

Máster online 100%

Master in Bioconstruction and Ecoarchitecture

Structuralia

Máster online 100%

Master in Bioconstruction and Ecoarchitecture

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 Bioconstruction and Ecoarchitecture is the specialization for professionals in the sector who seek to lead projects with minimal environmental impact and a deep understanding of ecosystems. You will delve into the fundamental principles of sustainability and the environment, exploring how livability, human well-being and the sustainable city are intrinsically intertwined with sustainable architecture. You will learn to apply current regulations and optimize the efficient use of resources, integrating advanced bioconstruction techniques that minimize the ecological footprint of any intervention. This program specializes in the strategic application of natural materials, product life cycle management, and the implementation of energy efficiency solutions, essential for any low-impact initiative. You will delve into the comprehensive management of water and energy resources, the mitigation of environmental pollution and the circular management of waste, crucial aspects for sustainable development. With this approach, you will lead ecoarchitecture projects, transforming environmental challenges into opportunities for innovation and value. You will integrate renewable and non-renewable energies in your designs, ensuring a comprehensive and specialized vision in each phase of the building's life cycle. This Master equips you with the key skills to face the

challenges of ecological urbanism, allowing you to design and execute buildings that actively contribute to a more respectful, resilient and efficient future.

Agenda

MODULE 1. SUSTAINABILITY AND ARCHITECTURE

1. DIDACTIC UNIT 1. SUSTAINABILITY AND ENVIRONMENT

1. Environmental management
2. Environmental Management Systems
3. Regulatory regulations
4. Sustainability concept
5. Environmental and energy problems

2. DIDACTIC UNIT 2. ENVIRONMENT AND LIVABILITY

1. The environmental problem
2. More direct consequences on the environment
3. The evolution of energy consumption
4. World energy reserves
5. Habitability

3. DIDACTIC UNIT 3. SUSTAINABLE CITY

1. Environmental quality
2. Sustainable building
3. Habitability
4. Sustainable city: concept

4. DIDACTIC UNIT 4. SUSTAINABLE ARCHITECTURE

1. Definition of sustainable architecture
2. Energy and architecture
3. Implementation and materials

5. DIDACTIC UNIT 5. RESOURCE MANAGEMENT

1. Water management
2. Waste management
3. Recycling
4. carbon footprint

6. DIDACTIC UNIT 6. ENVIRONMENTAL POLLUTION AND WASTE MANAGEMENT

1. Introduction to pollution
2. Construction sector and the problem of waste
3. Characterization of construction and demolition waste
4. Construction and demolition waste management
5. Obligations of the parties involved

MODULE 2. SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL SUSTAINABILITY. PERFORMANCE INDICATORS

1. DIDACTIC UNIT 1. SUSTAINABLE DEVELOPMENT

1. Introduction
2. Development and Environment
3. Sustainable development
4. Human Rights and Sustainable Development
5. Law International Environmental
6. What can we do?

2. DIDACTIC UNIT 2. THE ENVIRONMENTAL PROBLEM

1. The environmental problem
2. More direct consequences on the environment
3. The evolution of energy consumption
4. World energy reserves

3. DIDACTIC UNIT 3. RENEWABLE AND NON-RENEWABLE ENERGY

1. Primary and final energies
2. energy vectors
3. Renewable and non-renewable sources
4. Classification of renewable energies
5. Renewable technologies and their regulatory classification

4. DIDACTIC UNIT 4. ENVIRONMENTAL EDUCATION

1. Fundamentals of Environmental Education
2. Main Agents of Environmental Education
3. Environment and Economic Development
4. Practices and Techniques for Environmental Education

5. DIDACTIC UNIT 5. LIFE CYCLE ANALYSIS

1. Context of Life Cycle Analysis
2. Approaches to Life Cycle Analysis
3. Examples of LCA applications
4. LCA standardization according to ISO 14040:2006 and ISO 14044:2006
5. Life Cycle Analysis Methodology
6. Objective and scope of study
7. Life Cycle Inventory Analysis (AICV)
8. Databases, tools and software for LCA
9. Production cycle
10. Life Cycle Inventory Analysis Example
11. Life Cycle Impact Assessment (LCIA)
12. Example of Impact evaluation: classification, characterization and normalization
13. Interpretation of results and critical review
14. Verification of the results
15. Current limitations in the use of ACV

6. DIDACTIC UNIT 6. CARBON FOOTPRINT, CALCULATION AND EVALUATION

1. Carbon Footprint and Greenhouse Gas Emissions GHG
2. Scope of the Carbon Footprint and methods for calculation

3. Greenhouse Gas Emissions
4. Calculation and evaluation focused on Organizations
5. Scope emissions calculation
6. Carbon Footprint Report
7. Calculation and evaluation focused on products
8. Calculation of the Carbon Footprint of a product
9. Environmental Management Methods of the Carbon Footprint: Reduction and compensation
10. Benefits of the Carbon Footprint for companies

7. DIDACTIC UNIT 7. WATER FOOTPRINT, CALCULATION AND EVALUATION

1. Current situation of water resources
2. Introduction and objectives of the water footprint
3. Phases and scope of application of the Water Footprint
4. Types of water, concepts and calculation
5. Water footprint applied to sectors and its calculation
6. Water footprint applied to nations or communities
7. Water footprint applied to products Examples
8. Consumer water footprint
9. Business water footprint
10. Environmental management of the water footprint

8. DIDACTIC UNIT 8. COMPLEMENTS, INTEGRATED PRODUCT POLICY, ECO-LABELLING AND ECO-DESIGN

1. Integrated product policy
2. Ecolabelling
3. Regulations and standards to consider
4. Ecolabeling objectives
5. Types of ecolabelling
6. Examples of ecolabelling
7. Operation and effectiveness of an environmental labeling system
8. Legal implications of an environmental labeling system
9. Product self-declarations. Type II ecolabel
10. Environmental Product Declaration: Type III Ecolabel
11. Procedure for carrying out a DAP
12. Ecodesign
13. ISO 14006
14. Environmental management measures based on Ecolabeling and the Integrated Product Policy
15. Certification and accreditation

MODULE 3. SUSTAINABLE PROJECT MANAGEMENT

1. DIDACTIC UNIT 1. CONCEPTS ON URBAN PLANNING I: TERRITORIAL ORGANIZATION, PLANS AND MANAGEMENT

1. Introduction to urban management
2. Urban planning in Spain
3. Relevant definitions in the consolidated text of the Land and Urban Rehabilitation Law
4. Principles of the regulations in force today
5. Urban plans

2. DIDACTIC UNIT 2. CONCEPTS ON URBAN PLANNING II: RIGHTS AND DUTIES OF CITIZENS

1. Citizen's rights
2. Duties of the citizen
3. Basic statute of initiative and participation in urban planning activity
4. Legal status of land ownership

3. DIDACTIC UNIT 3. URBAN PLANNING AND SUSTAINABLE ARCHITECTURE

1. Previous concepts
2. Self-construction
3. Collective projects

4. DIDACTIC UNIT 4. CONSTRUCTION WITH NATURAL MATERIALS

1. Typologies
2. Implementation

5. DIDACTIC UNIT 5. CTE AND SUSTAINABILITY

1. Justification
2. Application

6. DIDACTIC UNIT 6. CASE STUDIES

1. Sustainable architecture and urbanism

MODULE 4. BIOARCHITECTURE

1. DIDACTIC UNIT 1. CIRCULAR ECONOMY: SUSTAINABLE MATERIALS

1. Sustainable materials and their typologies
2. Recycling of materials and reusable materials
3. Durable materials
4. Easy maintenance materials
5. Thermal characteristics of sustainable materials
6. Energy embedded in materials
7. Ecosystem pollution and heat island effect

2. DIDACTIC UNIT 2. VERNACULAR ARCHITECTURE

1. Vernacular Architecture Case Studies
2. Principles

3. DIDACTIC UNIT 3. CONTEXT, TERRAIN AND FOUNDATION

1. Urban context
2. The place
3. Positioning and orientation
4. Foundation

4. DIDACTIC UNIT 4. NATURAL CONSTRUCTION AND STRUCTURAL TECHNIQUES

1. Construction techniques with earth
2. Construction techniques with straw
3. Construction techniques with stone
4. Construction techniques with wood
5. Construction techniques with lime and plaster
6. Construction techniques with cane
7. Techniques with recycled materials

5. DIDACTIC UNIT 5. STANDARDIZED MATERIALS AND SYSTEMS

1. LCA and architecture
2. Certifications
3. Systems and materials

6. DIDACTIC UNIT 6. SUSTAINABLE COVERS

1. flat roofs
2. Sloped roofs
3. Case studies

7. DIDACTIC UNIT 7. FINISHES

1. Pavements
2. Interior coverings
3. Exterior coating

8. DIDACTIC UNIT 8. THE SUSTAINABLE PROJECT

1. Identification of the phases

MODULE 5. INSTALLATIONS, RENEWABLE ENERGY AND ENERGY EFFICIENCY

1. DIDACTIC UNIT 1. BIOCOMPATIBLE INSTALLATIONS

1. Previous concepts
2. Sanitation facilities
3. Facilities for water supply
4. Water recovery and treatment
5. Heat transmission, heating and air conditioning
6. Ventilation
7. electrical installations

2. DIDACTIC UNIT 2. RENEWABLE ENERGY

1. Renewable energies: what they are
2. solar thermal energy
3. photovoltaic solar energy
4. wind energy
5. Biomass
6. Hydropower
7. Thermoelectric solar energy
8. Other renewable energies

3. DIDACTIC UNIT 3. THE BUILDING AS AN ENERGY SYSTEM

1. General considerations
2. Final and primary energy
3. Emissions associated with consumption
4. Difference between load and demand
5. Units of measurement
6. Energy demand
7. Performance of thermal systems
8. Primary energy consumption
9. Building energy balance

4. DIDACTIC UNIT 4. ENERGY CERTIFICATION

1. Savings and energy efficiency plans
2. Building and urban planning: energy consumption
3. Building and energy efficiency in CTE buildings (Technical Building Code)
4. Energy rating of buildings
5. The viability of sustainable facilities projects

5. DIDACTIC UNIT 5. QUALIFICATION TOOLS: CE3 AND CE3X

1. Aspects about the CE3 program
2. CE3 initial interface
3. Aspects about the CE3X procedure
4. CE3X initial interface
5. Administrative and general data in CE3X
6. Shadow patterns in CE3X

6. DIDACTIC UNIT 6. QUALIFICATION TOOLS: LEADER AND CALENER

1. Procedure to follow for energy qualification
2. Going from LIDER to CALENER-VYP with the unified tool
3. How to avoid errors when entering installation components
4. Recognitions of spaces in the home used
5. Definition of the ACS system
6. Definition of the air conditioning system
7. Definition of the lighting system
8. Calculation of energy rating
9. HE0 verification
10. Energy rating report

7. DIDACTIC UNIT 7. CERTIFICATIONS

1. Energy certification for buildings in Spain
2. Green buildings: importance of certification
3. GREEN Certification
4. BREEAM certification
5. LEED Certification
6. DGNB Certification
7. Passivhaus Certification

8. DIDACTIC UNIT 8. ENERGY REHABILITATION

1. Rehabilitation concept
2. Energy rehabilitation
3. Techniques for improving the elements of the enclosure to limit energy demand
4. The building as an energy system. Bioclimatic applications in the building rehabilitation process

MODULE 6. ELECTRICAL SELF-CONSUMPTION INSTALLATIONS WITH RENEWABLE ENERGY

1. DIDACTIC UNIT 1. KEY ASPECTS AND SPECIFIC EQUIPMENT OF SELF-CONSUMPTION

1. The electricity market. Electric pool, operation and invoice terms
2. Distribution of electrical energy
3. Centralized and distributed electricity generation
4. Technical characteristics of distributed generation networks
5. Smart energy and communication microgrids. Near or distant future?
6. Energy self-consumption. Concept, advantages and possibilities
7. Network parity
8. Types of self-consumption
9. Load management and monitoring equipment
10. Measurement and control equipment. Unidirectional and bidirectional counters

2. DIDACTIC UNIT 2. CURRENT CURRENT AND REGULATORY CONTEXT OF SELF-CONSUMPTION

1. Self-consumption by net and instantaneous balance. Problems, solutions and situation
2. European political framework
3. National regulatory framework for self-consumption
4. Procedure for connecting renewable installations to the low voltage network
5. Phases and stages to request the connection of renewable installations of any power
6. Procedure for legalization of self-consumption facilities
7. Economic remuneration of the injected renewable energy

3. DIDACTIC UNIT 3. SCHEMES OF SELF-CONSUMPTION INSTALLATIONS. ITC-40 OF THE REBT ON LOW VOLTAGE GENERATING INSTALLATIONS

1. Technical characteristics and types of low voltage generating installations. ITC-BT-40
2. General conditions
3. Conditions for connection. Types of self-consumption schemes
4. Scheme of isolated facilities. Type A
5. Diagrams of type C1 generating installation connected to the distribution and associated supply network
6. Diagrams of type C1 generating installation connected to the internal network and associated supply
7. Diagrams of type C2 generating installation with associated supply

4. DIDACTIC UNIT 4. TECHNICAL SPECIFICATIONS OF SELF-CONSUMPTION INSTALLATIONS

1. Maximum powers in low voltage interconnected plants
2. Maneuver and measurement equipment to be available at the interconnection point
3. Reactive energy control
4. Connection cables

5. waveform
6. Protections
7. Grounding installations
8. Start-up

5. DIDACTIC UNIT 5. ADVANCED ENERGY SYSTEMS OF PRODUCTION, COLLECTION AND ACCUMULATION

1. Cogeneration and absorption
2. heat pumps
3. Energy accumulation systems
4. Hydrogen fuel cells
5. Capture and accumulation of CO2

MODULE 7. TECHNOLOGY AND SUSTAINABILITY

1. DIDACTIC UNIT 1. BIM 6D: SUSTAINABILITY

1. Sustainability as a work system
2. General tools (plugins and complementary software)

2. DIDACTIC UNIT 2. BIM 7D: AS BUILT

1. "As built" model
2. Property management
3. Maintenance and personnel management
4. Environmental management
5. Regulatory management

3. DIDACTIC UNIT 3. 3D PRINTING

1. 3D printing concept
2. Origin, development and current events of 3D printing
3. 3D printing applications
4. 3D printing technologies

4. DIDACTIC UNIT 4. GENERAL CONCEPTS OF HOME AUTOMATION / IMMOTOTICS

1. Definition of concepts related to home automation
2. Application of home automation to housing as part of the "digital home"
3. Description of the different networks that make up a building and their integration with home automation
4. Scope analysis and application examples
5. Historical development and current state of home automation
6. Analysis of the influential actors of home automation
7. Identification of organizations and associations related to home automation

5. DIDACTIC UNIT 5. HOME AUTOMATION SYSTEM USED IN BUILDINGS

1. Home automation systems used in function
2. Elements of the home automation system

MODULE 8. SUSTAINABLE INTERIOR DESIGN

1. DIDACTIC UNIT 1. SUSTAINABLE DESIGN

1. Sustainability and design
2. Sustainable techniques and materials
3. Sustainable materials

2. DIDACTIC UNIT 2. USER-CENTERED DESIGN

1. Kansei Engineering
2. Kano Method
3. Design for accessibility
4. Fuzzy Design Methods
5. Comfort

3. DIDACTIC UNIT 3. CREATIVE PROCESSES, COMPOSITION AND COLOR

1. Introduction to design: creative processes
2. Basic principles of composition
3. The color

4. DIDACTIC UNIT 4. THE SPACE

1. Importance of space
2. Space distribution. Basics
3. Server spaces

5. DIDACTIC UNIT 5. REGULATIONS AND DESIGN

1. Technical Building Code
2. Regulations to consider depending on the use
3. Categories to consider
4. Establishment requirements to take into account

6. DIDACTIC UNIT 6. SUSTAINABLE DESIGN CASE STUDIES

1. Spaces to live
2. Public spaces

MODULE 9. END OF PROJECT MASTER

Qualification

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

Objectives

- • Direct the incorporation of sustainability criteria in the design and management of building projects. • Conceive ecological construction solutions using low-impact materials and innovative techniques. • Apply energy efficiency methodologies in constructions, optimizing their performance and consumption. • Supervise compliance with applicable environmental legislation at all stages of the life cycle of a project. • Analyze the ecological footprint of construction interventions, proposing minimization and optimization actions. • Incorporate renewable energy sources into the architectural approach, promoting autonomy and reducing costs. • Develop strategies for the management of water resources and the recovery of waste in the field of respectful construction. • Formulate strategic decisions for sustainable urban development and improvement of the quality of life in urban environments.

What does it prepare you for?

This program prepares you to lead the transformation of the construction sector towards more respectful, efficient and resilient models. The Master in Bioconstruction and Ecoarchitecture trains professionals with the ability to design and execute ecoarchitecture projects that not only meet, but exceed current environmental regulations, establishing new quality standards. You will develop a strategic capacity to integrate innovative natural materials and renewable energy systems, managing resources optimally and sustainably. You will optimize water and energy consumption in each phase of the building's life cycle, from sustainable urban planning and initial design to advanced waste management. You will make decisions based on a rigorous evaluation of the environmental impact, minimizing pollution and promoting healthy habitability and the well-being of users. You will acquire a global and strategic vision that will allow you to promote large-scale sustainable design initiatives, positioning yourself as a key reference in the construction of the future and actively contributing to the sustainable development of cities and communities.

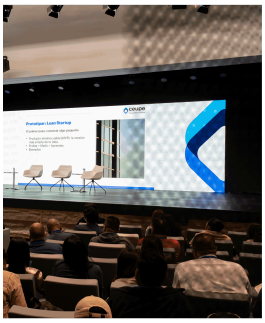
Who is it addressed to?

This program is aimed at professionals in the construction, architecture, technical architecture, building engineering, urban planning and environmental sciences sectors, who are seeking a high-level specialization in bioconstruction and sustainability. If you work in these fields and feel a deep concern for sustainable design, innovation in materials and energy efficiency, this program offers you the tools and knowledge to transform your professional practice. It is for you if you aspire to lead projects that integrate ecoarchitecture, efficient resource management and minimization of environmental impact, seeking to generate a positive and lasting impact. Those who wish to update their knowledge and apply advanced techniques in natural materials, sustainable construction systems and energy efficiency will find here the strategic vision and skills necessary to face the challenges of the future of the sector.

Professional Outings

- Specialization in green construction will position you to assume highly responsible roles in the sustainable building sector. You will be able to apply for key positions as Director of Sustainable Architecture Projects, leading multidisciplinary teams in the design and execution of buildings with minimal environmental impact. You will work as a Senior Consultant in Bioconstruction, advising companies and administrations in the implementation of construction solutions that are respectful of the environment and current regulations. You will also make your way as Head of Energy Efficiency in Buildings, optimizing resource consumption and the integration of renewable energies in large projects. You will be a Specialist in Environmental Project Management, evaluating and mitigating the ecological footprint of constructions. In addition, you will be able to integrate into ecological project offices or R&D&i departments of construction companies, promoting innovation in sustainable materials and construction systems.







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

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Innovation

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

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

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Human empathy and academic guidance from a specialized teaching team.

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

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Meet PHIA, your personalized learning assistant

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

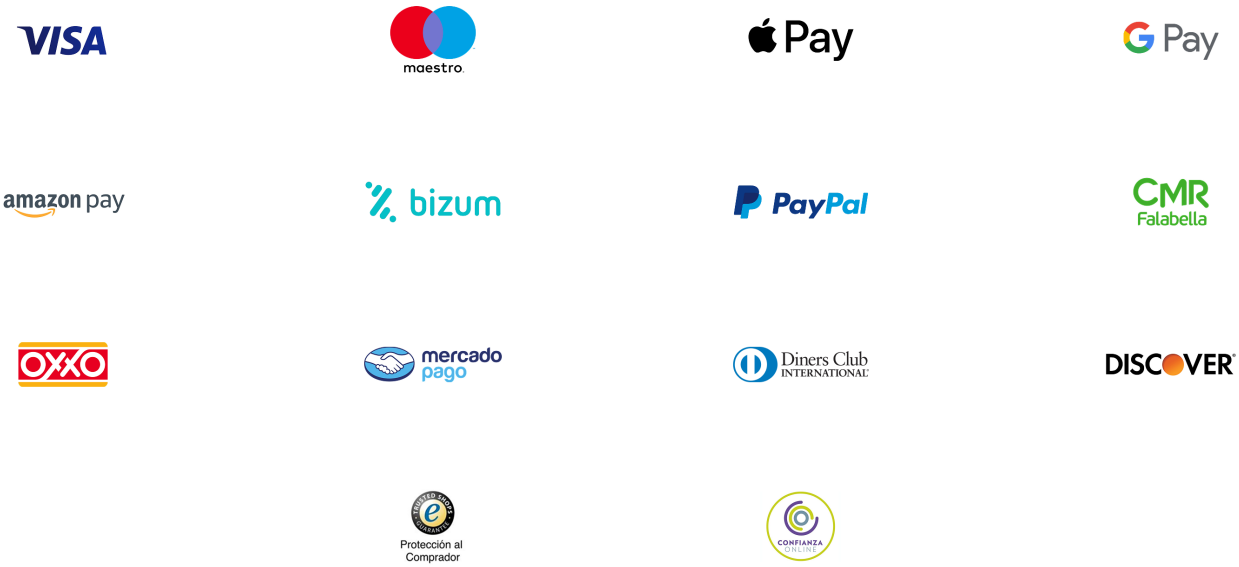
EDUCA EDTECH Group leads the digital revolution in education, promoting the continuous learning and technological transformation. The group is made up of recognized training institutions and its mission is to democratize access to education, promote the transfer of knowledge, technological development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



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