

## MASTER UNIVERSITARIO DI II LIVELLO

## **MASTER ABITA** Architettura Bioecologica e Innovazione Tecnologica per l'Ambiente

## XVI EDITION

## NOVITA XIV EDIZIONE

- RIGENERAZIONE URBANA
- 🗲 ВІМ
- NEARLY ZERO ENERGY BUILDINGS AND DEEP RENOVATION
- MODELLAZIONE AMBENTALE ENERGETICA
- CERTIFICAZIONE
- SMART MATERIALS AND INNOVATIVE TECHNOLOGIES

BIM energy + EGE Esperto in gestione dell'energia trasformare l'esistente costruire il futuro

# **Bioecological Architecture and Technological Innovation for the Environment**

## **Second level Master Course**

According with EU policies on energy efficiency in buildings, Master ABITA 'Bioecological Architecture & Technology Innovation for the Environment', aims to promote green building design and architecture sustainability principles and methodology, providing students with innovative tools.

## TOPICS

- URBAN DEEP RENOVATION
- BIM
- NEARLY ZERO ENERGY BUILDINGS AND
- ENERGY MODELLING TOOLS
- BUILDINGS ENERGY EVALUATION
- SMART MATERIALS
- INNOVATIVE TECHNOLOGIES



ABITA Architettura Bioecologia e Innovazione Tecnologica per l'Ami



UNIVERSITÀ DEGLI STUDI FIRENZE DIDA DIPARTIMENTO DI ARCHITETTURA

II level Master

## **XVII** Edition





## Second level Master ABITA \_Università degli Studi di Firenze - Italy\_\_\_

The course trains building professionals, architects and engineers, in the use and development of competitive methods and solutions for lowering GHG emissions of the built environment in a life-cycle perspective, optimizing environment and energetic performance, and minimizing energy consumptions, considering the overall building design process. Throughout the two year duration of the MSc program, a practical approach is emphasized and students are continuously trained within interdisciplinary collaboration strategies for integrated design method implemention in their professional practices.

This program aims to provide specific high-level advanced post degree training, offering a students multidisciplinary educational background, with special focus on environmental sustainability and green building design. Sustainability concept is associated with high quality built environment transformations, from the macro-scale of urban planning, to the micro-scale of technical construction details. This method is oriented to a physical, social and technical approach, going over close specialized ones. International program involves also Workshops, Study trips, Summer schools and Internships.

Main objectives of Master ABITA are:

- improve architects and engineers awareness of green building strategies, fostering their competencies and skills on energy efficiency and environmental conscious design;
- adquire architectural solutions, experimenting technologies, procedures and tools to determine operational and performance modes of green building and renewables;



• trainnig of new professionals on climatic and environmental control for use reduction of natural sources and energy consumption.

#### MODULES

The Master course starts on the 10 November 2018 and lessons will end on the 30 April 2019.

Lessons will take place three days a week. At the end of the course will follow an internship. The final thesis defence is expected within April 2020.

#### M1 Sustainable Architecture and buildings deep renovation

#### M2 Energy management and integrated Design for nZEB

#### M3 Energy modeling and simulation of buildings

#### M4 Building the future: Green building and smart cities

#### **ML Projectwork Training**



#### Module 1 Sustainable Architecture and buildings deep renovation

The course provides the basic skills in responsible design, and the methods for evaluating design choices on our ecosystem. Bioclimatic planning for low energy consumptions and using renewable, students can improving their skills in energy recovery of buildings. The course is about theoretical and practical aspects of wood design. Studying this technology about energy efficiency students can understand different application methods, and speed and ease of execution, and static and seismic safety.

#### November - December 2018 - 11 CFC



#### Module 2 Energy management and integrated Design for nZEB

### ENERGY MANAGEMENT COURSE-EGE

Master ABITA provides knowledge and skills required for professional energy manager qualification according to the standard UNI CEI 11339:2009 for industrial and civil sector. Students are involved in practical workshops on the use of tools and development of analytical methods, which are directly applied to a design studio project for case studies evaluation. Moreover students learn climate and microclimate analysis and fieldwork methods for measurement of environmental and energy parameters, thermal comfort surveys and post-occupancy evaluations. The EGE qualification allows students to achieve the highest level of competence in energy management. Course students proficiency will allow students to attend certification official exam qualifications according to EGE TUV e UNI EN ISO 50000.

#### January - February 2019 - 11 CFC



#### Modulo 3 Energy modeling and simulation of buildings

#### BIM AND DESIGN BUILDER

This module provides theoretical introduction to systematic building energy performance simulation and analysis in relation to different climatic conditions. Typical building responses are analysed under particular climate types and explore the effectiveness of climate modifiers strategies. using predictive modelling techniques. Effects of solar gain, varying ventilation rates, surface finishes, daylighting, and occupancy are analysed to establish a range of effective design strategies. Students will undertake software workshops and design application of parametric massive design, dynamic thermal modelling and day-lighting. BIM's software will be tailored to the various design process stages and will range from climate data analysis to building form, day-lighting and thermal modeling, in order to maximizing the impact of shadows and solar control systems. These will be directly applied todesign studio projects running in parallel to workshops. Project energy analysis will be run under Design Builder software.

#### February - March 2019 - 11 CFC

## **ABITA**

#### Modulo 4 Building the future: Green building and smart cities

This module provides a multidisciplinary approach for urban and sustainable management. In a Project Management students can deep *multi-criterio* evaluation systems, and they can be actors territorial development. Defining intervention scenarios students can learn a good method in cost-benefit analysis and in technological solutions for the improvement of environmental performance.

The course is also about water recovery in urban spaces and in homes to create a green context and for safeguard natural resources. Green buildings with green planning criteria, roof tops, and greenery strategies for urban renovation.

- Water harvesting
- Natural pools
- Life cycle assessment
- Leed certification
- Smart cities

April - May 2019 - 11 CFC

# **DIADNING** MASTER COURSE PLANNING

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Deadline for application: Ottobre 2018 Start of Master Course: 10 November 2018 Registration FEE: 4500 €

Annual Master Course : 1500 hours (70 CFU and 15 CFP) Lessons will take place three days a week until April 2018 The Internship (3 months -500 hours) will take place at the end of the Master Course (from May 2019 to December 2019).

Final thesis: first session November 2018, second session April 2020





The internship consists of 16 weeks of work outside the university and it intends to give students a unique learning opportunity, allowing them to put many of the concepts and methods learned in the classroom into practice in a realistic professional setting. The internship serves to help students focus their area of interest and course work for the remainder of their studies and provides the opportunity for personal growth through relevant work experience. The work done during the internship is at professional level. While securing an internship is primarily the responsibility of the student, the internship coordinator provides substantial aid in locating a position and in ensuring that the work experience is relevant and appropriate to the student's study.

The internship can take place at design offices, research institutes, private sector companies, consultancies or any other organisation that can provide and supervise an internship at the MSc level. Students may choose to do their internship in Italy or anywhere else in the world. To receive credits for the internship the student must write an internship report, which will be evaluated by their field supervisor and their supervisor from within the university.



**ABITA** 

MsC MODULES anno accademico 2018/19

> M1 Sustainable Architecture and buildings deep renovation November - December 2018

> M2 Energy management and integrated Design for nZEB January - February 2019

M3 Energy modeling and simulation of buildings February - March 2019

M4 Building the future: Green building and smart cities March - April 2019

**ML Projectwork Training** 



University of Florence ITALY Dipartimento DIDA - via S. Niccolò 93 Firenze 50125

Master organisation: Master course Director: Prof. Marco Sala.

AUE

## CONTACTS

### Architettura Bioecologica e Innovazione Tecnologica per l'Ambiente

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