

# Postgraduate Diploma Novel Sectors





## Postgraduate Diploma Novel Sectors

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/pk/engineering/postgraduate-diploma/postgraduate-diploma-novel-sectors](http://www.techtitute.com/pk/engineering/postgraduate-diploma/postgraduate-diploma-novel-sectors)

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# 01

# Introduction

Civil Engineering is a sector that is in constant evolution, both due to the technological innovations that appear in this field, as well as to the new sectors that demand specialized work. In this educational program TECH offers highly qualified education that will allow students to specialize in Novel Sectors to expand their capabilities and become more competent in their profession.





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*Infrastructure repair is one of the most important tasks of Civil Engineering, since it allows for renovations to be done on constructions and their use to be expanded without any risk”*

Civil Engineering is a sector in constant evolution, both due to the technological improvements that appear in this field, which allow more innovative construction works to be carried out, as well as to the changes in the population's demand. Renewable energies are increasingly in demand, and this makes it necessary to have a specific infrastructure.

In this Postgraduate Diploma, the Civil Engineering professional will learn about all the Novel Sectors that are experiencing a great boom worldwide, to learn about work planning and the figure of the PMP, which of these sectors are currently in high demand and how the repair of infrastructures must be carried out so that they can continue.

The PMP is a figure that covers projects in all their breadth and that has become indispensable in order to optimize resources within the life of a project. This Postgraduate Diploma will develop the functions and tools that the PMP must have. They will lead the project from the beginning to the conservation and maintenance stage.

The educational program will cover the tools necessary for budget control, cost, purchasing, planning and certification, and will provide knowledge of personnel management, with emphasis on team planning and management.

Among the outstanding units of this education are the Civil Engineering works that are carried out within the industrial sector with special interest in the renewable energy sector. Civil engineers have great opportunities in this sector, due to their Postgraduate Diploma in earthmoving, road construction and foundation execution, to name a few.

As in other sectors, R&D&I is a sector that attracts talent and adds value to companies, so education in this sector is very important in these times, hence the content of this Postgraduate Diploma provides a space to address different types of R&D&I projects that will represent an opportunity in the future work environment.

On the other hand, it should be noted that the infrastructure repair sector is key, due to the large number of old infrastructures that require maintenance and repair work.

It should be noted that as this is a 100% online Postgraduate Diploma, the student is not conditioned by fixed schedules or the need to move to another physical location, but can access the contents at any time of the day, balancing their work or personal life with their academic life.

This **Postgraduate Diploma in Novel Sectors** contains the most complete and up to date educational program on the market. The most important features include:

- ◆ The development of case studies presented by experts in infrastructure and civil engineering
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional development
- ◆ Practical exercises where self assessment can be used to improve learning
- ◆ Special emphasis on innovative methodologies in Novel Sectors
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*The completion of this Postgraduate Diploma will place civil engineering professionals at the forefront of the latest developments in the sector"*

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*This Postgraduate Diploma is the best investment you can make in selecting an up to date program in the field of civil engineering. We offer you quality and free access to content"*

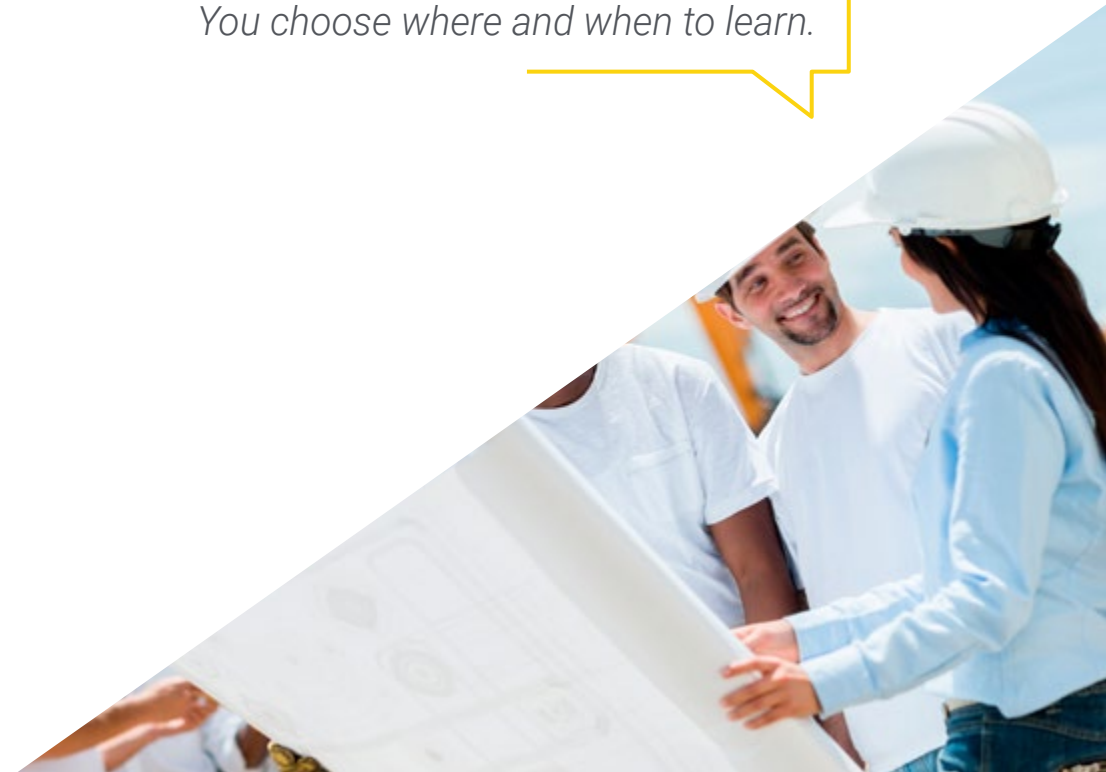
It includes, in its teaching staff, professionals belonging to the field of civil engineering, who bring to this training the experience of their work, in addition to recognized specialists from prestigious reference societies and universities.

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

*We have the best didactic material, which will allow you a contextual study that will facilitate your learning.*

*This 100% online Postgraduate Diploma will allow you to combine your studies with your professional work. You choose where and when to learn.*



# 02

# Objectives

The Postgraduate Diploma in Novel Sectors is aimed at facilitating the professional's performance so that they can acquire and learn about the main novelties in this field, which will allow them to practice their profession with the highest quality and professionalism.







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*Our goal is for you to become the best professional in your sector. And for this we have the best methodology and content”*



## General Objectives

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- ◆ Acquire new knowledge in Civil Engineering and Infrastructures.
- ◆ Acquire new skills in terms of new technologies, latest machinery and software, knowledge of next steps and recycling
- ◆ Extrapolate this knowledge to other sectors of the industry, focusing on those fields that require more trained and qualified personnel year after year
- ◆ Processing the data generated in Civil Engineering activities, through the BIM environment, a mandatory reality for the drafting, construction, management and operation of infrastructures





## Specific Objectives

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- ◆ Know the figure of the Project Management Professional
  - ◆ Training on project management from the time, organization, economic and human resources perspectives
  - ◆ Have the necessary training to improve the professional's communication with customers and suppliers
  - ◆ Acquire the skills for proper purchasing management
  - ◆ Analytical capacity to optimize results in the development of each project.
  - ◆ Know the appropriate software tools for planning, monitoring and closing of construction sites
  - ◆ Focus on the development of works in the industrial and renewable energy sectors.
  - ◆ Present the latest trends in the field of R+D+I
  - ◆ Training in the industrialization sector of the civil works sector
  - ◆ Knowledge of the infrastructure repair sector
  - ◆ Know the necessary guidelines for carrying out inventories of infrastructures susceptible to repair, applying the latest technologies such as drones for the analysis of infrastructures
  - ◆ Know which are the new IT tools for the decision-making process of action in some infrastructures or others
  - ◆ Study the pathologies that can be found in bridges and tunnels
- ◆ Training in the monitoring of infrastructure failures. Both from the point of view of data collection in the field and from the point of view of data processing
  - ◆ Know the methods for the execution of the repair work itself
  - ◆ Take a tour of the equipment necessary to perform this type of repair work



*Improving your skills in the field of civil engineering will allow you to be more competitive. Continue your training and give your career a boost"*

03

# Course Management

In TECH Technological University we have professionals specialized in each area of expertise, who pour into our education the experience of their work.





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*Our university employs the best professionals in all areas who share their knowledge to help you"*

## Management



**Mr. Uriarte Alonso, Mario**

- Civil Engineer from the University of Cantabria
- Master's Degree in Oceanographic Engineering
- 17 years of experience in the field of Novel Sectors, having worked as site manager in highway, airport, port, canal, railway and hydroelectric works
- In the field of engineering, he is the CEO of CANDOIS INGENIEROS CONSULTORES SL, a company dedicated to the drafting of projects and construction management



**Mr. Torres Torres, Julián**

- Civil Engineer from the University of Cantabria
- Master's Degree in Oceanographic Engineering
- 17 years of experience in the field of Novel Sectors, having worked as site manager in highway, airport, port, canal, railway and hydroelectric works
- In the field of engineering, he is the CEO of CANDOIS INGENIEROS CONSULTORES SL, a company dedicated to the drafting of projects and construction management



# 04

# Structure and Content

The structure of the contents has been designed by the best professionals in the civil engineering sector, with extensive experience and recognized prestige in the profession, and aware of the benefits that the latest educational technology can bring to higher education.







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*We have the most complete and up to date programme on the market. We strive for excellence and for you to achieve it too”*

## Module 1. Construction Planning (PMP)

- 1.1. Introduction and Life Cycle
  - 1.1.1. Project Definition and Project Management
  - 1.1.2. Areas of Expertise
  - 1.1.3. Life Cycle
  - 1.1.4. Interested Parties
  - 1.1.5. Management Influence
- 1.2. Management Processes
  - 1.2.1. Operation and Maintenance Project Management Processes
  - 1.2.2. Management Process Groups
  - 1.2.3. Interactions between Processes
- 1.3. Integration Management
  - 1.3.1. Development of the Articles of Incorporation
  - 1.3.2. Development of the Scope Statement
  - 1.3.3. Development of the Management Plan
  - 1.3.4. Project Management
  - 1.3.5. Work Supervision and Control
  - 1.3.6. Integrated Change Control
  - 1.3.7. Project Closing
- 1.4. Scope Management
  - 1.4.1. Scope Planning
  - 1.4.2. Scope Definition
  - 1.4.3. Creation of EDT
  - 1.4.4. Scope Verification
  - 1.4.5. Scope Closure
- 1.5. Time Management
  - 1.5.1. Definition of Activities
  - 1.5.2. Establishment of a Sequence of Activities
  - 1.5.3. Estimated Resources
  - 1.5.4. Estimated Duration
  - 1.5.5. Schedule Development
- 1.6. Cost Management
  - 1.6.1. Cost Estimates
  - 1.6.2. Preparation of a Cost Estimate
  - 1.6.3. Control of Costs and Variances
- 1.7. Human Resources Management
  - 1.7.1. Schedule Control
  - 1.7.2. Human Resources Planning
  - 1.7.3. Training of the Teaching Staff
  - 1.7.4. Team Development
  - 1.7.5. Human Resources Management
  - 1.7.6. Human Resources Organizational Models
  - 1.7.7. Theories on the Organization of Human Resources
- 1.8. Communications in Management
  - 1.8.1. Communications Planning
  - 1.8.2. Distribution of Information
  - 1.8.3. Performance Reporting
  - 1.8.4. Stakeholder Management
- 1.9. Risk Management.
  - 1.9.1. Risk Management Planning
  - 1.9.2. Risk Identification
  - 1.9.3. Qualitative Risk Analysis
  - 1.9.4. Quantitative Risk Analysis
  - 1.9.5. Risk Response Planning
  - 1.9.6. Risk Monitoring and Control
- 1.10. Procurement Management
  - 1.10.1. Purchasing and Procurement Planning
  - 1.10.2. Recruitment Planning
  - 1.10.3. Solicit Vendor Responses
  - 1.10.4. Contract Administration
  - 1.10.5. Contract Closure

## Module 2. Industrial and Renewable Energy Construction Works and Other Sectors

- 2.1. Works in the Industrial Sector
  - 2.1.1. Industry Sectors of Reference
  - 2.1.2. Civil Works in the Industrial Sector
  - 2.1.3. Application of BIM Methodology in the Industrial Sector
  - 2.1.4. Working Methods for Industrial Projects
- 2.2. Works for Renewable Energy Projects Solar Farms
  - 2.2.1. Design and Calculation of the Drainage Network
  - 2.2.2. Design and Calculation of Roadways
  - 2.2.3. Design and Calculation of Foundations
  - 2.2.4. Preparation of Reports Applied to Energy Projects
- 2.3. Works for Renewable Energy Projects Wind Farms
  - 2.3.1. Design and Calculation of the Drainage Network
  - 2.3.2. Design and Calculation of Roadways
  - 2.3.3. Design and Calculation of Foundations
  - 2.3.4. Preparation of Reports Applied to Energy Projects
- 2.4. R+D+I Works
  - 2.4.1. Areas of Study for R&D&I Projects
  - 2.4.2. Methodology of Work
  - 2.4.3. Advantages of Project Development in the R&D&I Field
  - 2.4.4. Added Value of R&D&I Projects for the Business
- 2.5. Industrialization of Civil Engineering
  - 2.5.1. Current Status of the Industrialization of Civil Engineering
  - 2.5.2. Sector Projection
  - 2.5.3. Technologies Applicable to Civil Engineering Industrialization
  - 2.5.4. Future and Prospects of Civil Engineering Industrialization

## Module 3. Infrastructure Repair

- 3.1. Works Related to the Maintenance and Repair of Infrastructures
  - 3.1.1. Introduction to the State of Preservation of Infrastructures
  - 3.1.2. Importance of Infrastructure Maintenance
  - 3.1.3. Infrastructure Maintenance
  - 3.1.4. Infrastructure Repair
- 3.2. Opportunities in the Bridge and Tunnel Repair Industry
  - 3.2.1. Status of the Bridge Network
  - 3.2.2. Status of the Tunnel Network
  - 3.2.3. Status of Work in this Sector
  - 3.2.4. Future of the Infrastructure Maintenance and Repair Sector
- 3.3. Infrastructure Inventory
  - 3.3.1. Field Work
  - 3.3.2. Field Data Processor in Cabinet
  - 3.3.3. Analysis of Processed Data
  - 3.3.4. Coordination with the Customer of the Priority Works
- 3.4. Bridge Pathology Analysis
  - 3.4.1. Analysis of Processed Data on Bridge Pathologies
  - 3.4.2. Types of Pathologies Detected
  - 3.4.3. Action Decision
- 3.5. Tunnel Pathology Analysis
  - 3.5.1. Analysis of Processed Data on Tunnel Pathologies
  - 3.5.2. Types of Pathologies Detected
  - 3.5.3. Action Decision

- 3.6. Infrastructure Monitoring
  - 3.6.1. Importance of Infrastructure Monitoring
  - 3.6.2. Infrastructure Monitoring Application Technology
  - 3.6.3. Monitoring Data Analysis
  - 3.6.4. Decision-Making for Action
- 3.7. Bridge Repair Work
  - 3.7.1. Preparation for Bridge Repair Work
  - 3.7.2. Common Pathologies
  - 3.7.3. Action According to the Pathology
  - 3.7.4. Documentation of the Proceedings
- 3.8. Repair Work in Tunnels
  - 3.8.1. Preparation for Tunnel Repair Work
  - 3.8.2. Common Pathologies
  - 3.8.3. Action According to the Pathology
  - 3.8.4. Documentation of the Proceedings
- 3.9. Equipment for Bridge Repair Work
  - 3.9.1. Team Personnel in Charge of the Work
  - 3.9.2. Machinery for the Execution of Works
  - 3.9.3. New Technologies Applied to Bridge Repair
- 3.10. Equipment for Tunnel Repair Work
  - 3.10.1. Team Personnel in Charge of the Work
  - 3.10.2. Machinery for the Execution of Works
  - 3.10.3. New Technologies Applied to Bridge Repair





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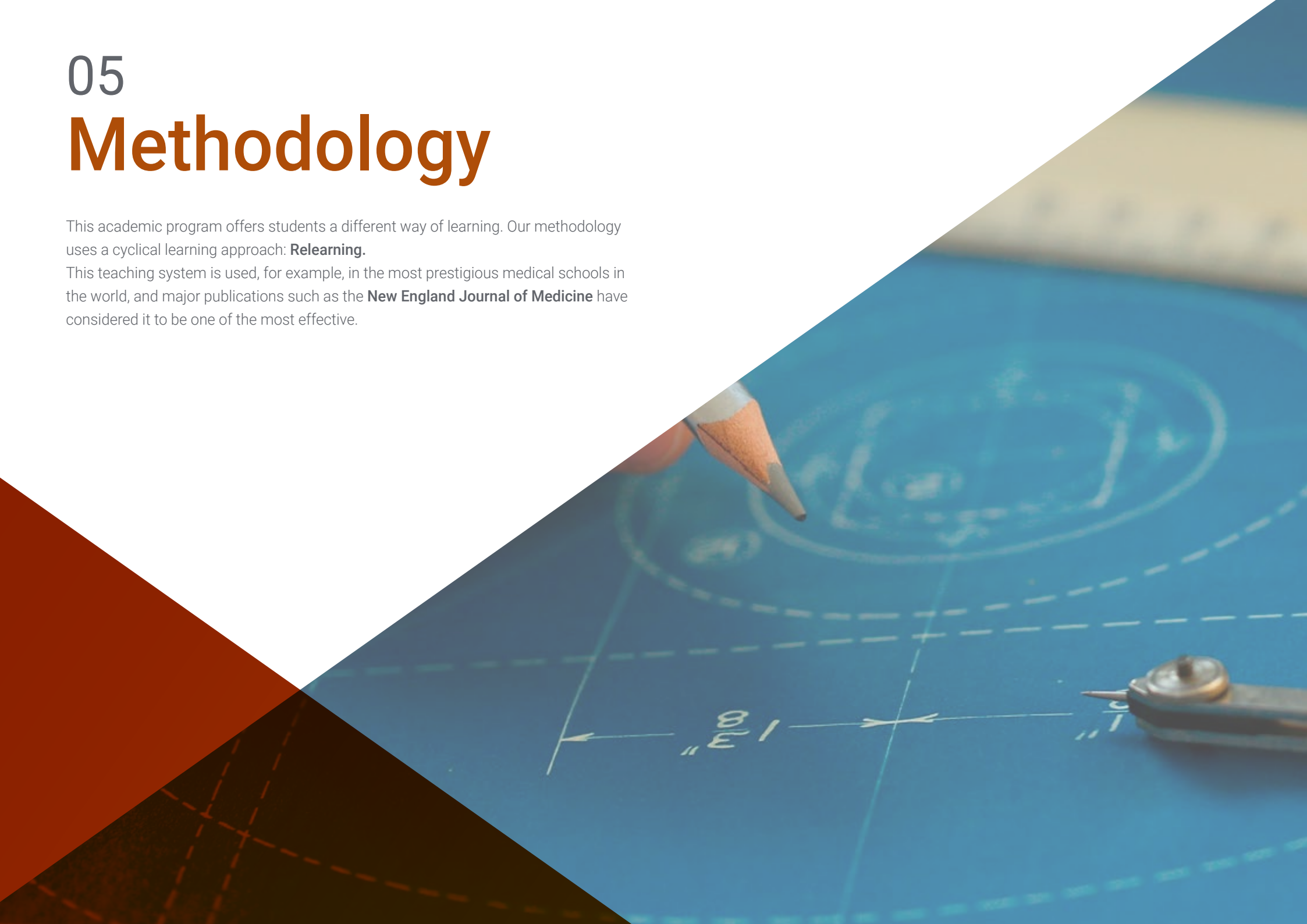
*This program will allow you to advance in your career comfortably”*

05

# Methodology

This academic program offers students 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.





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*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"*

### Case Study to contextualize all content

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

“

*At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"*



*You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.*





### **A learning method that is different and innovative**

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

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

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

The case method is the most widely used learning system in 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 effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study 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 one 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.



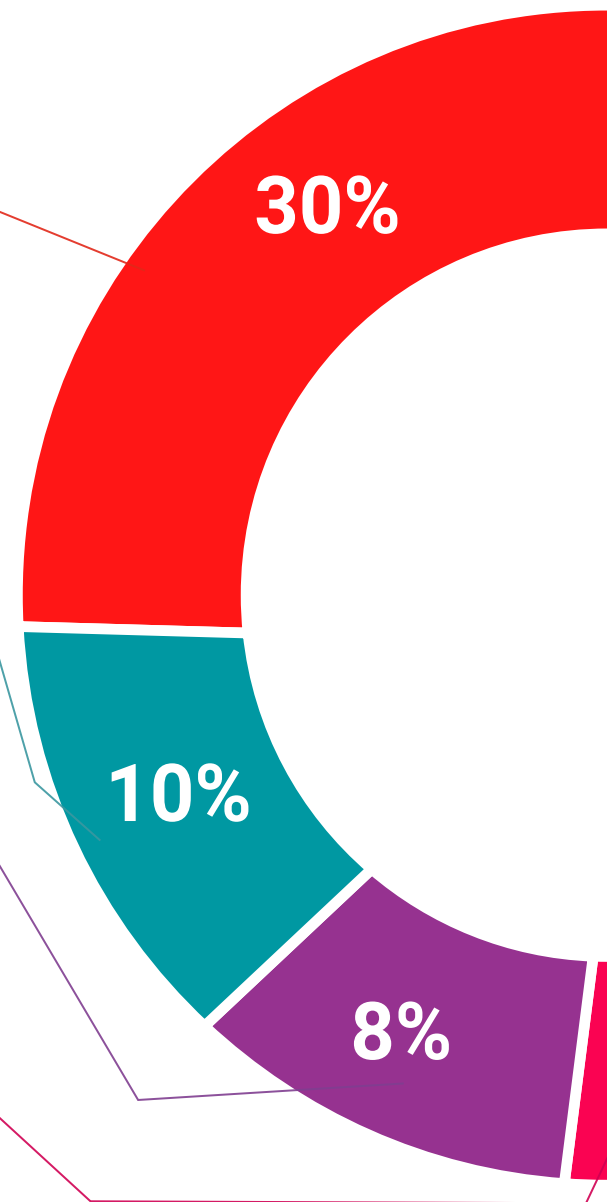
### Practising Skills and Abilities

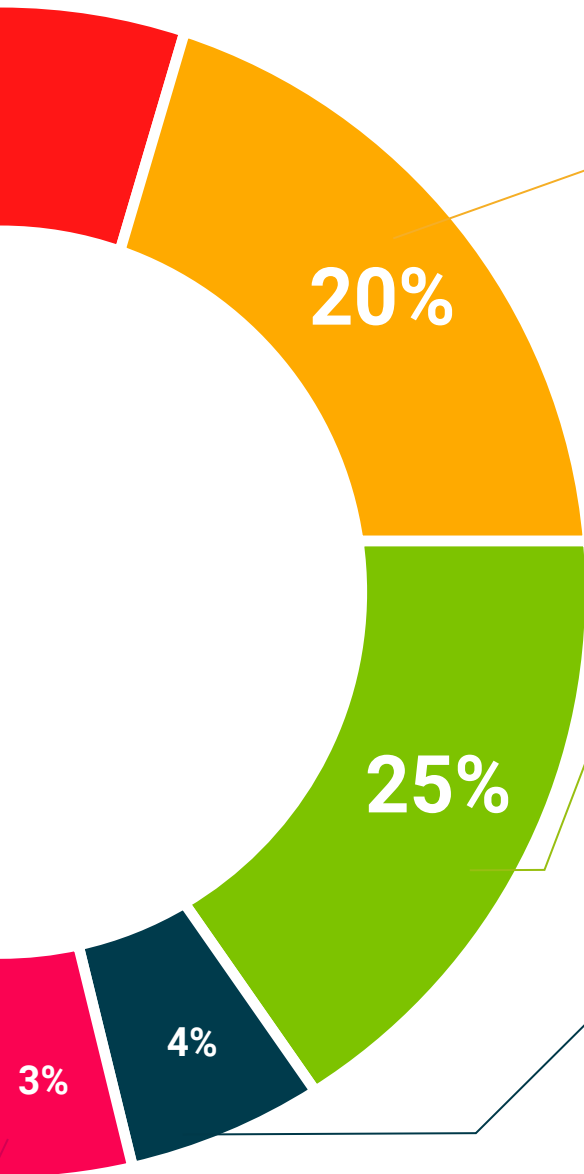
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



### 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

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best 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 educational system for presenting multimedia content 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 their goals.



06

# Certificate

The Postgraduate Diploma in Novel Sectors guarantees students, in addition to the most rigorous and up to date education, access to a Postgraduate Diploma issued by TECH Technological University.



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*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”*

This **Postgraduate Diploma in Novel Sectors** contains the most complete and up to date educational program on the market.

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

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

**Title: Postgraduate Diploma in Novel Sectors**

**Official N° of hours: 450 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

online training

development languages

virtual classroom

**tech** technological  
university

## Postgraduate Diploma Novel Sectors

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