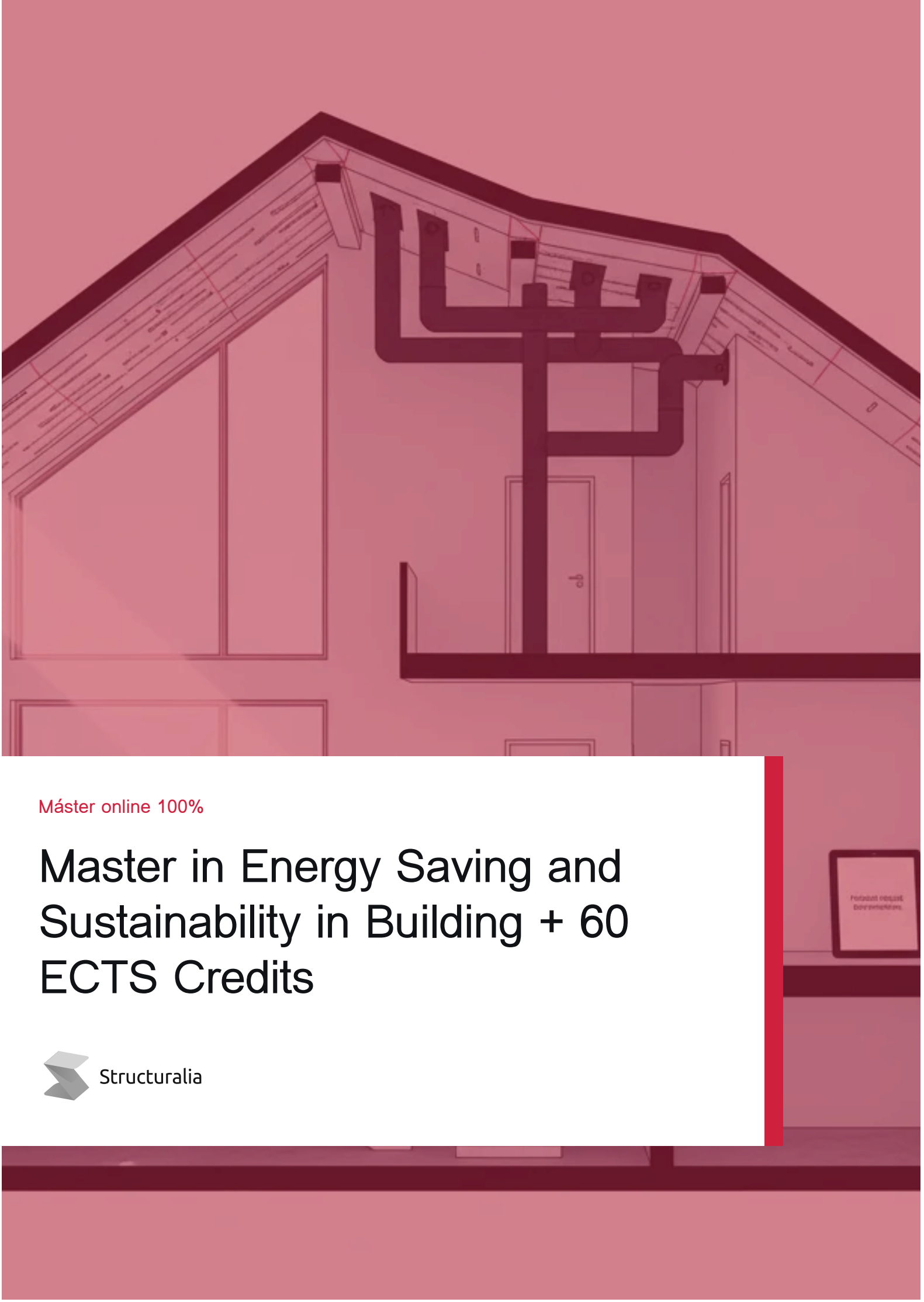


Máster online 100%

Master in Energy Saving and Sustainability in Building + 60 ECTS Credits

Structuralia

Máster online 100%

Master in Energy Saving and Sustainability in Building + 60 ECTS Credits

Modality
Online

Languages
Español

Duration
1500 hours (60 ECTS)

No Limit
AI Assistant

Does it include practices?
NO

Educational Institutions

Structuralia Engineering eLearning

UNIVERSIDAD NEBRIJA

Summary

The Master in Energy Savings and Sustainability in Buildings is a specialization program designed for professionals in the sector who seek to lead innovation and optimize the performance of sustainable building projects. This program provides the practical specialization necessary to address the challenges of building energy and environmental management. You will master advanced methodologies for the energy and environmental evaluation of buildings, applying high-precision calculation and analysis tools. You will design improvement strategies that optimize the energy performance of any property, from its conception to its operation, ensuring cost-effective and environmentally friendly energy saving solutions. You will evaluate the impact of your decisions on the life cycle of the building, integrating a global vision to guarantee energy efficiency. You will delve into the energy context, analyzing new building regulations (CTE and CEE) and the particularities of existing buildings, including their energy certification. You will study the building envelope, its efficiency and its direct impact on the health and comfort of the occupants. Finally, you will explore

energy systems such as HVAC and ACS, for optimization that transforms the performance of real estate assets.

Agenda

MODULE 1. ENERGY IN BUILDING

1. DIDACTIC UNIT 1. THE ENERGY CONTEXT

1. Introduction
2. The international energy context
3. The Spanish energy context
4. European regulatory framework in building energy
5. USA regulatory framework, ASHRAE Standards

2. DIDACTIC UNIT 2. NEW BUILDING. CTE AND CEE

1. Introduction to CTE and energy certification
2. The CTE. Basic habitability requirements
3. The CTE. Basic energy saving requirements
4. The energy certification
5. The recognized documents for energy certification and the regulatory relationship

3. DIDACTIC UNIT 3. EXISTING BUILDINGS

1. The energy audit
2. Energy audit. Phase 1. Analysis of the current situation
3. Energy audit. Phase 2. Proposals and economic analysis
4. European regulations. Series UNE-EN_16247-1,2,3,4:2012
5. Energy Audit ASHRAE Level II

4. DIDACTIC UNIT 4. ENERGY CERTIFICATION OF EXISTING BUILDINGS

1. Existing buildings. The energy certification
2. The CE3X program. Definition of the envelope
3. The CE3X program. Systems definition
4. The CE3X program. Results and improvement measures
5. Case study.

MODULE 2. THE ENVELOPE OF THE BUILDING

1. DIDACTIC UNIT 1. INTRODUCTION

1. Building energy. Physical concepts I
2. Building energy. Physical concepts II
3. Bioclimatic strategies
4. Psychometric diagram
5. Bioclimatic diagram

2. DIDACTIC UNIT 2. ENERGY EFFICIENCY AND ENVELOPE I

1. Elements of the Envelope
2. Enclosure Features
3. Sun protection

4. thermal bridges
5. THERM, thermal bridge calculation software

3. DIDACTIC UNIT 3. ENERGY AND ENVELOPE EFFICIENCY II

1. Heat transmission. Profit and loss balance
2. Infiltration and ventilation through the envelope
3. Envelope in almost zero consumption buildings
4. Energy rehabilitation of the envelope
5. Examples

4. DIDACTIC UNIT 4. HEALTH AND COMFORT

1. Thermal comfort
2. Acoustic and lighting comfort
3. Natural lighting
4. Natural ventilation
5. Condensation prevention

MODULE 3. ENERGY SYSTEMS IN THE BUILDING: HVAC AND ACS

1. DIDACTIC UNIT 1. HVAC SYSTEM WITH CONVENTIONAL EQUIPMENT

1. Introduction to HVAC system
2. primary loop
3. Secondary loop
4. Heat and cold generation
5. Transport fluid and terminal units

2. DIDACTIC UNIT 2. AEROTHERMY AND GEOTHERMY SYSTEMS

1. Aerothermal. Concept and features
2. Aerothermal. Design and calculation
3. Geothermal. Concept and features
4. Geothermal. Design and calculation
5. Comparative study

3. DIDACTIC UNIT 3. VENTILATION

1. Introduction to ventilation
2. Ventilation systems in residential buildings
3. Ventilation in tertiary buildings
4. Primary air conditioners
5. Ventilation systems, design and calculation

4. DIDACTIC UNIT 4. ACS

1. Introduction
2. Demand assessment
3. Residential buildings. Design and calculation
4. Tertiary buildings. Design and calculation
5. Case study

MODULE 4. ENERGY SYSTEMS IN THE BUILDING: LIGHTING AND BMS

1. DIDACTIC UNIT 1. LIGHTING SYSTEMS

1. Concepts and Regulations
2. Efficient technology in lamps and luminaires
3. Efficient technology in equipment and control
4. Lighting audit
5. Design Criteria and Recommendations

2. DIDACTIC UNIT 2. CONTROL AND MANAGEMENT SYSTEMS 1

1. Introduction
2. Control systems
3. Control signs. Sensors
4. Control signs. Actuators
5. Control systems. Drivers

3. DIDACTIC UNIT 3. CONTROL AND MANAGEMENT SYSTEMS 2

1. Control signs. Walkways or gateway
2. Control signs. Measurement and monitoring
3. Management systems
4. Advanced management systems
5. Systems Integration

4. DIDACTIC UNIT 4. ENERGY MANAGEMENT AND MARKETS

1. ISO 50001 and Directive 2012/27/EU
2. The electricity market, tariff regime
3. Financial management in energy projects
4. Energy Services Companies (ESE)

MODULE 5. INTEGRATION OF RENEWABLE ENERGY IN BUILDINGS

1. DIDACTIC UNIT 1. SOLAR THERMAL

1. Principles of solar thermal
2. Resource evaluation
3. Low temperature solar energy
4. solar cooling
5. Concentrated solar

2. DIDACTIC UNIT 2. SOLAR PHOTOVOLTAIC

1. Photovoltaic effect
2. Components of a photovoltaic system
3. Current state of technology and market
4. Design and calculation of photovoltaic systems
5. Regulation and regulations

3. DIDACTIC UNIT 3. WIND ENERGY

1. Resource evaluation

2. Technology Description
3. Sizing and calculation of the energy produced
4. Mini wind installations in the urban environment
5. Economics and environmental impact of wind power

4. DIDACTIC UNIT 4. BIOMASS ENERGY

1. Biomass utilization
2. Energy use
3. Use in building
4. Systems and equipment
5. district centers

MODULE 6. ENERGY SIMULATION OF BUILDINGS

1. DIDACTIC UNIT 1. HULC ENERGY SIMULATION TOOL

1. Energy balance in a building
2. The interface for entering geometry. HE1 Verification
3. Energy systems, management and control
4. Simulation and analysis of results
5. Simulation for BREEAM and GREEN energy certification

2. DIDACTIC UNIT 2. HULC. TOOL FOR REGULATORY COMPLIANCE

1. HULC and residential buildings
2. HULC and Grand Tertiary (GT) buildings
3. CTE HE0 verification with HULC
4. Energy certification with HULC
5. Case study

3. DIDACTIC UNIT 3. DESIGNBUILDER. LATEST GENERATION SIMULATION TOOL 1

1. Introduction
2. Energy Plus Methodology
3. Building, use and location data entry
4. Analysis of energy consumption results
5. Simulate a small building with its energy systems

4. DIDACTIC UNIT 4. DESIGNBUILDER. LATEST GENERATION SIMULATION TOOL 2

1. HVAC System Introduction
2. Lighting systems, equipment and other consumer elements
3. Building and systems simulation
4. Analysis of energy consumption results
5. Simulate building with its energy systems

MODULE 7. MODELING OF HIGH ENERGY PERFORMANCE BUILDINGS WITH DESIGNBUILDER: A PRACTICAL CASE

1. DIDACTIC UNIT 1. INTRODUCTION AND CREATION OF THE BUILDING

1. Introduction
2. Basics

3. Site creation
4. Creation of the building
5. 3D modeling

2. DIDACTIC UNIT 2. ENCLOSURE AND USE DATA

1. Activity Data
2. Enclosure Data
3. Opening Data
4. Equipment Data
5. Lighting Data

3. DIDACTIC UNIT 3. ENERGY SYSTEMS (HVAC)

1. Detailed HVAC: introduction
2. Geothermal heat exchanger circuit
3. Heating and cooling plant circuit with heat pumps
4. air circuit
5. Zone and component data

4. DIDACTIC UNIT 4. CALCULATIONS AND RESULTS

1. Standard simulation with real data
2. Compliance with EA credits in LEED
3. EA credit compliance and comfort in LEED
4. Natural lighting (Radiance)
5. BREEAM Low Carbon Technology Compliance

MODULE 8. SUSTAINABILITY IN THE BUILDING

1. DIDACTIC UNIT 1. INTRODUCTION AND HISTORICAL CONTEXT

1. Session 1: Introduction
2. Session 2: Origin and evolution of the concept of sustainability
3. Session 3: Regulations on sustainability in buildings
4. Session 4: Basic concepts of sustainable construction I
5. Session 5: Basic concepts of sustainable construction II

2. DIDACTIC UNIT 2. KEY ASPECTS OF SUSTAINABILITY

1. Session 1: Introduction
2. Session 2: Project life cycle
3. Session 3: Natural resources
4. Session 4: Water cycle
5. Session 5: Health and comfort

3. DIDACTIC UNIT 3. CONSTRUCTION MATERIALS AND IMPLEMENTATION

1. Session 1: Introduction
2. Session2: Sustainable materials. Strategies
3. Session 3: Materials in environmental certifications
4. Session 4: Processes to improve the sustainability of work phase I
5. Session 5: Processes to improve the sustainability of construction phase II

4. DIDACTIC UNIT 4. THE LIFE CYCLE ANALYSIS (LCA)

1. Session 1: Introduction
2. Session 2: Methodology
3. Session 3: DAPs
4. Session 4: LCA tool in building I
5. Session 5: LCA tool in building II

MODULE 9. BUILDING CERTIFICATION TOOLS

1. DIDACTIC UNIT 1. INTRODUCTION. LEED 1

1. Session 1: Introduction to sustainable building
2. Session 2: Evaluation and certification systems
3. Session 3: LEED Methodology
4. Session 4: Certification systems
5. Session 5: Performance assessment. ARC

2. DIDACTIC UNIT 2. LEED 2

1. Session 1: READ OM. Categories I
2. Session2: LEED OM. Categories II
3. Session 3: LEED BD+C. Categories I
4. Session 4: LEED BD+C. Categories II
5. Session 5: LEED, application examples

3. DIDACTIC UNIT 3. BREEAM

1. Session 1: BREEAM Methodology
2. Session 2: Certification schemes
3. Session 3: BREEAM New Construction. Categories I
4. Session 4: BREEAM New Construction. Categories II
5. Session 5: BREEAM ES, application examples

4. DIDACTIC UNIT 4. GREEN

1. Session 1: GREEN Methodology
2. Session 2: Certification Tools
3. Session 3: GREEN Equipment. Categories I
4. Session 4: GREEN Equipment. Categories II
5. Session 5: GREEN, application examples.

MODULE 10. TFM. MASTER IN ENERGY SAVINGS/SUSTAINABILITY IN BUILDING

Qualification

University Degree in Master of Lifelong Training in Energy Savings and Sustainability in Buildings issued by the Antonio de Nebrija University with 60 ECTS University Credits. Teachings not leading to obtaining an official qualification

Objectives

- • You will analyze the global energy context and the optimization processes of energy behavior in buildings, covering new construction (CTE and CEE) and existing buildings. • You will apply advanced tools to calculate and study the energy performance of properties, mastering consumption evaluation methodologies. • You will develop methodologies for carrying out exhaustive energy audits and energy certification of existing buildings. • You will design intervention strategies to optimize the efficiency and sustainability of the building envelope, improving the comfort and health of the occupants. • You will manage energy and environmental certification projects (LEED, BREEAM), ensuring compliance with international standards. • You will evaluate the impact of energy systems (HVAC and ACS) on the overall performance of the building, identifying opportunities for improvement. • You will integrate a global vision of the life cycle of building projects, from conception to operation, for strategic decisions. • You will lead the implementation of innovative sustainability solutions in buildings, transforming the performance of real estate assets.

What does it prepare you for?

This program prepares you to lead the transformation towards more efficient and environmentally friendly construction. You will consolidate your profile as a specialist, acquiring essential skills in the evaluation of the energy performance and environmental impact of buildings, fundamental for the optimization of projects. You will master advanced methodologies for the analysis of energy behavior in buildings, from new construction under CTE and CEE to the energy rehabilitation of existing buildings. You will learn to design intervention strategies that optimize the efficiency of the envelope and the HVAC and ACS systems. You will make informed decisions about the certification of low-energy buildings and their environmental performance, managing complex initiatives. The Master in Energy Savings and Sustainability in Buildings trains professionals in advanced energy management to optimize the performance of real estate assets. You will solve the challenges of energy management, ensuring profitable and sustainable solutions in the field of building sustainability.

Who is it addressed to?

Aimed at professionals in building, construction, promotion, architecture, engineering, energy services or consulting who are looking for high-level specialization. If you hold positions of responsibility in property management or general services, or are a middle manager, manager, small businessman or self-employed person with a clear concern for innovation in the sector, this master's degree is for you. It will allow you to lead sustainable building projects and optimize their performance. You will acquire advanced methodologies and high-precision tools for the evaluation and optimization of energy use and the environmental impact of buildings, in addition to managing energy certification projects. You will consolidate your profile as a specialist in sustainable building.

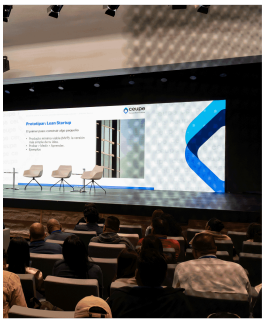
Official Character

This training is not included within the scope of official regulated training (Early Childhood Education, Primary Education, Secondary Education, Official Vocational Training FP, Baccalaureate, University Degree, Master University Officer and Doctorate). It is therefore a complementary and/or specialization training, aimed at the acquisition of certain competencies, skills or aptitudes of a professional nature, which can be assessed as merit in job boards and/or competitive examinations, always within the section of Complementary Training and/or Continuous Training. It is always essential to review the specific grading requirements of the specific public job boards to which we wish to apply.

Professional Outings

- Specialization in energy management and building sustainability positions you strategically in the construction and energy services sector. You will be able to consolidate your profile as an Efficiency Auditor in energy services companies or specialized consulting firms, providing value in optimizing consumption and property performance. You will make your way as Director of Sustainable Building Projects, leading initiatives from conception to operation in developers or construction companies. You will be a Senior Building Efficiency Consultant, advising on the implementation of advanced solutions and impact evaluation for architecture and engineering firms. You will also be able to assume the role of Manager of Low Consumption Real Estate Asset Management, optimizing building portfolios for investment funds or large owners. Finally, you will manage complex processes as LEED or BREEAM Certification Manager, ensuring regulatory compliance in certifying organizations.







Live Madrid

Live the International Week

As an additional complement to your training, you can be part of the SIM: Week International in Madrid. A unique meeting that brings together students from all over the world. For seven days you can live an academic and cultural experience in the heart of Europe, culminating with the graduation ceremony in Madrid.

- Conferences and workshops with international experts
- Visits to companies and reference organizations
- Networking with students from different countries
- Cultural activities and discovery of Madrid
- graduation ceremony

Structural

Structuralia is a leading educational institution in postgraduate and highly specialized online training, focused on the fields of engineering, architecture, construction, energy, technology and digital transformation.

Founded in 2001 with a strong industrial DNA, the result of collaboration between large companies in the sector and the Universitat Politècnica de Catalunya (UPC), for more than 25 years we have accompanied technical professionals in their academic and professional development through practical, flexible training aligned with the reality of the labor market.

Our training proposal connects advanced technical knowledge, real employability and international projection, acting as key support in the professional evolution of those seeking to specialize, grow professionally and generate impact in their sector, with a firm commitment to the democratization of access to technical excellence.



+350.000

Students have gone through our virtual classrooms



+20 years

Experience in the training sector



5 stars

QS ranking in online education

EDUCA EDTECH
Group

Educa Edtech GROUP

When you enroll in a course or master's degree, you will get a free subscription to MyLXP while your training lasts. You will have access to more than 400 key courses (soft skills, languages, digital skills, etc.) and other surprises. Sign up and see how MyLXP improves your learning.

EDUCA LXP Methodology

The comprehensive tailored online education experience

EDUCA LXP is more than a methodology, it is a completely educational experience personalized thanks to all the possibilities offered by artificial intelligence. Now the content adapts to you, your needs and preferences, while offering you access to updated and practical content that really makes a difference in the labor market.

Flexibility

100% online learning adapted to your schedule: study from any device wherever, whenever and however you want.

Personalization

Contents and training itineraries adapted to your needs, thanks to AI.

Innovation

Constantly evolving technological developments driven by AI through the Learning Experience Platform.

Artificial intelligence

Discover PHIA, your learning assistant that will help you every step of the way.

Teaching support

Human empathy and academic guidance from a specialized teaching team.

Educational Experience

Didactic approach oriented to work by competencies, which favors practical and meaningful learning.

MY LXP

When you enroll in a course or master's degree, you will get a free subscription to MyLXP while your training lasts

You will have access to more than 400 key courses (soft skills, languages, competencies digital, etc.) and other surprises. Sign up and see how MyLXP improves your learning.

Meet PHIA, your personalized learning assistant

Use all the possibilities of artificial intelligence to get the most out of it match to your training

EDUCA EDTECH Group leads the digital revolution in education, promoting the continuous learning and technological transformation. The group is made up of recognized training institutions and its mission is to democratize access to education, promote the transfer of knowledge, technological development and research.

With the experience accumulated over more than 20 years, we have perfected our learning platform EDUCA LXP (Learning Experience Platform), the basis of our educational methodology, which provides students with online training practical and meaningful.



Discover all the payment facilities

We adapt to all international payment methods.

VISA · maestro · Pay · Pay · amazon pay · bizum · PayPal · CMR Falabella · OXXO · mercado pago · Diners Club INTERNATIONAL · DISCOVER · Protección al Comprador · CONFIANZA ONLINE

Funding and scholarships

Finance your course or master's degree and enjoy the available scholarships. Contact our expert team to know which one best suits your profile.

25%
Alumni Scholarship

15%
Scholarship recommended

20%
Functional Diversity Scholarship

20%
Unemployment scholarship

15%
GROUP Scholarship

20%
Scholarship for Professionals, Healthcare, members

15%
Entrepreneurship Scholarship

20%
Large Family Scholarship