

BIM

SUARCH

SUSTAINABLE ARCHITECTURE AND SMART CITIES



**EXECUTIVE
MASTER
BIM**

 **Ecole d'Architecture
de Rabat**
COLLEGE OF ENGINEERING & ARCHITECTURE



UNIVERSITÀ
DEGLI STUDI
FIRENZE

DIDA
DIPARTIMENTO DI
ARCHITETTURA



www.uir.ac.ma

GENERAL DESCRIPTION

This MSc Programme is for professionals worldwide, specially referring the Mediterranean context, with an interest in sustainability in the built environment, including architects, engineers, and urban designers. It is available on eLearning or blended solutions. A holistic perspective stresses the many architectural expressions and possibilities encompassed within environmental design and nature-based solutions for urban regeneration, orienting the strategy to the resilience and smartness level, by connecting the skills and knowledge to the material aspects of the anthropic system, enriching the process of Resilient Responsive Design & Smart Cities with the immaterial dimensions.

The MSc promotes a cross-disciplinary and integrated design approach to apply the principles, methodology and tools for environmental responsive design, green architecture and dynamic - adaptive building, bridging the traditional gap between arts and the sciences, research and practice, developing critical thinking and design skills to challenge established practices.

The graduates from this program will implement knowledge and skill in the area of building heritage retrofitting and innovative sustainable architectural design: they will be able to develop more attractive sustainable building plan or retrofitting scenarios, more aesthetic solutions for renewables integration in building, more competitive real estate investment, and more soft-green solutions for urban retrofitting and resilience actions. The graduates will spend their expertise to analyze and to evaluate the building performance, as well as to define the building environmental quality assessment, according to the international rating systems

THE MAIN AIMS OF THE MASTER

- To provide students with skills in the field of sustainable/ adaptive architecture, to manage, strategies for environmental design, innovative solutions for green architecture and appropriate applications for resilient cities that can be experimented in specific Middle East (hot dry) climatic and environmental context.
- To understand the principles of sustainability in making design decisions that implement urban resilience, to valorize natural and immaterial resources, to save energy and CO2 emissions, and create healthful buildings. To develop students' ability to operate with BIM and Parametric Massing Design tool in order
- To optimize the dynamic design, green-soft strategies of passive design as well as the adaptive architectural solutions to enhance the thermal performance of building envelope, solar control, natural ventilation, day-lighting, passive solar heating and cooling etc).
- To train the student to manage the GBC evaluation tool (Green Building Council) and LEED certification systems in order to implement the assessment of the environmental quality of the buildings.
- To train students to work in collaboration with other students as members of a multidisciplinary design team.

PROGRAM STRUCTURE

- **MODULE 1 [CFU 6] RESPONSIVE & VERNACULAR ARCHITECTURING**
- **MODULE 2 [CFU 6] ENVIRONMENTAL PERFORMANCE AND ASSESSMENT TOOLS**
- **MODULE 3 [CFU 6] NATURE-BASED SOLUTIONS & ENVIRONMENTAL RESPONSIVE DESIGN**
- **MODULE 4 [CFU 6] DESIGN THE FUTURE: GREEN ARCHITECTURE FOR RESILIENT CITIES**
- **DESIGN WORKSHOP [CFU 8] ADAPTIVE ENVELOPE FOR BUILDING RETROFITTING: BIM & DIGITAL TWIN FOR EXISTING BUILDING HERITAGE RETROFITTING**
- **DESIGN WORKSHOP [CFU 8] GREEN ARCHITECTURE: BIM & DIGITAL TWIN TO DESIGN AND ASSESS THE FUTURE GREEN BUILDINGS**
- **INTERNSHIP [CFU 12]**
- **THESIS DISSERTATION [CFU 8]**



MODULES DETAILS

MODULE	UNITS
RESPONSIVE & VERNACULAR ARCHITECTURING	<ul style="list-style-type: none"> • Principles of bioclimatic architecture / vernacular architecture • Analysis and relations of the architecture with the context • Passive & solar architectural design in MED countries • Smart Materials and Innovative Technologies - dry structures • Mass Modeling for Conceptual Design (BIM) • Adaptive and Dynamic envelope
ENVIRONMENTAL PERFORMANCE AND ASSESSMENT TOOLS	<ul style="list-style-type: none"> • Energy management-energy performance modeling • Environmental and energy parameters calculation • Post-occupancy evaluations. • End User behavior • Inside Comfort and psychological aspects • Method for Indoor Environmental Quality assessment
NATURE BASED SOLUTIONS & ENVIRONMENTAL RESPONSIVE DESIGN	<ul style="list-style-type: none"> • Principles of Immaterial resilience for Responsive Design • Sustainable use of natural sources for Climate change adaptation and mitigation • Responsive use of recycled and eco-friendly materials • Urban regeneration through nature-based solutions • Green and soft solutions (nature-based) for improving well-being in urban areas • Evaluation of Urban environmental comfort and tools
DESIGN THE FUTURE: GREEN ARCHITECTURE FOR RESILIENT CITIES	<ul style="list-style-type: none"> • Principles, strategies and examples of resilient cities (City Resilience Index) • Design concept of new green architecture • Architectural Integration of renewables (BIPV) • Green envelope and vertical farm • Architectural Integration of Green and Water to renaturing Cities • International evaluation tools to assess the architectural solutions (GBC Green Building Council – LEED – BREEAM).



DEGREE

Master Degree delivered by the University of Florence | 60 CTS

LEARNING METHOD

Blended : Online courses with the University of Florence + On-site courses at the International University of Rabat

Language : English

ADMISSION REQUIREMENTS

The program is accessible only to students that have a Second Cycle (Master's) Degree or equivalent, in one of the following qualifications: architecture, or related classes in engineering.

The selection procedure is divided into two stages: Academic evaluation of CVs and Interview

DURATION

12 months

Start : January 2022

TUITION FEE

74 000 dhs

CONTACT US

✉ archiBIMadmissions@uir.ac.ma



Campus de l'UIR, Parc Technopolis, Rocade de Rabat-Salé 11100
– Sala Al Jadida - Maroc



<https://www.uir.ac.ma/fr/pole/ecole-superieure-dar-chitecture-de-rabat/formation-continue>

