

Máster online 100%

Master in Highway Conservation and Traffic Engineering + 60 ECTS Credits

Structuralia

Máster online 100%

Master in Highway Conservation and Traffic Engineering + 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 Highway Conservation and Highway Engineering is an advanced specialization designed for professionals in the construction and civil engineering sector seeking an in-depth update in the administration of road networks. This program recognizes the strategic importance of transportation infrastructure as a fundamental asset for connectivity and development. It delves into the conservation of roads, covering everything from the main maintenance actions to the optimization of the operational, energy and environmental efficiency of these infrastructures. You will analyze the general maintenance schemes, the logic behind each intervention and the methodologies for evaluating the condition of the pavement and structures. You will specialize in winter roads, knowing in detail the types of fluxes, the management of specialized machinery and the design of robust operational plans to ensure trafficability in adverse weather conditions. In addition, the program addresses road safety, the analysis of accidents in networks and the development of strategies to mitigate risks, integrating the operation of the road into a global vision of its life cycle. You will develop a comprehensive perspective for informed decision-making and

leadership of high-impact projects, guaranteeing the resilience and optimal performance of road assets in the face of current technical, economic and administrative challenges.

Agenda

MODULE 1. GENERAL SCHEME OF CONSERVATION

1. DIDACTIC UNIT 1. INTRODUCTION AND OBJECTIVES.

1. General concepts.
2. Helps with roads.
3. Ordinary maintenance or conservation activities.
4. Activities to improve functional conditions and safety.
5. Highway use and defense activities.

2. DIDACTIC UNIT 2. MAIN CONSERVATION ACTIONS.

1. Mowing, pruning and clearing.
2. Plantation maintenance.
3. Cleaning of roads and shoulders.
4. Road safety.
5. Drain cleaning and repair.

3. DIDACTIC UNIT 3. GROUPS OF OPERATIONS.

1. The management of conservation activities.
2. Road and exploitation operations.
3. Ordinary conservation operations (I.
4. Ordinary conservation operations (II).
5. Machinery.

4. DIDACTIC UNIT 4. OPERATIONAL, ENERGY AND ENVIRONMENTAL EFFICIENCY.

1. Efficiency of heavy conservation vehicles.
2. Tunnel lighting.
3. Control and management system for tunnel facilities.
4. Environmental management in comprehensive conservation Indicators and exploitation.

MODULE 2. WINTER ROADS

1. DIDACTIC UNIT 1. INTRODUCTION TO THE WINTER ROAD SERVICE

1. Need for winter road service
2. History of winter roads
3. Meteorological concepts related to winter roads
4. Typology of treatments
5. Service levels

2. DIDACTIC UNIT 2. FLUXES

1. Typology of fluxes
2. Characteristics of the application of solid state fluxes
3. Characteristics of the application of solid state fluxes with prewetting
4. Characteristics of the application of fluxes in liquid state

5. Features of the application of abrasives and other fluxes

3. DIDACTIC UNIT 3. MACHINERY AND FLUX STORAGE

1. Push elements (I)
2. Thrust elements (II) and dynamic elements
3. Flux and/or abrasive extenders
4. Flux extenders in liquid state and equipment maintenance requirements
5. Management and storage of fluxes

4. DIDACTIC UNIT 4. OPERATIONAL PLANS

1. Meteorological factors: ice
2. Meteorological factors: snow
3. Healing treatments with precipitation in the form of snow
4. Traffic management. Establishment of restrictions on vehicle circulation
5. Winter road operational plan

MODULE 3. ROAD SAFETY. ROAD OPERATION

1. DIDACTIC UNIT 1. ACCIDENTS ON ROAD NETWORKS.

1. Concurrent factors.
2. Accident rates.
3. Road safety programs. Audits and inspections.
4. "In situ" accident analysis. Restriction on mobility
5. Traffic engineering (I).
6. Traffic engineering (II).

2. DIDACTIC UNIT 2. HIGHWAY EXPLOITATION.

1. Legislation. Public domain.
2. Advertising. Authorizations and other elements.
3. Access
4. Violations and sanctions.
5. Arterial networks, crossings and urban sections.

3. DIDACTIC UNIT 3. SIGNAGE OF FIXED WORKS.

1. Function and object
2. Elements
3. Circulation planning. Example manual
4. Installation and removal of construction signs.
5. Special cases, conservation, errors and evolution.

4. DIDACTIC UNIT 4. SIGNALING OF MOBILE WORKS

1. Function and object.
2. Procedure.
3. Equipment and marking of vehicles.
4. Conservation work with mobile signage.
5. Examples manual. Evolution of the technique

MODULE 4. CONSERVATION OF ROAD ELEMENTS (I)

1. DIDACTIC UNIT 1. FIRM (I).

1. Firm classification.
2. Auscultation of pavements.
3. Surface rehabilitation of pavements.
4. Deep rehabilitation of pavements (I).
5. Deep rehabilitation of pavements (II).

2. DIDACTIC UNIT 2. FIRM (II).

1. Firm management.
2. Maintenance activities.
3. Studies on the evolution of a road surface.
4. Operational efficiency in pavement conservation.
5. Software for road management and maintenance.

3. DIDACTIC UNIT 3. LANDS AND STRUCTURES (I).

1. Structure inspection.
2. Structure monitoring.
3. Maintenance plan.
4. Typology of damage to a structure.
5. Repair catalog.

4. DIDACTIC UNIT 4. LANDS AND STRUCTURES (II).

1. Slope inspection.
2. Anchors and guiding meshes on slopes.
3. Screens against landslides.
4. Protection ditches.
5. Control and monitoring of slopes.

MODULE 5. CONSERVATION OF ROAD ELEMENTS (II)

1. DIDACTIC UNIT 1. SIGNALING

1. Definition, design and characteristics of vertical signage.
2. Retroreflection and criteria for the implementation of vertical signage.
3. Vertical signaling operations.
4. Definition, purpose and characteristics of horizontal signage.
5. Materials, selection criteria and application of horizontal signage.

2. DIDACTIC UNIT 2. BEACONS AND DEFENSES.

1. Definition, classification and beacon elements.
2. Installation and operations of beacons
3. Enclosing fences.
4. Vehicle containment systems. Safety barriers and parapets.
5. Arrangement of barriers and parapets. Other vehicle containment systems.

3. DIDACTIC UNIT 3. TUNNEL INSTALLATIONS

1. Facility diagnosis.
2. Diagnosis and intervention of tunnels.
3. Tunnels-Facilities.
4. Tunnels-Structural elements.
5. Tunnels-State of the linings.

4. DIDACTIC UNIT 4. WINTER ROADS.

1. General aspects.
2. Organization of winter road work.
3. Fluxes and machinery.
4. Acting techniques.
5. Meteorology and management systems.

MODULE 6. INSPECTION AND MAINTENANCE OF TUNNELS

1. DIDACTIC UNIT 1. MAINTENANCE NEEDS

1. Introduction
2. Inspection and maintenance process
3. Examples of some regulations.
4. Underground works.
5. The construction systems and own pathologies

2. DIDACTIC UNIT 2. PATHOLOGY ANALYSIS

1. Definitions and methodology for pathology evaluation.
2. Assessment of the condition of the tunnel. General to all tunnels.
3. Assessment of the condition of the tunnel, according to construction material (I)
4. Assessment of the condition of the tunnel, according to construction material (II). Evolution over time
5. Analysis of the causes.

3. DIDACTIC UNIT 3. TUNNEL INSPECTION

1. Phases of inspection and visual inspection.
2. Detailed visual inspection.
3. Non-destructive inspection.
4. Destructive inspection.
5. Inspection analysis.

4. DIDACTIC UNIT 4. REPAIR AND AUSCULTATION ACTIONS

1. Need for intervention. Maintenance and repairs
2. Some intervention techniques. Examples of actions
3. Monitoring of tunnels in service
4. Analysis of particular cases (I)
5. Analysis of particular cases (II)

MODULE 7. ENVIRONMENTAL MANAGEMENT IN ROAD CONSERVATION

1. DIDACTIC UNIT 1. INTRODUCTION TO ENVIRONMENTAL MANAGEMENT

1. Introduction and background

2. Methodology of environmental management systems
3. EMS planning (I). Environmental actions and aspects
4. EMS Planning (II). Legal requirements and environmental objectives
5. Support (or support) within the EMS

2. DIDACTIC UNIT 2. EVALUATION, IMPROVEMENT AND CERTIFICATION OF THE EMS

1. SGA operation. Controls and accidents
2. EMS performance evaluation (I). Monitoring and analysis
3. EMS performance evaluation (II). Audits and reviews
4. Environmental management system improvement process
5. Company and product certification process

3. DIDACTIC UNIT 3. MANAGEMENT OF WASTE AND HAZARDOUS SUBSTANCES OR MIXTURES

1. Introduction to waste management
2. Fundamentals of non-hazardous waste (RNP)
3. Fundamentals of hazardous waste (RP)
4. Other specific waste. Treatment and management
5. Dangerous substances or mixtures (or preparations)

4. DIDACTIC UNIT 4. OTHER PRODUCTS AND SUSTAINABLE ACTIVITY SHEETS

1. Application of herbicide products
2. Installation of fuel tanks
3. Other authorizations
4. Environmental impacts of conservation and use of "good environmental practices"
5. Sustainable activity sheets

MODULE 8. ROAD FUNCTIONALITY AND MANAGEMENT

1. DIDACTIC UNIT 1. SUSTAINABLE DESIGN OF THE ROAD NETWORK

1. Classification and hierarchy of the urban road network
2. Infrastructure design
3. Unique configurations
4. Road junctions
5. Crossing points, prioritization and traffic lights

2. DIDACTIC UNIT 2. FUNDAMENTAL TRAFFIC PARAMETERS

1. Characterization of traffic in urban centers
2. Access and main conflicts
3. Traffic and mobility studies
4. Coexistence with other modes of transport
5. Accident rates and accidents

3. DIDACTIC UNIT 3. SPECIFIC AND COMPLEMENTARY ACTIONS

1. Definition of itineraries
2. Urban road reorganization

3. traffic calming
4. Road signs
5. Universal accessibility and gender perspective

4. DIDACTIC UNIT 4. TRAFFIC AND PARKING MANAGEMENT

1. Restrictions on vehicle circulation
2. Regulation of parking in urban centers
3. Urban distribution of goods
4. Traffic control and management centers
5. Road safety audits

MODULE 9. PUBLIC LIGHTING. ENERGY EFFICIENCY TECHNOLOGIES

1. DIDACTIC UNIT 1. INTRODUCTION TO PUBLIC LIGHTING

1. History of public lighting
2. Basics
3. Current regulations
4. Types of luminaires
5. Types of roads

2. DIDACTIC UNIT 2. THE PUBLIC LIGHTING SYSTEM

1. The luminary
2. command center
3. Measurement module
4. Public lighting lines
5. Supports

3. DIDACTIC UNIT 3. ENERGY EFFICIENCY TECHNOLOGIES

1. Current context
2. Efficiency in lighting and maintenance
3. New systems to improve efficiency
4. Sustainable lighting

4. DIDACTIC UNIT 4. PUBLIC LIGHTING ENERGY AUDITS

1. Introduction
2. Energy audits
3. Contracts to improve AP facilities
4. Energy efficiency services company
5. Audit success stories

MODULE 10. TFM. MASTER IN HIGHWAY CONSERVATION AND EXPLOITATION ENGINEERING

Qualification

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

Objectives

- • You will lead the planning and execution of road maintenance actions, optimizing the operational, energy and environmental efficiency of the infrastructure. • You will design advanced strategies for managing winter passability, including the selection of fluxes and the implementation of effective operational plans. • You will evaluate the impact of accidents on road networks, developing and implementing road safety measures that improve the operation of the infrastructure. • You will manage the technical and human resources involved in maintenance operations, ensuring the functionality and sustainability of the road heritage. • You will make strategic decisions to resolve complex problems in road maintenance contracts, applying specialized engineering procedures. • You will integrate a global vision of maintenance engineering, from the introduction to the objectives to the application of advanced techniques in the network. • You will develop solid criteria for the most appropriate intervention in the event of deterioration and deficiencies, guaranteeing the useful life and performance of the roads. • You will implement innovative solutions for maintenance management, adapting to the technical and administrative demands of the sector.

What does it prepare you for?

This program prepares you to lead the administration and resolution of the most complex challenges in the conservation and operation of the road network. You will develop a strategic vision that will allow you to optimize the use of resources and apply advanced engineering techniques in each action. The Master in Highway Conservation and Road Engineering trains professionals in the optimization of resources for the administration of transport infrastructure, guaranteeing the functionality and sustainability of road heritage. You will learn to design maintenance strategies that integrate operational, energy and environmental efficiency. You will be able to implement winter management plans, selecting the appropriate fluxes and managing machinery effectively. You will evaluate the impact of accidents on transportation networks, proposing innovative solutions in road safety. You will make informed decisions to manage conservation contracts, anticipating and resolving common problems with a rigorous technical and administrative approach.

Who is it addressed to?

Aimed at professionals in the construction and civil engineering sector, both in the public and private spheres, who already work in the administration of infrastructure or road projects and are looking for high-level specialization. If your objective is to adapt to the technical and administrative demands in road maintenance, this training offers you the necessary update. It is designed for those who wish to ensure the sustainability and functionality of road heritage, solving complex problems in conservation contracts. If your concern is to optimize operational, energy and environmental efficiency in maintenance actions, and you are looking for a strategic vision in the administration of winter passability and road safety, here you will find the specialization you need.

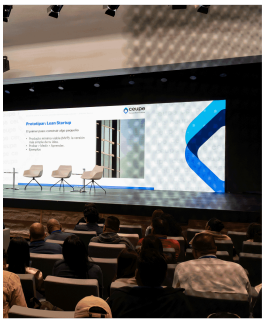
Official Character

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 the advanced administration of the conservation and maintenance of road networks will position you to assume highly responsible roles in the infrastructure sector. You will be able to lead teams and strategic projects as Director of Conservation of Road Networks, managing the complete life cycle of road assets in public administrations or large construction companies. You will assume the role of Winter Operations Manager, designing and implementing efficient and safe operational plans to guarantee passability. You will also consolidate your profile as a Specialized Consultant in Road Maintenance Engineering, advising public and private entities on the optimization of resources and the application of advanced techniques. You will be a Senior Road Operation and Safety Engineer, integrating strategies to reduce accidents and improve the functionality of roads. Your profile will be key in making decisions about the most appropriate intervention for each deterioration, ensuring the sustainability and performance of transport infrastructure.







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

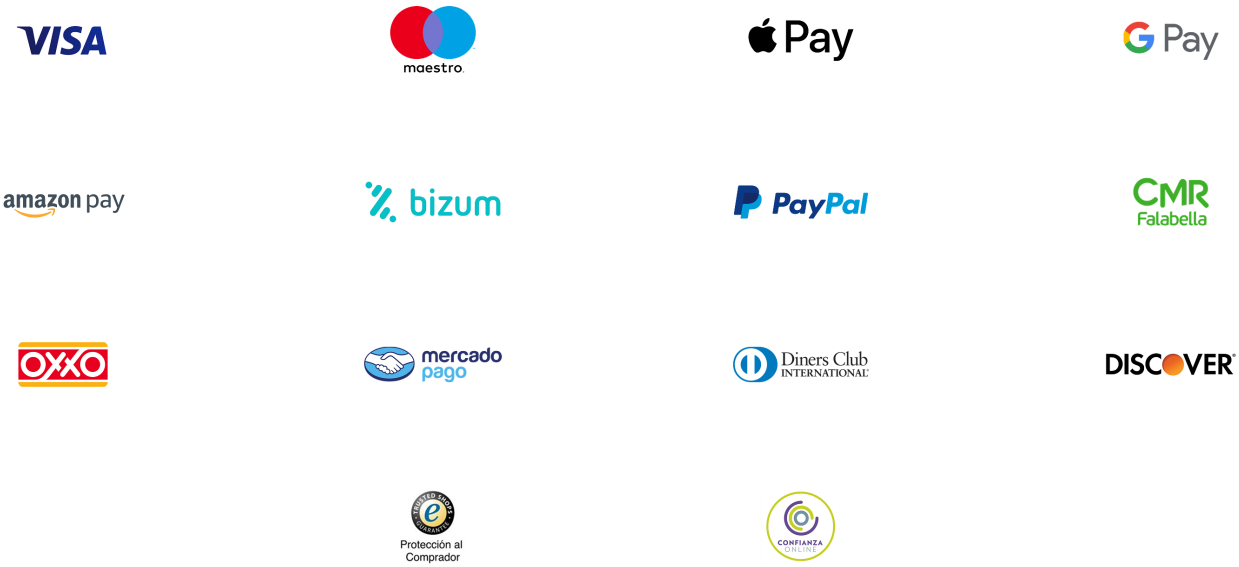
EDUCA EDTECH Group leads the digital revolution in education, promoting the continuous learning and technological transformation. The group is made up of recognized training institutions and its mission is to democratize access to education, promote the transfer of knowledge, technological development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



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