PhD in Architecture

Program Overview in Architecture

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1. English Language for Research

Objective:
To develop linguistic and discursive skills essential for international scientific communication.

- **General Academic Communication**
    - Presenting oral communications at conferences
    - Preparing a scientific presentation and abstract
    - Writing an academic CV and cover letter
    - Defending a project in English
- **Academic Writing**
    - Critical reading of scientific articles
    - Writing an article in English
    - Argumentative strategies
    - Linguistic and stylistic revision

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2. Research Methodology (20h x 3 sessions)

- Introduction to formulating a research problem
- Qualitative and quantitative methods
- Analytical tools: SPSS, MODALISA
- Thesis organization: structure, writing, citation norms
- Preparing for oral defense (PowerPoint, concise presentation)

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3. Introduction to Pedagogy and Project-Based Teaching (20h x 2)

- Teaching architectural design: theories and practices
- Contributions of the LMD system (Licence-Master-Doctorate) in project teaching
- The project as a specific learning process
- Supervision and evaluation strategies

Specialization: Architecture and Environment

Thematic Lectures
Guest researchers and lab members offer a series of lectures addressing current issues in sustainable and bio-inspired architecture:

1. Architecture and environment for sustainable development
2. Energy transition in buildings
3. Bio-inspired design for energy and environment
4. Biomimicry in architecture: current state, methods, and tools
5. Ecological transition: issues and prospects

Doctoral Research Workshops

- Central to the program, the workshop fosters knowledge integration and applied exploration of research-related problems.

Objectives:

- Acquire diagnostic and analytical methods (urban or architectural)
- Develop concrete research strategies
- Promote transdisciplinarity within the research lab
- Strengthen links between academic research and field practitioners

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Curriculum Highlights

1. Multidisciplinary approach: architecture, environment, social sciences, sustainable technologies
2. Strong focus on ecological transition and bio-inspired innovation
3. Advanced language training for international visibility
4. Real-world engagement through applied research workshops
5. Development of pedagogical and professional skills for future academic careers

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Core Courses

These foundational courses are common across all specializations (Architecture & Environment, Heritage, Urban Morphology, etc.) and aim to build essential methodological, linguistic, and pedagogical skills for any PhD student in architecture.

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1. English for Scientific Research

Objectives:

- Master architectural research vocabulary
- Express oneself orally and in writing at international conferences
- Write scientific articles
- Participate in international research projects

Content:

- General academic communication (presentations, abstracts, CVs)
- Scientific writing techniques (argumentation, citation, reformulation)
- Listening and interaction in specialized contexts

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2. Architectural Research Methodology

Duration: 3 modules of 20h

Objectives:

- Understand the steps of scientific research
- Formulate a research question
- Master data analysis tools and software

Content:

- Epistemology and methodology in architecture
- Survey and observation techniques
- Use of SPSS and MODALISA software
- Structure of a research report or thesis
- Bibliographic standards (APA, Chicago, etc.)

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3. Introduction to Pedagogy and Project-Based Teaching

Objectives:

- Introduce PhD students to teaching architectural design
- Understand and adopt the new LMD reforms
- Master pedagogical practices suited to architecture

Content:

- Theories of project-based learning
- The instructor's role in design studios
- Collaborative pedagogical methods
- Evaluation of student projects

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4. Complementary Cross-disciplinary Courses (depending on the lab)

Courses may be offered depending on the host lab's research focus:

- Introduction to mapping and GIS for architecture

- Critical reading of foundational architectural texts
- History and theory of contemporary architecture
- Approaches to urban space (morphological analysis, use, perceptions)

Role of Core Courses

These courses form the backbone of doctoral training. They are designed to:

- Structure the student's scientific approach
- Promote research autonomy
- Develop communication and teaching skills
- Prepare for academic supervision or teaching

Advanced Topics

Specialization 1: Architecture and Environment

General Objective:
To deepen the understanding of the interactions between architecture, the natural and built environment, and the dynamics of sustainable development.

Advanced Conferences & Seminars

1. **Architecture and Environment for Sustainable Development**
   ➤ Link between architectural choices and urban sustainability, resource management, biodiversity.
2. **Energy Transition in Buildings**
   ➤ New environmental standards, energy efficiency, use of renewable energy in buildings.
3. **Bio-Inspired Design for Energy and Environment**
   ➤ Nature-inspired approaches (forms, materials, systems) to enhance environmental performance.
4. **Biomimicry in Architecture: State, Methods, and Tools**
   ➤ Biomimetic design methodologies, emerging technologies, and case studies.
5. **Ecological Transition Applied to Urban Spaces**
   ➤ Public policies, ecological regulations, circular economy, and regenerative architecture.

Applied Research Workshops

The workshop is a central space for active learning, allowing PhD students to:

- Define and formalize their research problems
- Implement methodological tools (diagnosis, simulation, scenarios)
- Work across disciplines with other researchers and practitioners
- Test solutions applied to real-world cases (neighborhoods, buildings, urban projects)

Potential Workshop Themes:

- Environmental assessment of materials and construction systems
- Architectural design in extreme climate contexts (arid, tropical zones…)
- Sustainable rehabilitation of historic buildings
- Diagnosis and scenario building for eco-responsible urban planning
- Prototyping of experimental low-carbon architecture

Cross-Cutting Advanced Topics

Regardless of specialization, certain advanced topics are offered with a transdisciplinary perspective:

- Environmental quality of architectural projects: from design to operation
- Architecture's role in climate change adaptation policies
- Architecture and health: healthcare spaces, air quality, thermal comfort
- Architecture, data, and technology: energy modeling, GIS, environmental BIM
- Smart cities and sustainability: integrated strategies for future neighborhoods

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Purpose of Advanced Topics

These modules aim to:

- Stimulate innovation in architectural research
- Anchor thesis work in current challenges (ecology, energy, society)
- Strengthen integration between theory, methodology, and practice
- Develop critical and project-oriented thinking for real or speculative projects