



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: 03 Cognome A - Z
YEAR OF THE DEGREE PROGRAMME: V
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 4

REQUIRED PRELIMINARY COURSES

Laboratorio di Composizione Architettonica e Urbana 4, Tecnologia dei sistemi costruttivi, Laboratorio di Urbanistica, Scienza delle costruzioni, Fisica Tecnica Ambientale.

PREREQUISITES

none

LEARNING GOALS

The Laboratorio di Sintesi Finale consists of the following courses: Progettazione architettonica e urbana, Urbanistica, Tecnica delle costruzioni, Tecnica del controllo ambientale, Progettazione esecutiva, Economia ed estimo ambientale.

The multiple topics covered by the Studio allow students to develop a design proposal by deepening the various levels of complexity of the project. Main objectives are:

- increase the students' design skills through a critical-interpretative approach to the site and a methodological-experimental approach to set the intervention strategy;

- provide methods and tools to tackle the architectural project by controlling the definition and development process, from urban to detailed scale.

Consistent with the objectives of the Master Degree course and with the training gained in previous years in the field of Architectural Technology, the Executive Design course aims to achieve the following:

- a) understand the issues relating to the execution of the project in operational, procedural, construction, production and regulatory terms.
- b) address and resolve issues concerning the control of design outcomes through appropriate technological-constructive solutions and related performance checks
- c) evaluate design choices and technological-environmental solutions
- d) use appropriate tools to govern the interaction between formal and functional aspects, to guarantee the execution of the work and considering the entire life cycle
- e) produce drawings and graphic/descriptive documents necessary for the execution of the work, and/or the correct and clear communication of the project even to non-expert stakeholders.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

The student must know and be able to understand the issues relating to the execution of the project in operational, procedural, constructive, production and regulatory terms, developing the ability to discuss the conceptual, material and technical costs/benefits of technological innovation, in order to govern the project in relation to the complexity of the building process. The training path aims to provide the knowledge and basic methodological tools necessary to analyze the interaction between formal, functional and technical aspects of the project, in relation to the relationship between design objectives/solutions and a proper execution of the works, considering 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 user needs, procedures, regulatory framework and technical information, understanding methods and tools that regulate the relationships between the actors of the construction process. The training path is aimed at transmitting the ability to solve problems concerning the control of design results through appropriate technological-constructive solutions and performance checks.

COURSE CONTENT/SYLLABUS

The course aims at providing the theoretical, methodological and operational tools to develop technical and design solutions characterized by levels of detail appropriate to the execution of the architectural project, controlled in terms of performance characteristics in relation to the main sectoral regulations, with particular reference to the issues of green building and sustainability of the building process.

Students will develop specific skills related to the choice and control of technological alternatives available to the designer, the integration of building systems / products in the architectural project

and their correct description, also in support of technical specifications and specialist reports. Within the course, starting from the project theme of the Laboratorio di Sintesi Finale, students will develop a series of technological-constructive insights, integrating the architectural project with the appropriate performance specifications relating to structural elements, building envelope, technical systems and open spaces.

Specific insights will concern the control of specific technological and environmental requirements, with particular reference to sustainable management of material and energy resources, indoor and outdoor comfort, HVAC systems integration, in light of the Minimum Environmental Criteria for building and green building protocols for energy and environmental quality, such as LEED and WELL certification systems.

The course will include seminars and workshops which will correspond to a series of deliverables, mainly produced in the classroom and in teams, which will contribute to the final evaluation.

The course contents are focused on the following themes:

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

READINGS/BIBLIOGRAPHY

- Bellew, P. (2015), *Invisible Architecture: Atelier Ten*, Laurence King Publishing.
- Buckminster Fuller, R. (1969). *Operating manual for spaceship earth*. New York: EP Dutton &Co.
- Braungart, M., McDonough, W. (2002), *Cradle to Cradle: Remaking the Way We Make Things*, North Point Press.
- Liedl, P., Hausladen, G., &Saldanha, M. (2012). *Building to suit the climate: A handbook*. Walter de Gruyter.
- Rosenzweig, C., W. Solecki, P. Romero-Lankao, S. Mehrotra, S. Dhakal, and S. Ali Ibrahim (eds.), *Climate Change and Cities: Second Assessment Report of the Urban Climate Change Research Network*. Cambridge University Press. New York. (available at <https://uccrn.ei.columbia.edu/arc3.2>).
- U.S. Green Building Council (2013), *LEED Reference Guide for Building Design and construction*, USGBC.
- Walker, B., &Salt, D. (2012). *Resilience thinking: sustaining ecosystems and people in a changing world*. Island Press.
- Materiale didattico fornito durante il corso

TEACHING METHODS OF THE COURSE (OR MODULE)

The course includes: a) lectures for about 30% of the total hours, b) seminars held by external experts for about 10% of the total hours, c) workshop activities to deepen the applied knowledge for about 60% of the total hours. The lectures and teaching materials will be made available online on the TEAMS teaching channel.

EXAMINATION/EVALUATION CRITERIA

b) Evaluation pattern

The final evaluation will take into account the levels of participation in the teamwork, in the workshop and exercise activities carried out, as well as the ability to convey the main theoretical contents of the course in the final presentation (which may include tables, videos, real and virtual models) and in the discussion of the project documents, starting from the results of the design experiments conducted. The final assessment related to the teaching module will contribute to the overall assessment for the Laboratorio di Sintesi Finale, weighting the final grade on the basis of the credits required by each module.