55. BIOECOLOGICAL ARCHITECTURE AND TECHNOLOGICAL INNOVATION FOR THE ENVIRONMENT (ABITA)[i]	
Level II	
Department of Architecture (DIDA)	
Course coordinator	Paola Gallo
Executive Committee	Paola Gallo Francesco Alberti Rosa Romano Gianfranco Cellai Cristina Carletti Alessandra Donato Roberto Giordano
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Practical-professional profile of the course and industry sector of reference	The ABITA Master course offers advanced training in energy efficiency and environmental sustainability in the construction sector following the latest international and national regulatory requirements on energy conservation. Now in its 20th edition, the ABITA Master course offers a continuous update of its training, content, and teaching methodologies adopted to ensure an excellent educational offering that is always current with the times. The main objective of the ABITA Master course is to offer highly specialized training compared to that generally offered in the current educational framework of architecture and engineering faculties, providing methods and operational tools for the design of the built environment, at the urban and building system levels, according to an integrated perspective with aspects of environmental, economic and social sustainability. The ABITA Master course provides theoretical knowledge and technical-practical skills for upgrading the existing building stock (Deep Renovation) and designing buildings with high energy efficiency standards meeting the nZEB (nearly Zero Energy Building) target. The course is aimed at architects and engineers from the public and private sectors who intend to develop skills in the design and management of the building process, following the most recent provisions on environmental sustainability and consistent with the provisions contained in the National Action Plan and the Mandatory Minimum Environmental Criteria (CAM) for public procurement (Legislative Decree 50/2016). Within the course, a path dedicated to professionals who intend to qualify as energy managers for the building sector is also offered. The academic disciplines of reference are: ICAR 12 - Architectural Technology. ING-IND/11 - Environmental Engineering Physics. The structure of the Master course is divided into MODULES dedicated to the following topics: • M1 Transforming the existing and building the future. Nature Based Solutions for Urban Regeneration. • M2 Environment and design: the Minimum Environmental Criteria • M3 The building-plant system: from energy diagnosis to integrated design • M4 Dynamic simulation for advanced energy design • ML Professionalizing Project Work The program is aimed at training experienced professionals in the management of the entire building process organized according to the typical life cycle phases (design, construction, operation, maintenance, redevelopment and decommissioning) in compliance with the indications of the most widely used

	international LCA (Life Cycle Analysis) and LCC (Life Cycle Cost) assessment systems. As part of the lectures, the following topics will be explored: bioclimatic architecture; thermophysics of the building-plant system; innovative materials and advanced technologies for nZEB buildings; integrated technological systems for energy production from RES (Renewable Energy Sources); economic evaluation of the project from an LCC perspective; environmental assessment and certification systems (LEED, BREEAM, etc.) with respect to the LCA approach; and energy analysis at the urban and building level. By the end of the course, participants will have acquired the knowledge and skills necessary for informed sustainable design through methods for assessing the environmental impacts of design choices on the eco-system. The in-depth studies then of the fundamental issues for bioclimatic design and the orientation to a design directed to the architectural experimentation of materials, systems, and innovative technologies with high energy performance (Smart Materials and Adaptive Facades) and to the integration of energy production systems from renewable energy sources, will allow to make design choices in terms of environmental compatibility and also to develop optimal critical judgment skills related to design strategies with particular reference to the energy recovery of buildings (Deep Renovation). With reference to the broader national and international regulatory framework on energy conservation, participants will be able to operate in the construction sector using specific skills related to the sustainable design of new buildings or the renovation and maintenance of existing buildings, through knowledge of an environmental matrix systemic approach in relation to regulatory and legislative provisions on CAM in Construction and the main incentives and financing tools (Conto Termico 2.0, EIB Loans, etc.) for Public Administrations in the field of energy efficiency and sustainable urban planning.
Access prerequisites	Master's degree obtained in accordance with the system under Ministerial Decree No. 270/2004 (or specialist degree under Ministerial Decree No. 509/1999 equated under I.D. July 9, 2009) in one of the following classes: • LM-3 Landscape Architecture • LM-4 Architecture and Construction Engineering - Architecture; • LM-10 Conservation of Architectural and Environmental Heritage • LM-11 Science for the Conservation and Restoration of Cultural Heritage • LM-12 Design • LM-23 Civil Engineering • LM-24 Building Systems Engineering • LM-25 Automation Engineering; • LM-28 Electrical Engineering; • LM-29 Electronic Engineering; • LM-30 Energy and Nuclear Engineering • LM-31 Management Engineering • LM-35 Environmental and Land Use Engineering • LM-48 Urban and Environmental Spatial Planning • LM-53 Materials Science and Engineering • LM-75 Science and Technology for the Environment and the Territory Degree awarded according to a system prior to Ministerial Decree No. 509/1999 of closely related content, deemed suitable by the Executive Committee or a Commission specifically appointed by it.
Admission procedure	Selection by academic qualifications and resumé
Duration	12 months

Teaching methods	Teaching will be conducted in synchronous remote mode. The following platforms adopted by the UNIFI University will be used for conducting distance learning activities: • WebEx and Google Meet • UNIFI Moodle platform
Language of instruction	Italian
Attendance requirements	70%
Location of the course	Teaching activities will be conducted in online mode. Any events for which attendance is required will be held at the DIDA Department of Architecture, Palazzo Vegni, via San Niccolò 93 - Florence
Foreseen lecture schedule	Online classes 2 days a week (Friday and Saturday) following the schedule: 9:30 am - 1:30pm / 2:30 - 4.30 pm
Examinations procedures and schedule	At the end of each Module, there will be applied and practical tests (questionnaires, design exercises, reports, presentations, etc.) on the topics addressed during the course and which can be carried out individually or in groups.
Final examination	The final examination consists of the presentation of a thesis project developed in coherence with the topics addressed during the course and verification of the skills acquired by the student in relation to the aspects investigated during the course.

Available places and enrolment fees	
Full-fee students	
Minimum number	15
Maximum number	50
Enrolment fee	€4,500
Single Modules	
Maximum places	5
Enrolment fee	€110/credit

Access prerequisites	To be eligible to attend individual modules, one must hold one of the qualifications among those required for admission to the Master Course.
Admission test	The selection consists of the evaluation of the candidate's qualifications.

Description of the activities and training objectives of the internship	The curricular internship completes the training with a period of direct experience at facilities outside the University, professional firms, companies, public and private entities, and production facilities, where the student will be engaged for a 400-hour internship period coming into contact with professional realities in which activities relevant to the training course proposed by the ABITA Master course are carried out. Generally, the internship period takes over 3-4 months, depending on the agreement between the student and the host institution. For each internship, there is a training project containing the training objectives, the points of contact of the intern, the academic mentor and the business mentor, and defines the internship's type, duration, and modalities. The training project must be related to the topics of the Master Course, and generally, the work done during the internship is used for the course's final work. The in-person practical curricular internship represents a process of direct training in an operational situation. This process involves the trainee soliciting their knowledge and skills so that they can become expendable in professional practice.

	The methodologies adopted are based on a “directed and guided” learning experience in a real work context, where students are asked to “anticipate” in part their future professional activity and can entail: - collaborations in design experiences and application activities through training internship experiences with public agencies and/or professional architectural and engineering firms; - participation in working groups as part of research activities at other Italian and foreign universities and/or public and private research institutions Interns will therefore be called upon to measure themselves against professionalizing rules and principles in a real work environment and will have to learn how to transfer the theoretical knowledge acquired during the course so that it becomes operational, actively trying their hand at carrying out actual tasks. 400 total hours of internship.

[i] This document is a translation of the form A.1 relating to the characteristics of the course attached to the Decree of the Deputy number 873 (record 158006) of 25th of July 2022, drafted in Italian and issued on the Master | Didattica | Università degli Studi di Firenze | UniFI and which therefore constitutes the only official document. This English translation cannot be used for legal purposes and has the sole purpose of supplying information in English on the content of the public notice.