COURSE DESCRIPTION
ARCHITECTURAL CONSTRUCTION STUDIO

SSD: TECNOLOGIA DELL'ARCHITETTURA (ICAR/12)

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

COURSE DESCRIPTION

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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: 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

☑ Written

☑ Oral

☑ Project discussion

☐ Other

In case of a written exam, questions refer to

☐ Multiple choice answers

☐ Open answers

☑ Numerical exercises

b) Evaluation pattern