



COURSE DESCRIPTION DESIGN OF STRUCTURAL SYSTEMS

SSD: TECNOLOGIA DELL'ARCHITETTURA (ICAR/12)

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

COURSE DESCRIPTION

TEACHER: BELLOMO MARIANGELA
PHONE: 081-2538723
EMAIL: mariangela.bellomo@unina.it

GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 15187 - PROGETTAZIONE DEI SISTEMI COSTRUTTIVI E
TECNOLOGIA DEL RECUPERO EDILIZIO
MODULE: 09265 - PROGETTAZIONE DEI SISTEMI COSTRUTTIVI
CHANNEL: 02 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: IV
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

REQUIRED PRELIMINARY COURSES

Laboratorio di Costruzione dell'Architettura

PREREQUISITES

No

LEARNING GOALS

The integrated course Design of construction systems - Technology of Building Recovery, aims to provide principles, tools and methods to test the potential of technological innovation - process, design and product - in order to control the relationship between user needs, performance and technology. Consistent with the objectives of the Course of Study and with the training gained in previous years in the field of Architecture Technology, the teaching of Design of Construction Systems aims to: (a) understand criteria and use basic methodological tools necessary to develop a design of a construction system that is consistent with the design of the project and consistent with regulatory, quality and performance aspects (b) apply knowledge of specific construction

systems and make conscious use of methodological tools for project development(c) develop the capacity to independently analyze a project and evaluate its results in relation to technological and construction choices and context.(d) produce clearly and rigorously elaborated and graphic-descriptive documents.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must understand the role of technological innovation, as an intellectual and technical-constructive resource, in the elaboration of project proposals in response to the challenges of contemporaneity; to know the figurative, functional, constructive and environmental dimensions of the building systems. The training course aims to provide students with the basic knowledge and methodological tools necessary to develop a design of a constructive system that is consistent with the design of the project and consistent with the regulatory, quality performance and eco-sustainability aspects

Applying knowledge and understanding

The student must be able to relate user requirements, project design, production of systems and components, the conditions of the context with the choices related to techniques, materials and the way of conducting the implementation phases. The training course aims to provide students with the necessary operational skills to apply the knowledge of specific construction systems in practice and to make conscious use of the methodological tools for the development of the project.

COURSE CONTENT/SYLLABUS

The Design Program for Constructive Systems is organized in such a way as to provide students with the theoretical knowledge and methodological tools necessary to deepen the many aspects that are involved in the design process of a constructive system: technical, functional, figurative, regulatory and environmental aspects, in relation to the geographical, climatic, social and more generally cultural context of reference. The challenges of climate change and the transformation of the design of spaces due to the COVID-19 pandemic require the discussion of topics that, with due regard to the goals of the 2030 Agenda and the actions of the European Green Deal, allow to develop a design of constructive system consistent with the design of the architecture project and consistent with the qualitative aspects of performance and eco-sustainability. The theoretical lessons include the treatment of steel, wood and reinforced concrete construction systems, emphasizing the characteristics associated with their evolution and illustrating the innovations introduced by the latest research and experimentation. The following topics are also discussed:- architecture, climate and energy;- from the concept of closure to the concept of building envelope;- Innovation, eco-sustainability and user welfare;- Adaptive use of infrastructure and industrial objects in architecture;- the digital shift and architecture.

READINGS/BIBLIOGRAPHY

M. Bellomo, A. D'Agostino, *Sfide e temi tra tecnologie innovative e network di paesaggi*, Altralinea, Firenze, 2020

A. Claudi de Saint Mihiel, M. Bellomo M (a cura di), *Progettazione tecnologica per nearly zero energy building in clima mediterraneo*, Clean, Napoli, 2018

A. Claudi de Saint Mihiel, A. Falotico (a cura di), *Verso la Open Green Innovation*, Maggioli editori, Santarcangelo di Romagna, 2018

M.C. Torricelli, A. Del Nord, P. Felli, *Materiali e Tecnologie dell'architettura*, Laterza, Bari, 2006

F. Tucci, *Costruire e abitare green*, Altralinea edizioni, Firenze, 2018

TEACHING METHODS OF THE COURSE (OR MODULE)

The didactics include a series of lectures with which the basic content is systematized (35% of the total hours); design exercise of a wooden or steel artifact (40% of the total hours); some communications, on specific topics, held by experts of the different themes (15% of the total hours); joint meetings with the teacher of the Building Recovery course with which the Building Systems Design course is integrated (10% of the total hours).

EXAMINATION/EVALUATION CRITERIA

a) Exam type

- Written
- Oral
- Project discussion
- Other

In case of a written exam, questions refer to

- Multiple choice answers
- Open answers
- Numerical exercises

b) Evaluation pattern

The final evaluation will take into account 50% of the results obtained in the "Design of construction systems" course and 50% of the outcome of the integrated course "Building restoration technology".