING GOALS

The 2nd year Architectural Design Studio aims to provide students with the cultural and instrumental skills typical of Architectural Composition, to tackle a concrete project for the transformation of a small urban area. The expected result is the acquisition by the student of a critical ability to understand the context of study, for its reinterpretation in spatial terms, with

particular attention to the dimensions of the architectural interior.
At the end of the course, the student must:
- demonstrate that they have acquired awareness of the close relationship that binds the identification of the themes of architectural and urban transformation with the instances of the internal space commensurate with the physical scale of man;
- know and have acquired awareness of the compositional processes in relation to the study of examples and typologies of the Modern movement as well as of contemporaneity;
- demonstrate critical ability in the interpretation of the question and in the development of a project that explains a detailed composition, distribution and construction at different scales;
- know how to use some of the softwares, tools and techniques of representation in order to draw up project documents of different nature (two-dimensional and three-dimensional, diagrams, models, etc.);
- have matured the necessary conditions to project towards the study and the themes that will be addressed in the next Design Studio.
The course is aimed at transmitting the operational skills necessary to make a first synthesis between the different aspects concerning the architectural project, favoring the experimentation of different techniques of representation and description of the work.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

As part of the course, the student will begin to understand the processes that guide the transformation of a small urban area, as well as the ability to control the composition of the interior space. He/she will be the interpreter of his/her own proposal for the area of study and of a personal architectural research, through the construction of knowledge, reading and interpretation at the basis of the design process.
The student will develop critical skills in exposing the acquired knowledge, in all phases of the work, highlighting the relation, typical of the didactic organization of the studio, between the individual contribution and one's contribution to collective work.
Through multiple discussions with teachers and colleagues (including external ones, on the occasion of specific moments of exchange), the student will deepen the ways in which to illustrate and argue the reasons and assumptions, in terms of compositional principles and perceptual interpretations, of the proposed formal choices.

Applying knowledge and understanding

The student will have to return, with the use of various techniques, an autonomous interpretation of the project that takes into account the complexity of the issues addressed in the preliminary phase of the work. He/she must be able to summarize the work done in technical drawings and effective representations, for clarity and completeness, on the occasion of the final exhibition of the studio. He/she must be able to identify the main themes of the project also through the study of similar projects and cases, and the reference to possible processes, phases and actors.
The student will have to demonstrate the ability to develop a specific project that explains the relationships between urban spaces, architectural elements and internal configurations, through a detailed composition, distribution and construction at different scales.

The student will have to act as an active interlocutor, demonstrating that is able to autonomously interpret themes and places under study. He/she will have to demonstrate to be able to carry out studies independently and to interact with teachers and colleagues for the construction and sharing of knowledge and projects.

COURSE CONTENT/SYLLABUS

A Kindergarten will be the design theme of the Studio, through different levels of study:
1) the design of spaces to encourage physical activity and movement of children, in continuity with the surrounding landscape, to counteract the relevant problem of childhood obesity;
2) the identification of connection strategies with the urban context for a school conceived as an open body and a place of reference;
3) the definition of the architectural elements that create a school building, especially the "indoor" and "outdoor" classrooms for design characterization.
The building will be conceived as the place between the child and the city, whose architectural structure will be developed on the basis of the urban, morphological, environmental and accessibility characteristics of the area, in defining the articulation between open and closed spaces and in the application of current legislation.

READINGS/BIBLIOGRAPHY

The didactic material provided to the students will be both of an investigative type in the survey area, so that the design work can immediately begin 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 includes:
a) a cycle of theoretical lessons, aimed at applying a strategic approach to the design and development of the school theme;
b) applicative lessons on representation and graphics software;
c) field surveys;
d) design work in classroom;
e) development of study models;
f) seminars with external guests (teachers and architects) related to the project theme;
g) collective readings and bibliographic studies on specific topics;
h) collective communications on the progress of the design work;
g) intermediate exercises on didactic contents.
The Studio will be divided into three main parts (with three related exercises/intermediate deliveries):
1) interpretation of the area, project concept;
2) from the reference to the project: definition and development of the architectural theme;
3) study and design in detail of the internal and external spaces.

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

COURSE DESCRIPTION
INTERIOR ARCHITECTURE

SSD: ARCHITETTURA DEGLI INTERNI E ALLESTIMENTO (ICAR/16)

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

COURSE DESCRIPTION

TEACHER: IARDINO OMBRETTA
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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 27196 - LABORATORIO DI COMPOSIZIONE ARCHITETTONICA E URBANA 2-ARCHITETTURA DEGLI INTERNI
MODULE: 01572 - ARCHITETTURA DEGLI INTERNI
CHANNEL:
YEAR OF THE DEGREE PROGRAMME: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

REQUIRED PRELIMINARY COURSES

Laboratory of Architectural and Urban Composition 1 / Theory of architectural design

PREREQUISITES

Nobody

LEARNING GOALS

The "Interior Architecture" course, located in the second year of the Master's Degree Course in Architecture, tends to provide the basic tools for understanding the meanings of the architectural interior, aiming at building the critical capacity and sensitivity necessary for understanding the generating role of the Interior in the architectural dynamics. To this end, and in this position during the studies, the operational activity is intended as a continuous opportunity for reflection on the meanings, training with respect to the hypothesis of a project, of a formal / spatial structure that cannot be considered exhaustive, as it is introductory. , with respect to all the problems connected to this dimension of architecture. The course aims to build in the student: - awareness of the

hermeneutic reciprocity relationship between the interior, the furniture system and the entire architectural complex of a building, up to the relationship between artifice space and that of nature - the ability to understand the links between formal constructions and possible variations of living, - the ability to commensurate both a public and a private space to the human measure, both physical and cultural, - the ability to understand the spatial role of even non-permanent and fixed elements within the architectural space, be it small or large-scale.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The course deals with the theme of the culture of living and the architectural interior. The student must be able to identify the links that link the tectonic structure and the formal structure, the spatial quality and the furniture, through the study of the aesthetic measure of spatiality in the recurring typologies and spatial conformations of the lived experience, through the categories necessary for the definition and analysis of performance, distribution, dimensional, tectonic, and therefore relational-phenomenological problems.

Applying knowledge and understanding

The student must be able to design a space with specific reference to both the definition of the architectural terminals and the furnishings necessary to respond to the required functions, thus verifying in detail both the sizing, the aggregative and distributive criteria, and the links that exist between the organization of the internal spaces and the overall conformation of an architectural organism, from the volumetric level up to the design of the facades and in any case of the exchange surfaces and relationship between the internal and external spatiality.

COURSE CONTENT/SYLLABUS

During the course, the methodological problems underlying the design of the teaching spaces of the Kindergarten will be analyzed, through an approach based on modularity, mobility and the transformability of the elements of architecture and furniture that make up the basic learning unit (the Section). The project of a Section equipped as an artisan laboratory represents an educational opportunity to provide the student with some methodological tools for critical analysis to be able to translate the regulatory requirements and, above all, the pedagogical indications into spaces and objects that must be understood as real tools. pedagogical. The approach through the use of the principles of variable structure architecture allows the student to be able to modulate and adapt the equipped system of the Section, designed in the Interior module, to the spaces determined by the design exercise developed in the Composition Laboratory module.

READINGS/BIBLIOGRAPHY

During the lessons, students will be provided with all the documents (pdf format) relating to the regulatory references and national and European guidelines for the design of the interior spaces of the Kindergarten. If applicable also list tools for teaching delivery (recorded lectures, multimedia, software, on line material, etc.).

Bibliography

- O. Iardino, *Il banco scolastico: un oggetto d'arredo nel progetto pedagogico*, in «RTH», Vol. 7, 2020, pp. 10 -27.
- O. Iardino, *Gli arredi come strumenti pedagogici*, in «RTH», Vol. 6, 2019, pp. 20-33 - C. Fiorillo, *La fiaba tra gioco infantile e gioco scenico*, in «RTH», Vol. 5, 2018, pp. 88-94.
- F. Santoianni, *Brein Education Cognition. La ricerca bioeducativa sperimentale*, in «RTH», Vol. 7, 2020, pp. 28-33.
- F. Santoianni, *Brein Education Cognition. La ricerca pedagogica italiana*, in «RTH. Research Trends in Humanities Education and Philosophy», Vol. 6, 2019, ISSN 2284-0184, pp. 44-52.
- F. Santoianni, *Lo spazio e la formazione del pensiero: la scuola come ambiente di apprendimento*, in «RTH», Vol. 4, 2017, pp. 37-43.
- L. Tosi (a cura di), *Fare didattica in spazi flessibili*, Giunti, Firenze, 2019.
- M. Orsi, *A scuola senza zaino. Il metodo del curricolo globale per una didattica innovativa*, Erickson, 2016.

TEACHING METHODS OF THE COURSE (OR MODULE)

The course is organized in theoretical-methodological lessons that alternate with moments of collective work and discussion between students, especially on the occasion of the methodological setting of the compositional exercises that, from time to time, will be assigned. The types of exercises are: measurement, analysis, synthesis, research, project exercises. The course is divided into three phases.
FIRST PHASE. Critical analysis of the different regulatory levels (Legislative Decree and national and European guidelines) that order the design process for the interior spaces of the Kindergarten.
SECOND PHASE. Analysis of the principles underlying the recent pedagogical experiments and critical reading of teaching practices and the material needs determined by them.
THIRD PHASE. Translation of pedagogical and regulatory indications in spaces and furnishings, through the design exercise of a "section equipped with mobile and transformable macro-furnishings for educational landscapes tailored to the discoverer child".

EXAMINATION/EVALUATION CRITERIA

b) Evaluation pattern

The final grade, based on the results and skills demonstrated in the discussion of the design and interior architecture themes, will be weighted on the CFU of each course and therefore composed as follows: Interior Architecture Module 4CFU 33%; Laboratory module of Architectural and Urban Composition II 8CFU 66%.

COURSE DESCRIPTION
INTERIOR ARCHITECTURE

SSD: ARCHITETTURA DEGLI INTERNI E ALLESTIMENTO (ICAR/16)

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

COURSE DESCRIPTION

TEACHER: OTTAVINO VALERIO
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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 27196 - LABORATORIO DI COMPOSIZIONE ARCHITETTONICA E URBANA 2-ARCHITETTURA DEGLI INTERNI
MODULE: 01572 - ARCHITETTURA DEGLI INTERNI
CHANNEL: 02 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

REQUIRED PRELIMINARY COURSES

Laboratory of Architectural and Urban Composition 1 / Theory of architectural design

PREREQUISITES

None

LEARNING GOALS

The "Interior’s Architecture" course, located in the second year of the Master's Degree in Architecture, tends to provide the basic tools for the cognition of the meanings of the architectural interior, aiming at the construction of the critical capacity and sensitivity necessary to understand the generating role of the Interior in dynamics. To this end, and in this position during the studies, the operational activity is intended as a continuous opportunity for reflection on the meanings, training with respect to the hypothesis of a project, of a formal/ spatial structure that cannot be considered exhaustive, as it is introductory respect to all the problems connected to this dimension of architecture. The course aims to build in the student: - awareness of the hermeneutic reciprocity

relationship between the interior, the furniture system and the whole architectural complex of a building, up to the relationship between artifice space and that of nature; - the ability to understand the links between formal constructions and the possible variations of living; - the ability to measure both a public and a private space to the human measure, both physical and cultural; - the ability to understand the spatial role of even non-permanent and fixed elements within the space architectural, be it on a small or larger scale.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The course deals with the theme of the culture of living and the architectural interior. The student must be able to identify the links that link the tectonic structure and the structure, the spatial quality and the furniture, through the study of the aesthetic measure of spatiality in the recurring typologies and spatial conformations of the lived experience, through the categories necessary for the definition and analysis of performance problems, distributive, dimensional, tectonic, and therefore relational-phenomenological.

Applying knowledge and understanding

The student must be able to design a space with specific reference to both the definition of architectural terminals and the furnishings necessary to meet the required functions, thus verifying in the detail both the sizing, the aggregative and distributive criteria, and the links that exist between the organization of the interior spaces and the overall conformation of an architectural organism, on the plan volumetric up to the design of the facades and in any case of the exchange surfaces and the relationship between the interior and external spatiality.

COURSE CONTENT/SYLLABUS

The interior's architecture is architecture interpreted starting from the contained space rather than from the envelope that this space delimits. The course investigates and systematizes all those aspects that contribute to the definition of the idea of living and verifies the repercussions in terms of the configuration of the space, looking for the relationships that link the good practices of building with the quality of the architectural form and the correct use of the whole. Man as a measure of all things and the consequent phenomenal approach to the project constitute the terms of reference on which we intend to base the maieutic process of transmission of disciplinary knowledge.

READINGS/BIBLIOGRAPHY

G. Rosa, *L'architettura degli interni*, Officina, Roma 1996
A. Grimaldi, *Attrezzare l'architettura*, Officina, Roma 2012

TEACHING METHODS OF THE COURSE (OR MODULE)

The course is divided into theoretical lessons and practical exercises aimed at providing the disciplinary reference framework essential to correctly address the design of an interior space. The lessons address or propose: - general themes of interior design; - specific models of interpretation of the interior spaces, which compare the different ways of configuring and finishing; The

theoretical-practical activity will also include: - design exercises that will address specific issues related to the interior space; - tests of assessment, correction and discussion of the papers produced by the students.

EXAMINATION/EVALUATION CRITERIA

b) Evaluation pattern

The final grade, based on the results and skills demonstrated in the discussion of the project as well as the themes of Interior Architecture, will be weighted on the CFU of each course and therefore composed as follows: Module of Interior’s Architecture 4CFU 33%; Laboratory module of Architectural and Urban Composition II 8CFU 66%.

COURSE DESCRIPTION
INTERIOR ARCHITECTURE

SSD: ARCHITETTURA DEGLI INTERNI E ALLESTIMENTO (ICAR/16)

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

COURSE DESCRIPTION

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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 27196 - LABORATORIO DI COMPOSIZIONE ARCHITETTONICA E URBANA 2-ARCHITETTURA DEGLI INTERNI
MODULE: 01572 - ARCHITETTURA DEGLI INTERNI
CHANNEL: 03 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

REQUIRED PRELIMINARY COURSES

Architectural and Urban Composition Studio 1

PREREQUISITES

No prerequisites are neded.

LEARNING GOALS

The Architectural and Urban Composition Studio 2 provides the cultural and technical tools of architectural and urban composition to develop an urban transformation project. The goal is to acquire a critical ability to interpret the demand for urban transformation for its transcription in architectural terms with particular attention to the architecture of the interior spaces.
The "Interior Architecture" course, located in the second year of the Master's Degree Course in Architecture, tends to provide the basic tools for understanding the meanings of the architectural interior, for building the critical capacity and sensitivity necessary for understanding the role of the Interior in architectural dynamics.

To this end, and in this position during the studies, the operational activity is intended as a continuous opportunity for formative reflection concerning the hypothesis of a project and a formal/spatial structure. It is therefore to be considered introductory to all the issues related to the interior architecture dimension.
The course aims to instill in the student:
- the awareness of the hermeneutic reciprocity relationship between the interior, the furniture system, and the entire architectural complex of a building, up to the relationship between artifice space and that of nature;
- the ability to understand the links between formal constructions and the possible variations of living;
- the ability to commensurate with the human dimension, be it physical or cultural, both a public and a private space;
- the ability to understand the spatial role of even non-permanent or fixed elements within the architectural space, be it small or large-scale.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The course deals with the theme of the culture of living and the architectural interior. The student must be able to identify the links that connect the tectonic structure and the formal structure, the spatial quality and the furniture, through the study of the aesthetic measure of spatiality in the recurring typologies and spatial conformations of the lived experience, through the categories necessary for the definition and analysis of performance, distribution, dimensional, tectonic, and therefore relational-phenomenological problems.

Applying knowledge and understanding

The student must be able to design a space with specific reference to both the definition of the architectural terminals and the furnishings necessary to respond to the required functions, thus verifying in detail both the sizing, the aggregative and distributive criteria, and the links that exist between the organization of the internal spaces and the overall conformation of an architectural organism, from the volumetric level up to the design of the facades and in any case of the exchange surfaces and relationship between the internal and external spatiality.

COURSE CONTENT/SYLLABUS

The course aims to train the student to be aware that the construction of the space in which man lives, works, and lives are always born where the man "gathers" - physically and psychologically - to "put in order" their things, thoughts, and their affections. The space always determines interaction modalities between people and the reciprocal ability to interact fruitfully with the city and with nature. However, the interior space is where people tactfully come into contact with architecture, even on material and constructive levels. The design experience that will integrate that of the Composition course will enable these experiences to be activated, albeit in a nutshell, on a highly tactile and constructive scale, strongly related to the physical measures, but not limited to, of the person.

READINGS/BIBLIOGRAPHY

Bibliography.

Inaki Abalos, *Il buon abitare,* Marinotti, Milano, 2009.
Italo Calvino, *Lezioni americane*, Garzanti, Milano, 1988.
Adriano Cornoldi, *Le case degli architetti*, Venezia, 2001.
Nicola Flora, Francesca Iarrusso, *Progetti mobili*, LetteraVentidue, Siracusa, 2017.
Eduard T. Hall, *La dimensione nascosta*, Bompiani, Milano, 1968.
Christian Norberg-Schulz, *L'abitare*, Electa, Milano, 1984.

TEACHING METHODS OF THE COURSE (OR MODULE)

The course will develop starting from the guided inspection of the project areas. Theoretical-disciplinary lessons of a general nature will be alternated with seminar work which will take place in small groups of up to 3 people constantly followed (both face-to-face and online according to the university's provisions) by the teacher and teaching tutors. The lectures held by the teacher will alternate, according to the schedule that will be provided at the beginning of the course, with some conferences of international guests that will integrate teaching on individual and specific topics.

EXAMINATION/EVALUATION CRITERIA

b) Evaluation pattern

The final grade, based on the results and skills demonstrated in the discussion of the design and interior architecture themes, will be weighted on the CFU of each course and therefore composed as follows: Interior Architecture Module 4CFU 34%; Laboratory module of Architectural and Urban Composition II 8CFU 66%.

COURSE DESCRIPTION
INTERIOR ARCHITECTURE

SSD: ARCHITETTURA DEGLI INTERNI E ALLESTIMENTO (ICAR/16)

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

COURSE DESCRIPTION

TEACHER: IARRUSSO FRANCESCA
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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 27196 - LABORATORIO DI COMPOSIZIONE ARCHITETTONICA E URBANA 2-ARCHITETTURA DEGLI INTERNI
MODULE: 01572 - ARCHITETTURA DEGLI INTERNI
CHANNEL:
YEAR OF THE DEGREE PROGRAMME: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

REQUIRED PRELIMINARY COURSES

Laboratorio di Composizione Architettonica e Urbana 1/Teoria della progettazione architettonica

PREREQUISITES

The student will have to demonstrate what they have learned during the first year Composition Workshop, also in terms of software skills and representation skills. It is essential that the student shows particular curiosity to deepen the practice of architectural design, construction and detail aspects. Also important will be the propensity for laboratory work in the classroom with colleagues.

LEARNING GOALS

The "Interior Architecture" course, located in the second year of the Master's Degree Course in Architecture, tends to provide the basic tools for understanding the meanings of the architectural interior, aiming at building the critical capacity and sensitivity necessary for understanding the generating role of the Interior in the architectural dynamics. To this end, and in this position during the studies, the operational activity is

intended as a continuous opportunity for reflection on the meanings, training with respect to the hypothesis of a project, of a formal / spatial structure that cannot be considered exhaustive, as it is introductory. , with respect to all the problems connected to this dimension of architecture. The course aims to build in the student:
- awareness of the hermeneutic reciprocity relationship between the interior, the furniture system and the entire architectural complex of a building, up to the relationship between artifice space and that of nature
- the ability to understand the links between formal constructions and possible variations of living,
- the ability to commensurate both a public and a private space to the human measure, both physical and cultural,
- the ability to understand the spatial role of even non-permanent and fixed elements within the architectural space, be it small or large-scale.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The course deals with the theme of the culture of living and the architectural interior. The student must be able to identify the links that link the tectonic structure and the formal structure, the spatial quality and the furniture, through the study of the aesthetic measure of spatiality in the recurring typologies and spatial conformations of the lived experience, through the categories necessary for the definition and analysis of performance, distribution, dimensional, tectonic, and therefore relational-phenomenological problems.

Applying knowledge and understanding

The student must be able to design a space with specific reference to both the definition of the architectural terminals and the furnishings necessary to respond to the required functions, thus verifying in detail both the sizing, the aggregative and distributive criteria, and the links that exist between the organization of the internal spaces and the overall conformation of an architectural organism, from the volumetric level up to the design of the facades and in any case of the exchange surfaces and relationship between the internal and external spatiality.

COURSE CONTENT/SYLLABUS

The integrated course of Interior Architecture intends to consider the dynamics existing in the interaction between man and construction, investigating the ways that influence the spatial experience and stimulating the perceptive capacity of students for the organization of the built space. Since the concept of internality is independent of the scale to which it is applied, the project is characterized above all by a particular attention to human measure, and is therefore understood in terms of a relationship between space and its users, between perception and movement, between gestures of relationship and openness to the surrounding world. We intend to contribute to the formation of a capacity for synthesis between the theoretical and practical dimensions of the architectural project.

READINGS/BIBLIOGRAPHY

The didactic material provided to the students will be both of an investigative type in the survey area, so that
the design work can begin immediately and be constantly supported by research and documentation, which of a disciplinary and bibliographic type for the definition of the methodologies of design approach.
Minimum Bibliogrphy:
Juhani Pallasmaa, *Lampi di pensiero, fenomenologia della percezione in architettura*, a cura di Fratta M. e Zambelli M., Pendragon, Bologna, 2011.
Gaston Bachelard *, La poetica dello spazio*, Edizioni Dedalo, Bari, 2006.
Edward Hall, *La dimensione nascosta*, Bompiani, Milano, 1968.
Henry Plummer, *L'esperienza dell'architettura*, Einaudi, Torino, 2016.
Inaki Abalos*, Il buon abitare. Pensare le case della modernità*, Christian Marinotti edizioni, Milano, 2009.
Louis Khan, *Idea e immagine*, a cura di Schulz C. N., Officina edizioni, Roma, 1980.
Colin Ward , *L'educazione incidentale*, Eleuthera, Milano, 2018.

TEACHING METHODS OF THE COURSE (OR MODULE)

The course will be divided into theoretical lectures and laboratory project phases. For each meeting, an initial theoretical part (about 30% of the total hours) will be offset by the classroom development of the project. Intermediate phases of presentation of the works in their evolutionary phase are foreseen through short collective communications, in the form of pptx. As the course progresses, small exercises relating to educational content may be required and external guests may intervene on specific issues of the small-scale project. The project will be defined on a scale of 1:50 for all the plans, sections and elevations, with any further details on a scale of 1:20 or other. Three-dimensional visualizations of the spaces, a model, will have to be developed.

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, based on the results and skills demonstrated in the discussion of the design project as well as the interior architecture themes, will be weighted on the CFU of each course and therefore composed as follows: Interior Architecture Module 4CFU 40%; Laboratory of

Architectural and Urban Composition II 8CFU 60%.

COURSE DESCRIPTION
FUNDAMENTALS OF SCIENCE OF CONSTRUCTIONS

SSD: SCIENZA DELLE COSTRUZIONI (ICAR/08)

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

COURSE DESCRIPTION

TEACHER: CORBI ILEANA
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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: II
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 8

REQUIRED PRELIMINARY COURSES

Mathematical Analysis I / Geometry.

PREREQUISITES

Knowledge of algebraic operations and the basics of plane analytic geometry acquired in Mathematical Analysis and Geometry.

LEARNING GOALS

The course of Fundamentals of Science of Constructions is an annual course of the second year, characterizing in the context of Structural Analysis and Design for Architecture, and has the aim of introducing the methodologies and tools of structural calculation that the student will be able to apply in different disciplines of his studies. The course aims to provide the student, through lectures and classroom exercises, with basic elements of Mechanics useful in the field of Construction Science and Technique and, in general, in the student's training in Architecture.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The course aims to provide the student with the basic knowledge and methodological tools of Mechanics, therefore the primary requirement for this learning are the notions and analytical skills acquired in the course of Mathematical Analysis and Geometry. At the end of the course, the student must demonstrate knowledge and understanding of the structural problems dealt with and correctly handle the theoretical foundations and application methodologies.

Applying knowledge and understanding

The student must demonstrate to be able to solve structural analysis problems concerning the course contents, and to apply the methodological tools learned by highlighting his own approach and the ability to concretely use the acquired knowledge to solve simple structural schemes.

COURSE CONTENT/SYLLABUS

Elements of Vector Theory and Linear Algebra. Fundamentals of Mechanic. Lagrangian coordinates. Stresses and distortions. Displacement field. Rigid motions. Constraint conditions. Articulated motions. Compatibility equations. Equilibrium equations of a system of free and / or constrained bodies. Stress characteristics. Bending moment, normal stress and shear. Relations between load, shear, and moment. Articulated systems. Lability, hyperstaticity, isostaticity. The funicular polygon. Graphical determination of reactions. Internal stress characteristics diagrams. Kinematic chains and their use. Principle of Virtual Works for articulated systems. Equilibrium equations. Graphic methods of solution. Basics of area geometry. Elements of Deformation Analysis and Stress Analysis. Principle of Virtual Works for deformable bodies and its application to structures. The stress-strain relationship for uniaxial stress states. Beam Technical Theory. Equation of the elastic line. Elastic structures composed of beams. Corollaries of Mohr. Methods for the analysis of hyperstatic structures: the force method and the principle of virtual works.

READINGS/BIBLIOGRAPHY

- Corbi, Liccardo. Applicazioni Introduttive alla Teoria delle Strutture. Liguori Ed. Vol. I e II
- Corbi, Liccardo. Le strutture articolate. Liguori Ed. Vol. I e II
- Franciosi. Fondamenti di Scienza delle Costruzioni. Liguori Ed.
- Viola. Esercitazioni di Scienza delle Costruzioni. Pitagora Ed.
- Notes and slides of the course on the teacher website unina: http://www.docenti.unina.it/Ileana.Corbi

TEACHING METHODS OF THE COURSE (OR MODULE)

The teacher will use: a) frontal lessons for about 50% of the total hours, b) exercises to deepen the theoretical aspects and address the various structural problems dealt with for the remaining 50%. Multimedia supports will be used, presentation of lessons in .ppt format, carrying out exercises on the blackboard, online presentations, stimulating interaction with students.

EXAMINATION/EVALUATION CRITERIA

a) Exam type

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

In case of a written exam, questions refer to

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

b) Evaluation pattern

In order to pass the exam, the mastery of the theoretical and applicative tools and of the analysis methodologies for the solution of structural problems applied to rigid bodies and elastic beams, carried out during the course, will be assessed.

COURSE DESCRIPTION
FUNDAMENTALS OF SCIENCE OF CONSTRUCTIONS

SSD: SCIENZA DELLE COSTRUZIONI (ICAR/08)

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

COURSE DESCRIPTION

TEACHER: DE CICCO SIMONA
PHONE: 081-2538902
EMAIL: simona.decicco@unina.it

GENERAL INFORMATION ABOUT THE COURSE

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

REQUIRED PRELIMINARY COURSES

Mathematical analysis 1/Geometry

PREREQUISITES

None

LEARNING GOALS

The course aims to provide students with the theoretical and applicative foundations of the mechanics of solids and structures, through the study of the statics and kinematics of the flat framed structures, and of the technical theory of the beam. The ability to apply knowledge and understanding of the topics addressed intend to ensure the acquisition of a methodological approach that provides the basis for the design and structural verification of beam systems and for the analysis of the tenso-deformation state in continuous bodies.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must demonstrate to have understood basic concepts such as displacement, rotation, force, and momentum and to know the structural analysis of beams subject to external actions.

Applying knowledge and understanding

The student must be able to manipulate simple physical-mathematical relationships, understand their link with reality and solve elementary problems of structural mechanics

COURSE CONTENT/SYLLABUS

Elements of Vector Algebra. Definition of Displacements and Kinematics. Kinematic analysis of flat structures; Labile, isostatic and hyperstatic structures Definition of the concept of strength and balance. Cardinal equations of statics. Definition of the Characteristics of the stress. Variation laws and diagrams of stress characteristics. Lattice beams. Elements of area geometry. Technical theory of the beam; Differential equation of the elastic line; Mohr corollaries; Methods for the analysis of hyperstatic structures: congruence equations and the principle of virtual works.

READINGS/BIBLIOGRAPHY

The bibliography consists of the notes taken by each student during the lessons. However, to make up for any discontinuity of attendance, only students who regularly follow the course can request the teacher for a possible integration.

TEACHING METHODS OF THE COURSE (OR MODULE)

The course takes place over two semesters and is divided into lectures: theoretical and applicative. Attendance of the course is not mandatory, but strongly recommended. Registration is also not mandatory but linked to the subdivision by letter to which it is necessary to strictly adhere.

EXAMINATION/EVALUATION CRITERIA

a) Exam type

- [x] Written
- [ ] Oral
- [ ] Project discussion
- [x] Other : There will be an optional written test to be carried out in the period between the end of the first teaching module and the beginning of the second. If you pass this test, you will be assigned a grade that will be taken into account in the final exam.

In case of a written exam, questions refer to

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

b) Evaluation pattern

COURSE DESCRIPTION
FUNDAMENTALS OF SCIENCE OF CONSTRUCTIONS

SSD: SCIENZA DELLE COSTRUZIONI (ICAR/08)

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

COURSE DESCRIPTION

TEACHER: BABILIO ENRICO
PHONE: 081-2538032
EMAIL: enrico.babilio@unina.it

GENERAL INFORMATION ABOUT THE COURSE

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

REQUIRED PRELIMINARY COURSES

You cannot be admitted taking the exam if you have not passed the Calculus /Geometry exam.

PREREQUISITES

No specific prerequisites are required for understanding the teaching content, but disciplinary knowledge acquired in the Calculus/Geometry course is still very useful.

LEARNING GOALS

The objective of the course is to introduce the subject of structural analysis. The course aims to provide students with the basic notions, which are necessary for understanding the courses in Continuum and Structural Mechanics and Building Technology, placed in later years.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must show an understanding of basic concepts such as displacement and rotation, force and moment, know how to manipulate simple physical-mathematical relationships, and

understand their connection to reality.

Applying knowledge and understanding

The student must show that he or she is able to draw the "practical" consequences, in terms of simple applications, of the set of theoretical notions acquired; he or she must be able to solve simple structures.

COURSE CONTENT/SYLLABUS

Vector theory

1. Scalar and vector quantities
2. Vector algebra
3. Scalar product, vector product and mixed product
4. Vector basis

Kinematics of rigid bodies

1. Material point. Absolute and relative displacement.
2. Rigid material system
3. Infinitesimal displacements of a rigid body
4. Superposition of effects
5. Independent parameters of an infinitesimal rigid motion
6. Constraints and restraints
7. Beams and mechanical systems
8. Congruence
9. Distortions
10. Graphical solutions

Statics of rigid bodies

1. Laws of Mechanics
2. Equilibrium of a material point and a rigid body
3. The static behavior of constraints
4. Equations of equilibrium
5. Stress characteristics
6. Relationships between load, shear and moment
7. Graphical solution of equilibrium

Beam theory

1. The beam
2. Definitions of first and second moment of area
3. Definition of elastic modulus
4. Technical theory of the beam
5. Equation of the extensional and flexural elastic line
6. Mohr's analogy and corollaries

Virtual Works Theorem

1. The theorem of Virtual Works
2. Uses of the Virtual Works theorem.

Solution methods for statically indeterminate elastic structures

1. Force Method (direct writing of the Congruence Equations)
2. Method of Unitary Force Method (VFT)

READINGS/BIBLIOGRAPHY

A. Anselmi, Appunti di Statica, reperibile presso la copisteria Luda di Cirelli D. (SAS) in Via Sant'Anna dei Lombardi, 14 80134, Napoli

A. Anselmi, Appunti di Teoria delle Strutture, Luda

C. Ceraldi, L. Dodaro, M. Lippiello, Meccanica dei sistemi rigidi, Aracne editrice

C. Ceraldi, L. Dodaro, M. Lippiello, Esercizi di Meccanica dei sistemi rigidi, Luda

TEACHING METHODS OF THE COURSE (OR MODULE)

The course is taught with lectures that cover all topics included in the syllabus, from both theoretical and applied perspectives. Students may ask for further clarification during the office hours.

EXAMINATION/EVALUATION CRITERIA

a) Exam type

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

In case of a written exam, questions refer to

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

b) Evaluation pattern

The result of the exam will depend on achieving a minimum passing mark (18/30) in both tests, written and oral, and the final score will be equal to their arithmetic mean.