# COURSE DESCRIPTION
# EXECUTIVE DESIGN OF ARCHITECTURE

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

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

## COURSE DESCRIPTION

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## GENERAL INFORMATION ABOUT THE COURSE

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

### REQUIRED PRELIMINARY COURSES

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### PREREQUISITES

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### LEARNING GOALS

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

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

## EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

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

**Applying knowledge and understanding**

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

## COURSE CONTENT/SYLLABUS

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

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

## READINGS/BIBLIOGRAPHY

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

## TEACHING METHODS OF THE COURSE (OR MODULE)

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

## EXAMINATION/EVALUATION CRITERIA

**b) Evaluation pattern**