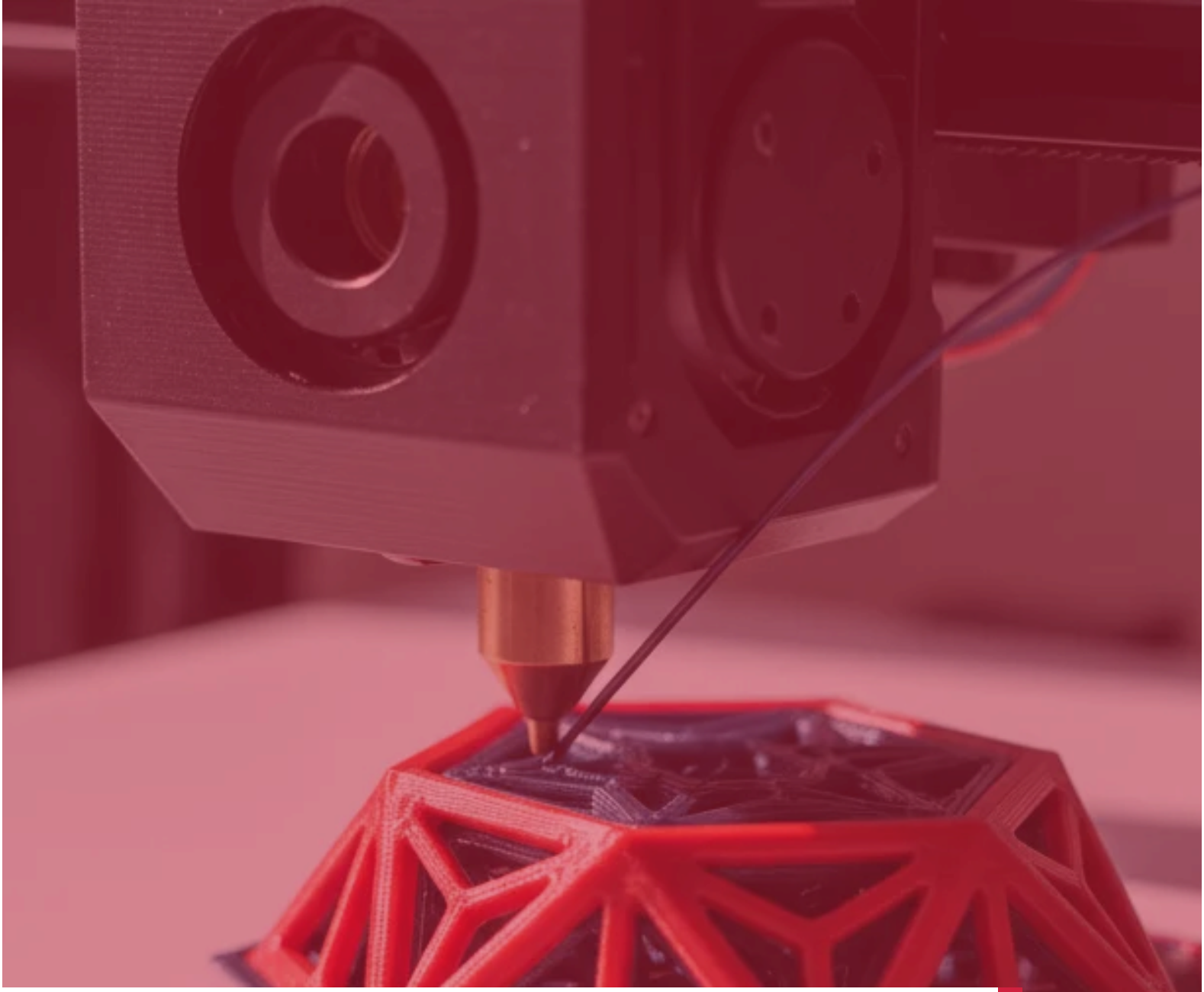


Máster online 100%

Master in 3D Printing + 60 ECTS Credits

Structuralia

Máster online 100%

Master in 3D Printing + 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 3D Printing is a high-level specialization for engineering, design, architecture, medicine, automotive or fashion professionals who seek to integrate this technology into their work processes. You will explore the cutting edge of additive manufacturing, transcending the fundamentals to master its most complex applications in the field of industrial 3D printing. You will cover advanced printer architecture and the most innovative 3D printing technologies, from FDM to resin printing, exploring a spectrum of technical materials that define the future of production. You will delve into the design and modeling of 3D elements, using reference tools such as Autodesk Fusion 360 and Inventor, and hone your skills in 3D scanning, editing and mesh repair. Process optimization is key. You will learn to configure advanced slicers such as Ultimaker Cura and PrusaSlicer, and you will master post-printing techniques for precision finishing, ensuring the quality and functionality of the parts. This program prepares you to integrate additive manufacturing into complex industrial strategies, leading innovation and solving technical challenges in various sectors.

You will develop a strategic vision that will allow you to implement disruptive solutions and optimize value chains, transforming the conception and production of components.

Agenda

MODULE 1. DESIGN AND 3D PRINTING

1. DIDACTIC UNIT 1. INTRODUCTION TO 3D PRINTING

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

2. DIDACTIC UNIT 2. ARCHITECTURE OF 3D PRINTERS

1. Components of a 3D printer
2. Assemble your 3D printer yourself

3. DIDACTIC UNIT 3. 3D PRINTING TECHNOLOGIES

1. Introduction
2. Evolution of printing technologies

4. DIDACTIC UNIT 4. MATERIALS

1. Materials for 3D printing
2. 3D materials: types and uses

5. DIDACTIC UNIT 5. DESIGN AND MODELING OF 3D ELEMENTS

1. Computer Aided Design Concept
2. Brief history of CAD
3. Implementation of CAD in the market
4. Basic modeling tools
5. Programs for initiation into 3D modeling
6. 3D design with Tinkercad

6. DIDACTIC UNIT 6. 3D SCANNING

1. Scanner
2. Scanning process
3. 3D scanning applications

7. DIDACTIC UNIT 7. EDITION AND REPAIR OF MESH

1. The tights
2. Mesh editing
3. Mesh repair

8. DIDACTIC UNIT 8. SLICERS OR SLICERS

1. Slicers or slicers
2. Ultimaker Cura

9. DIDACTIC UNIT 9. RECOMMENDATIONS ON 3D DESIGN

1. Design
2. Software
3. Printer
4. Materials

10. DIDACTIC UNIT 10. 3D PRINTING STEP BY STEP: EXAMPLES

1. Get a model
2. Position the object
3. Print
4. Laminate

11. DIDACTIC UNIT 11. 3D POST PRINTING: FINISHES

1. Finish
2. Surface finish
3. Identify and correct problems

MODULE 2. THE DESIGN PROCESS AND PRODUCT ARCHITECTURE

1. DIDACTIC UNIT 1. GENERAL ASPECTS ABOUT INDUSTRIAL DESIGN

1. Define the product
2. creativity
3. Feasible solution proposal
4. Detailed and documented design

2. DIDACTIC UNIT 2. MODELS AND TECHNIQUES OF THE INDUSTRIAL DESIGN PROCESS

1. Introduction to Industrial Design process models
2. HUMBLES method
3. Affective Design
4. Kansei Engineering

3. DIDACTIC UNIT 3. MODULARITY AND TOOLS FOR PRODUCT ARCHITECTURE

1. Product Modularity
2. Product architecture manufacturing tree
3. Simulation tools in production

4. DIDACTIC UNIT 4. METHODS FOR DETERMINING THE FLOW OF INFORMATION IN THE DESIGN PROCESS

1. Design Sequencing
2. Flowcharts
3. Distribution and layout of the production process
4. concurrent engineering

5. DIDACTIC UNIT 5. PRODUCT DESIGN CRITERIA: AVAILABILITY, ERGONOMICS, SAFETY AND ECODESIGN

1. Criteria for good design
2. Availability to carry out the product
3. Ergonomics applied to product design
4. Security: criteria and regulations
5. Ecodesign

6. DIDACTIC UNIT 6. ADDITIVE AND SUBTRACTIVE MANUFACTURING

1. Introduction and definition of additive and subtractive manufacturing
2. Additive manufacturing
3. Subtractive manufacturing

7. DIDACTIC UNIT 7. MOLD AND DIE DEVELOPMENT TECHNOLOGIES

1. Introduction to molds and dies
2. Model-less mold manufacturing development
3. New technologies in mold tool development

MODULE 3. TOOLS IN INNOVATION MANAGEMENT: REVERSE ENGINEERING

1. DIDACTIC UNIT 1. HOW IS INNOVATION MANAGED?

1. Definition of innovation management
2. Concept and types of innovation
3. Fundamentals of technological innovation
4. The R&D&I process and management models
5. Innovation management agents, activities and techniques

2. DIDACTIC UNIT 2. TECHNOLOGICAL SURVEILLANCE

1. Types of technological surveillance
2. Essential aspects of technological surveillance
3. Information search
4. Implementation of technological surveillance

3. DIDACTIC UNIT 3. STUDY OF THE TECHNOLOGICAL TREND

1. Introduction
2. Concept and essential notions of technological foresight
3. Typology of techniques for technological foresight
4. Implementation requirements

4. DIDACTIC UNIT 4. THE BENCHMARKING

1. Importance of benchmarking
2. Delimitation and benefits of benchmarking
3. Classification of benchmarking techniques
4. Requirements and stages of benchmarking

5. DIDACTIC UNIT 5. THE VALUE CHAIN

1. Origin of the term Value Chain
2. Value Chain Analysis
3. Value and margin activities
4. Classification of Value Chains
5. Phases of the creation of the Value Chain

MODULE 4. 3D PRINTING WITH RESIN

1. DIDACTIC UNIT 1. INTRODUCTION TO 3D PRINTING WITH RESIN

2. DIDACTIC UNIT 2. EQUIPMENT AND MATERIALS IN 3D PRINTING WITH RESIN

3. DIDACTIC UNIT 3. PREPARATION OF FILES AND MODELS FOR 3D PRINTING WITH RESIN

4. DIDACTIC UNIT 4. 3D PRINTING PROCESS WITH RESIN

5. DIDACTIC UNIT 5. POSTPROCESSING OF PARTS PRINTED WITH RESIN

6. DIDACTIC UNIT 6. SAFETY AND MAINTENANCE IN 3D PRINTING WITH RESIN: GOOD PRACTICES

MODULE 5. FUSION 360

1. DIDACTIC UNIT 1. INTERFACE AND BASIC NOTIONS IN FUSION 360

1. Fusion 360
2. Installation
3. User interface
4. Work spaces

2. DIDACTIC UNIT 2. 2D DESIGN - SKETCH

1. 2D Design Basics
2. Creation and editing of sketches
3. Application of constraints and dimensions
4. Import and export of sketches

3. DIDACTIC UNIT 3. CREATION OF SOLIDS

1. 2D profile extrusion
2. Holes
3. Profile Revolution
4. Thread

4. DIDACTIC UNIT 4. SOLID EDITING

1. Splice/Chamfer

2. Empty
3. Scroll and rotate tools
4. Division and combination of solid bodies
5. Design history

5. DIDACTIC UNIT 5. CONSIDERATIONS FOR DESIGN ORIENTED FOR 3D PRINTING

1. Introduction to 3D printing
2. Requirements and prior considerations
3. Geometry Optimization for Print
4. 3D printing with Fusion 360

6. DIDACTIC UNIT 6. PROJECT ORGANIZATION AND OTHER TOOLS

1. Project and file management
2. Using versions and revisions
3. Collaboration and teamwork
4. Analysis and simulation tools

7. DIDACTIC UNIT 7. JOINTS AND ASSEMBLIES

1. Introduction to assemblies
2. Creation of components and parts
3. Unions and movement
4. Restrictions and relationships

8. DIDACTIC UNIT 8. RENDERING

1. Introduction to rendering in Fusion 360
2. Setting scenes and environments
3. Material Application
4. Generation and export of rendered images

MODULE 6. AUTODESK INVENTOR

1. DIDACTIC UNIT 1. INTRODUCTION

1. Introduction
2. Inventor file types and templates
3. Parts
4. Operations
5. Assemblies
6. Drawings
7. Design publication
8. Data management
9. print design

2. DIDACTIC UNIT 2. INTERFACE

1. The application menu
2. The interface

3. DIDACTIC UNIT 3. START A PROJECT

1. Introduction
2. Create a project
3. Create a File
4. Save a File
5. Open a File
6. Close

4. DIDACTIC UNIT 4. MODELING OF PARTS

1. Introduction
2. Work Operations
3. Work operations

5. DIDACTIC UNIT 5. SKETCH

1. Create and edit sketches
2. Geometry modification

6. DIDACTIC UNIT 6. SKETCH GEOMETRY

1. Projecting geometry onto a 2D sketch
2. Sketch constraints
3. Representation of a part view

7. DIDACTIC UNIT 7. SKETCH OPERATIONS

1. Introduction
2. Extrusion
3. Revolution
4. Propagation of extruded shapes
5. Sweeps
6. Solevar
7. Coils
8. Nerves

8. DIDACTIC UNIT 8. PREDEFINED OPERATIONS

1. Introduction
2. Splices
3. Chamfers
4. Holes
5. Threads
6. Draft or pouring angle
7. Resizing and positioning predefined and sketch features
8. Edit sketch and predefined features
9. Deleting or deactivating operations

MODULE 7. ULTIMAKER CURE

1. DIDACTIC UNIT 1. INTRODUCTION TO 3D LAMINATION

1. What is 3D lamination?
2. Applications of 3D lamination
3. Key concepts of 3D lamination

4. The 3D lamination process
5. The near future of 3D lamination

2. DIDACTIC UNIT 2. DOWNLOAD, INSTALLATION AND INITIAL SETUP

1. Introduction to Ultimaker Cura
2. Download and installation

3. DIDACTIC UNIT 3. INTERFACE AND TOOLS IN CURA

1. User interface
2. Top bar
3. Accessories

4. DIDACTIC UNIT 4. PRINT SETTINGS I

1. Additional Ultimaker Cura Tools
2. Printing recommendations
3. Resolving common printing problems
4. Model settings
5. Print settings

5. DIDACTIC UNIT 5. PRINT SETTINGS II

1. Custom print settings

6. DIDACTIC UNIT 6. SEGMENTATION AND PRE-PRINT VISUALIZATION

1. Segmentation in 3D printing
2. Segmentation in Ultimaker Cura
3. Print Preview
4. Preview in Ultimaker Cura

MODULE 8. PRUSA SLICER

1. DIDACTIC UNIT 1. INTRODUCTION TO 3D LAMINATION

1. Introduction to lamination for printing 3D models

2. DIDACTIC UNIT 2. DOWNLOADING, INSTALLING AND SETTING UP PRUSASLICER

1. PrusaSlicer download, installation and initial configuration

3. DIDACTIC UNIT 3. USER INTERFACE IN PRUSASLICER

1. PrusaSlicer User Interface

4. DIDACTIC UNIT 4. TOOLBARS IN PRUSASLICER

1. Toolbars in PrusaSlicer

5. DIDACTIC UNIT 5. PRINT AND FILAMENT SETTINGS IN PRUSA SLICER

1. Print and filament settings in PrusaSlicer

6. DIDACTIC UNIT 6. ADVANCED FEATURES, VIEW AND EXPORT IN PRUSASLICER

1. Advanced features, viewing and exporting in PrusaSlicer

MODULE 9. FINAL PROJECT

Qualification

University Degree in Master of Lifelong Training in 3D Printing issued by the Antonio de Nebrija University with 60 ECTS University Credits. Teachings not leading to obtaining an official qualification

Objectives

- • Master 3D design and modeling with professional software for the creation of complex components. • Evaluate and select additive manufacturing technologies and advanced materials based on specific application requirements. • Manage the architecture and calibration of additive printing systems to optimize their performance. • Implement 3D scanning and mesh editing techniques for reverse engineering and rapid prototyping. • Design and model with Autodesk Fusion 360 and Inventor, applying design recommendations for additive production. • Perfect the post-processing of printed parts, ensuring high quality finishes and functionality. • Strategically integrate additive manufacturing into industrial projects, promoting innovation and productive efficiency. • Make informed decisions about implementing additive manufacturing solutions to solve design and manufacturing challenges.

What does it prepare you for?

This program prepares you to master the complete cycle of Additive Engineering, from design and Advanced 3D Modeling to part post-processing. You will acquire the ability to design implementation strategies for 3D Printing Technologies on an industrial scale, evaluating their impact on the value chain and sustainability. You will manage printer architecture and advanced materials selection, making informed decisions to optimize production and final quality. You will integrate 3D scanning and mesh editing into complex workflows, solving engineering and design problems with innovative solutions. The Master in 3D Printing trains professionals in the strategic management of additive manufacturing to optimize industrial production. You will develop a strategic vision that will allow you to lead digital transformation projects in your sector, applying software such as Autodesk Fusion 360 and Inventor to drive efficiency and continuous innovation.

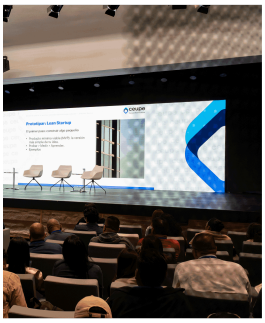
Who is it addressed to?

Aimed at engineering, design and architecture professionals seeking an advanced specialization in Additive Manufacturing. It is ideal if you work in sectors such as medicine, automotive or fashion and want to integrate 3D Printing Technologies into your work processes. If you are interested in mastering Advanced 3D Modeling, printer architecture and Professional 3D Scanning, this program will provide you with the strategic tools to lead innovation in your field, applying solutions from conception to post-processing of parts.

Professional Outings

- The Additive Manufacturing specialization prepares you to assume strategic leadership roles in various sectors. You will be able to serve as Director of Additive Manufacturing, leading the implementation of these technologies in complex industrial processes and optimizing production chains. You will be a Senior Product Development Engineer, integrating advanced Industrial 3D Design for the creation of innovative components in the automotive, aerospace or medicine. You can also work as a Specialized Consultant in 3D Printing Technologies, advising companies on the optimization of their production chains and the adoption of efficient 3D post-processing solutions. You will manage multidisciplinary teams, driving innovation and productive efficiency from 3D scanning to high-quality finishes.







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.



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5 stars

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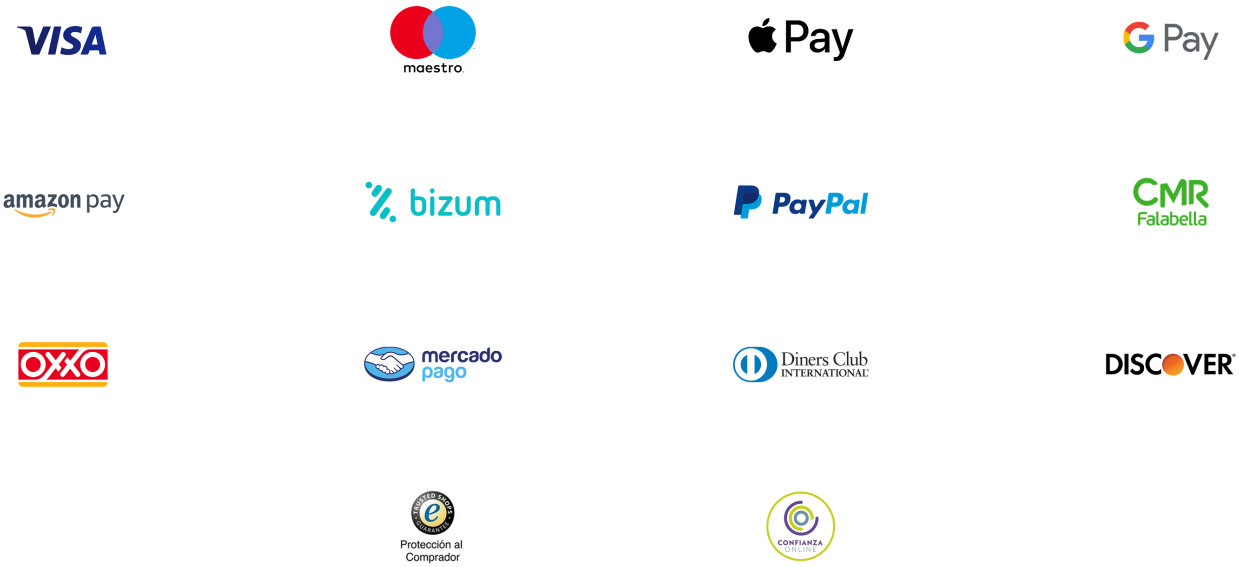
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With the experience accumulated over more than 20 years, we have perfected our learning platform EDUCA LXP (Learning Experience Platform), the basis of our educational methodology, which provides students with online training practical and meaningful.



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