

Postgraduate Certificate Technology of Metallic Construction Materials



Postgraduate Certificate Technology of Metallic Construction Materials

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Schedule: at your own pace
- » Exams: online

Website: www.techtute.com/in/engineering/postgraduate-certificate/technology-metallic-construction-materials

Index

01

Introduction

p. 4

02

Objectives

p. 8

03

Course Management

p. 12

04

Structure and Content

p. 18

05

Methodology

p. 22

06

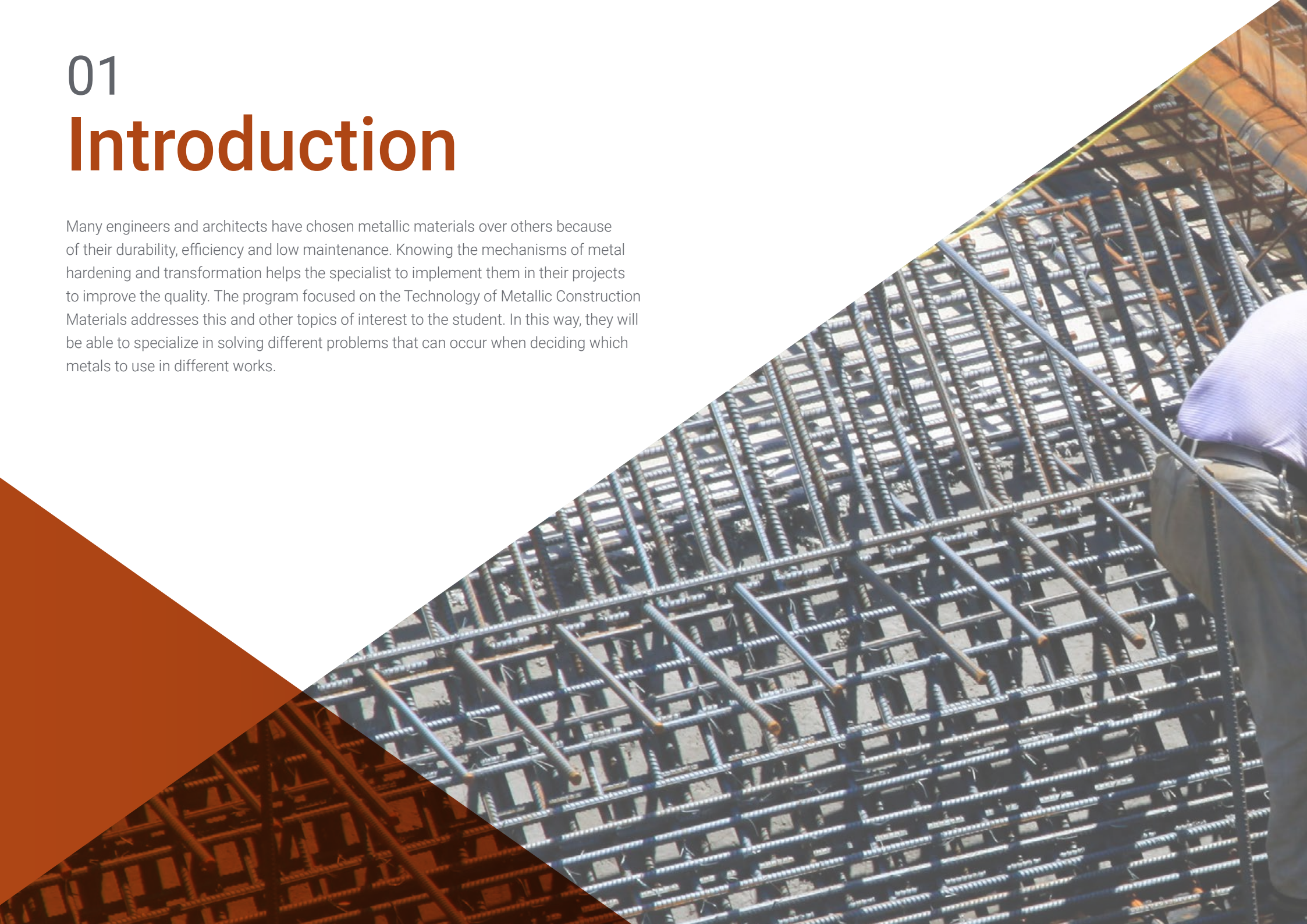
Certificate

p. 30

01

Introduction

Many engineers and architects have chosen metallic materials over others because of their durability, efficiency and low maintenance. Knowing the mechanisms of metal hardening and transformation helps the specialist to implement them in their projects to improve the quality. The program focused on the Technology of Metallic Construction Materials addresses this and other topics of interest to the student. In this way, they will be able to specialize in solving different problems that can occur when deciding which metals to use in different works.





“

Acquire new skills by specializing in the new technologies of metallic materials and give a boost to your career”

Since humans implemented metals in construction, they have only perfected their use as a structural element. Being one of the protagonists in the industrial revolution, it replaced wood and iron was processed to produce steel, one of the most common elements found in buildings such as large shopping malls or soccer stadiums. The Postgraduate Certificate in Technology of Metallic Construction Materials will deepen student's theoretical basis to address the fundamentals of these materials.

Based on the above, the student will be able to specialize in the mechanisms of hardening and phase transformation, modification of properties, behavior and characteristics of the main metals in construction, among other topics. All this, with the intention of acquiring the necessary skills to solve the different problems that may arise when working with these elements in the field of engineering.

Therefore, the different characteristics of metallic materials must be mastered, as well as their manufacturing processes and treatments, defining and assessing their different properties. This knowledge will enable you to design products and different components.

For this reason, we have an excellent teaching staff that offers students their extensive experience in the new technological materials applied to engineering and construction. With a 100% online Postgraduate Certificate students will be able to study comfortably, wherever and whenever they want. All you need is a device with internet access to take your career one step further. A modality according to the current times with all the guarantees to position the engineer in a highly demanded sector.

This **Postgraduate Certificate in Technology of Metallic Construction Materials** contains the most complete and up-to-date educational program on the market. The most important features of the program include:

- ◆ Gain in-depth knowledge of the variables, analysis and processing methods, as well as the characterization and properties of the materials used in construction
- ◆ Determine the life cycle and the carbon footprint of the materials
- ◆ Experiment with new materials and technology related to new applications and uses
- ◆ Manage new building technologies and participate in building quality management processes
- ◆ Evaluate aspects of sustainability and environmental impact of the materials
- ◆ Analyze the concept of durability of the construction materials and their relationship with the concept of sustainability
- ◆ Identify the main causes of the alteration of construction materials



Master the different characteristics of metallic materials by experimenting with them and improve your professional profile in order to manage different modern infrastructure projects"

“

A 100% online Postgraduate Certificate that will allow you to balance your studies with your work life, while you learn through a theoretical-practical methodology”

The program's teaching staff includes professionals from sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

This program is designed around Problem Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts.

You will always have access to the multimedia content no matter where you are in the world.

Learn to master the different characteristics of the metallic materials in order to implement them in modern works with as little environmental impact as possible.



02 Objectives

Acquiring new competencies and skills is essential for engineers seeking to enhance their professional profile. For this reason, the Postgraduate Certificate in Technology of Metallic Construction Materials provides students with all the knowledge they need to specialize in this area. In this way, future graduates will be able to learn more about the different metallic materials used in construction and the characteristics that make them unique.





“

Steel has become one of the most important materials in modern constructions, specialize in this field and enhance your professional profile"



General Objectives

- ◆ Perform an exhaustive analysis of the different types of construction materials
- ◆ Gain in-depth knowledge of the features of different construction materials
- ◆ Implement new technologies applied to engineering materials
- ◆ Assess the waste materials
- ◆ Manage materials from a quality and production point of view
- ◆ Apply new techniques in making construction materials that are more environmentally friendly
- ◆ Raise awareness of new trends and materials applied to construction





Specific Objectives

- ◆ Study the different metallic materials and their typologies
- ◆ Analyze the bending performance of steel and its regulations
- ◆ Know in detail the most important properties and behavior of steel as a construction material

“

Acquires the necessary skills to solve problems when choosing the type of metallic material to be used in a civil work"

03

Course Management

In our commitment to offer education for all, TECH works with renowned professionals in order for the student to acquire solid knowledge of the technology that has been developed for metallic construction materials. For this reason, this Postgraduate Certificate has a highly qualified team with extensive experience in the sector, who will offer students the best possible resources in the development of their skills during the course.



“

With highly trained and experienced teachers, you will be able to handle and analyze the different types of metals that can be used in a construction”

Management



Dr. Miñano Belmonte, Isabel de la Paz

- ◆ Contracted Doctor for the Advanced Construction Science and Technology Group of the Polytechnic University of Cartagena.
- ◆ Technical Architect from the Polytechnic University of Cartagena
- ◆ Construction Engineer from the Camilo José Cela University
- ◆ PhD from the Polytechnic University of Cartagena
- ◆ Master's Degree in Construction (Major in Technology) from the Polytechnic University of Valencia
- ◆ Speaker at various national and international conferences and congresses
- ◆ Author of the books "*Manual de cálculo de hormigón armado. Teoría y ejemplos prácticos*" (Reinforced concrete calculation manual. Theory and practical examples) and "*Problemas resueltos de hormigón armado (HA)*" (Solved problems of reinforced concrete), as well as author of specific chapters in other books
- ◆ Co-author of various scientific high-impact publications on construction materials



Dr. Benito Saorin, Francisco Javier

- ◆ Technical Architect in Optional Direction and Coordination Functions Of SS
- ◆ Municipal Technician in the Ricote-Murcia Town Hall
- ◆ Work experience in an Architecture Office
- ◆ Construction Engineer
- ◆ Construction Engineer from the Camilo José Cela University
- ◆ PhD from the Polytechnic University of Valencia
- ◆ Master's Degree in Construction (Major in Technology) from the Polytechnic University of Valencia
- ◆ Vast experience in R&D&I with more than 10 years experience on site
- ◆ Reviewer of journals indexed in JCR
- ◆ Articles in international congresses and high-impact indexed journals on the different areas of construction materials



Dr. Rodríguez López, Carlos Luis

- ◆ Head of the Materials Department at the Construction Technology Center of the Region of Murcia
- ◆ Coordinator of the sustainable construction and climate change area in CTCON
- ◆ Technician in the projects department of PM Arquitectura y Gestión SL
- ◆ PhD in Construction Engineering in Construction Materials and Sustainable Construction
- ◆ Construction Engineer from Polytechnic University of Cartagena
- ◆ PhD from the University of Alicante
- ◆ Master's Degree in Engineering of Materials, Water and Land: Sustainable Construction from the University of Alicante
- ◆ Extensive experience in R&D&I
- ◆ Articles in international congresses and high-impact indexed journals on the different areas of construction materials
- ◆ Specialist in the development of new materials, products for construction and in the analysis of pathologies in construction

Professors

Mr. del Pozo Martín, Jorge

- ◆ Technical and economic evaluator and project auditor at the Spanish Ministry of Science and Innovation
- ◆ Civil Engineer
- ◆ Diploma in Business Administration from UNED In his professional work experience, he worked in the private sector in Arthur Andersen, Pacadar, Dragados and Bovis Lend Lease
- ◆ Master's Degree in Research in Civil Engineering from the University of Cantabria

Dr. Muñoz Sánchez, María Belén

- ◆ Consultant in Innovation and Sustainability of Construction Materials
- ◆ Reseracher in polymers at POLYMAT
- ◆ Dr. Engineer of Sustainable Processes and Materials from the University of the Basque Country
- ◆ Chemical Engineer from the University of Extremadura
- ◆ Master's Degree in Research, with a major in Chemistry from the University of Extremadura
- ◆ Extensive experience in R&D&I in materials, including waste valorization to create innovative construction materials
- ◆ Co-author of scientific article published in international journals
- ◆ Speaker at international congresses related to renewable energies and the environmental sector





“

The teaching materials of this program, elaborated by these specialists, have contents that are completely applicable to your professional experiences”

04

Structure and Content

The syllabus has been designed to comply with the requirements demanded by construction companies. Therefore, the student will develop the necessary skills to decide the type of material that best suits the structural needs of their work projects. From the first class, students will see their knowledge broadened, allowing them to learn through practical and theoretical content.





“

Master the different characteristics of metallic materials, as well as their manufacturing processes and treatments to choose those that best adapt to an infrastructure work"

Module 1. Metallic Materials

- 1.1. Metallic Materials: Types and Alloys
 - 1.1.1. Metals
 - 1.1.2. Ferrous Alloys
 - 1.1.3. Non-Ferrous Alloys
- 1.2. Ferrous Metal Alloys
 - 1.2.1. Fabrication
 - 1.2.2. Treatment
 - 1.2.3. Conformation and Types
- 1.3. Ferrous Metal Alloys. Steel and Castings
 - 1.3.1. Corten Steel
 - 1.3.2. Stainless Steel
 - 1.3.3. Carbon Steel
 - 1.3.4. Castings
- 1.4. Ferrous Metal Alloys. Products of Steel
 - 1.4.1. Hot Rolled Products
 - 1.4.2. Foreign Profiles
 - 1.4.3. Cold-Formed Profiles
 - 1.4.4. Other Products Used in Metallic Construction
- 1.5. Ferrous Metallic Alloys Mechanical Characteristics of Steel
 - 1.5.1. Stress-Strain Diagram
 - 1.5.2. Simplified E-Diagrams
 - 1.5.3. Loading and Unloading Process
- 1.6. Welded Joints
 - 1.6.1. Cutting Methods
 - 1.6.2. Types of Welded Joints
 - 1.6.3. Electric Arc Welding
 - 1.6.4. Fillet Welded Seams





- 1.7. Non-Ferrous Metal Alloys. Aluminium and its Alloys
 - 1.7.1. Properties of Aluminium and its Alloys
 - 1.7.2. Thermal Treatments and Hardening Mechanisms
 - 1.7.3. Designation and Standardization of Aluminum Alloys
 - 1.7.4. Aluminium Alloys for Forging and Casting
- 1.8. Non-Ferrous Metal Alloys. Copper and its Alloys
 - 1.8.1. Pure Copper
 - 1.8.2. Classification, Properties and Applications
 - 1.8.3. Brasses, Bronzes, Cupro-Aluminums, Cupro-Silicides and Cupro-Nickels
 - 1.8.4. Alpaca Silver
- 1.9. Non-Ferrous Metal Alloys. Titanium and its Alloys
 - 1.9.1. Characteristics and Properties of Commercially Pure Titanium
 - 1.9.2. Most Commonly Used Titanium Alloys
 - 1.9.3. Thermal Treatments of Titanium and its Alloys
- 1.10. Non-Ferrous Metal Alloys, Light Alloys and Superalloys
 - 1.10.1. Magnesium and its Alloys. Superalloys
 - 1.10.2. Properties and Applications
 - 1.10.3. Nickel-, Cobalt- and Iron-Based Superalloys

“

Learn about the characteristics of the most commonly used metals in civil engineering and enhance your professional profile when making important decisions on a construction site"

0?

Methodology

This training program offers a different way of learning. Our methodology uses a cyclical learning approach: Relearning.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the New England Journal of Medicine have considered it to be one of the most effective.





“

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

Our program offers a revolutionary method of skills and knowledge development. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

“

At TECH, you will experience a way of learning that is shaking the foundations of traditional universities around the world”



We are the first online university to combine Harvard Business School case studies with a 100% online learning system based on repetition.



A learning method that is different and innovative.

This intensive Engineering program at TECH Technological University prepares you to face all the challenges in this field, both nationally and internationally. We are committed to promoting your personal and professional growth, the best way to strive for success, that is why at TECH Technological University you will use Harvard case studies, with which we have a strategic agreement that allows us, to offer you material from the best university in the world.

“*Our program prepares you to face new challenges in uncertain environments and achieve success in your career”*”

The student will learn, through collaborative activities and real cases, how to solve complex situations in real business environments.

The case method is the most widely used learning system by the best faculties in the world. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases.

They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

TECH is the first university in the world to combine Harvard University case studies with a 100% online learning system based on repetition, which combines 8 different didactic elements in each lesson.

We enhance Harvard case studies with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only university in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.



This program offers the best educational material, prepared with professionals in mind:



Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



Classes

There is scientific evidence suggesting that observing third-party experts can be useful. Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



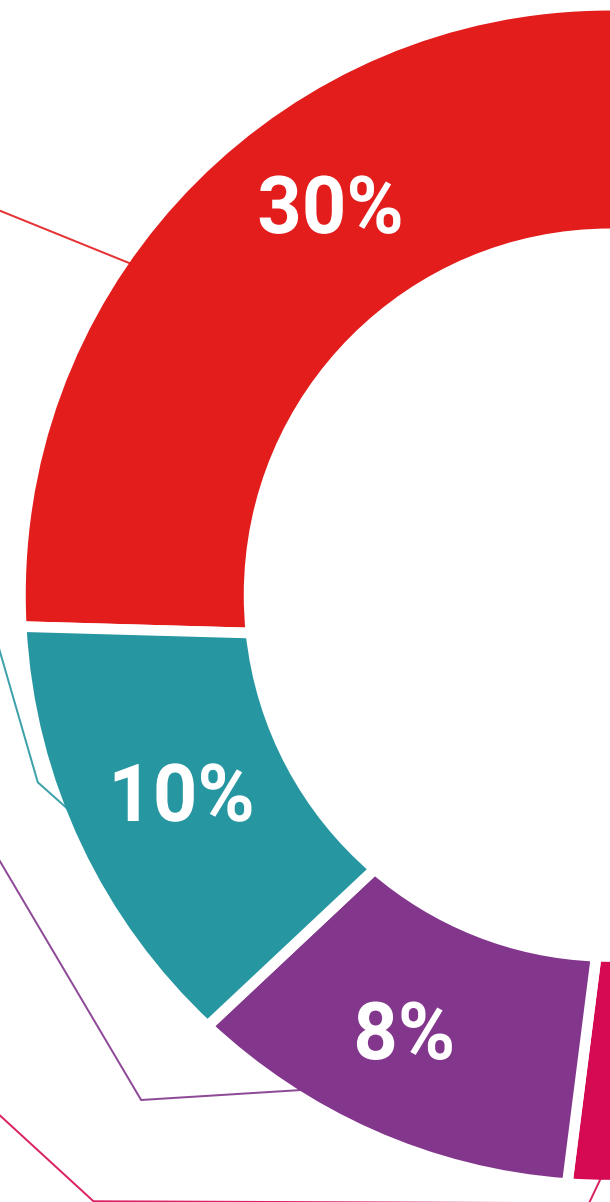
Practising Skills and Abilities

They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization we live in.



Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Case Studies

They will complete a selection of the best case studies in the field used at Harvard. Cases that are presented, analyzed, and supervised by the best senior management specialists in the world.



Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive multimedia content presentation training Exclusive system was awarded by Microsoft as a "European Success Story".



Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises: so that they can see how they are achieving your goals.



06

Certificate

The Postgraduate Certificate in Technology of Metallic Construction Materials guarantees, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate issued by TECH Technological University.



“

*Successfully complete this training program
and receive your university certificate
without travel or laborious paperwork”*

This **Postgraduate Certificate in Technology of Metallic Construction Materials** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** diploma issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Certificate in Technology of Metallic Construction Materials**

Official N° of Hours: **150 h.**



*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

future
health confidence people
education information tutors
guarantee accreditation teaching
institutions technology learning
community commitment
personalized service innovation
knowledge present quality
development languages
classroom



Postgraduate Certificate
Technology of Metallic
Construction Materials

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Schedule: at your own pace
- » Exams: online

Postgraduate Certificate Technology of Metallic Construction Materials