

# Postgraduate Certificate Energy Rehabilitation of Existing Buildings



## Postgraduate Certificate Energy Rehabilitation of Existing Buildings

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

Website: [www.techtute.com/pk/engineering/postgraduate-certificate/energy-rehabilitation-existing-](http://www.techtute.com/pk/engineering/postgraduate-certificate/energy-rehabilitation-existing-)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Structure and Content

---

*p. 12*

04

Methodology

---

*p. 20*

05

Certificate

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*p. 28*

# 01

# Introduction

In this Postgraduate Certificate we offer you an intensive and very updated training in all aspects related to the work in the area of Energy Rehabilitation of Existing Buildings, analyzing the main concepts, the analysis of the building or the methodology to follow, the analysis of the Constructive Pathologies, the regulatory framework of the possible intervention proposals.

A high quality proposal aimed at the most demanding professionals in the sector.





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*Acquire the most advanced and up-to-date knowledge in the field of Energy Rehabilitation of Existing Buildings with a highly qualified Postgraduate Certificate and educational impact”*

Throughout six weeks of qualification we offer you a very high quality educational course with a high density of contents. In this way, the different singular encounters of elements that constitute the Thermal Envelope and that are object of Energetic Rehabilitation (thermal envelope) are analyzed, such as Foundations, Roofs, Façades, Exterior Slabs, Carpentries and Glass and the existing Installations.

In addition, it analyzes Energy Rehabilitation interventions in Historic or Protected Buildings, in which the technical conditioning factor of the composition of materials and installation alternatives are considerable.

We will describe the methodology for the development of the economic study of the different solutions or intervention alternatives for Energy Rehabilitation in Existing Buildings.

The accuracy of the studies described above will lead to the estimation of the appropriate solution and intervention alternatives based on the objectives to be achieved.

This **Postgraduate Certificate in Energy Rehabilitation of Existing Buildings** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ **The latest technology** in online teaching software.
- ◆ Highly **visual teaching system**, supported by graphic and schematic contents that are easy to assimilate and understand.
- ◆ **Practical cases** presented by practising experts.
- ◆ **State-of-the-art interactive video** systems..
- ◆ Teaching supported by **telepractice**.
- ◆ Continuous **updating and recycling** systems.
- ◆ Self-regulating learning: **full** compatibility with other occupations.
- ◆ Practical exercises for **self-evaluation** and learning verification.
- ◆ **Support groups** and educational synergies: questions to the expert, discussion forums and debates.
- ◆ **Communication with the teacher** and individual reflection work.
- ◆ Contents **available** from any fixed or portable device with internet connection..
- ◆ **Supplementary documentation** databases that are permanently available, even after the course has concluded.



*Join the elite, with this highly effective training training and open new paths to help you advance in your professional progress"*



*With the experience of active professionals and the analysis of real cases of success in the application and use of energy saving systems in buildings”*

Our teaching staff is made up of professionals from different fields related to this specialty. In this way, we ensure that we provide you with the educational update we are aiming for. A multidisciplinary team of professionals trained and experienced in different environments, who will develop the theoretical knowledge in an efficient way, but above all, they will bring their practical knowledge from their own experience to the course: one of the differential qualities of this training.

This mastery of the subject matter is complemented by the effectiveness of the methodological design. Developed by a multidisciplinary team of e-learning experts, it integrates the latest advances in educational technology. This way, you will be able to study with a range of comfortable and versatile multimedia tools that will give you the operability you need in your training.

The design of this program is based on Problem-Based Learning: an approach that conceives learning as a highly practical process. In order to achieve this remotely, we will use **telepractice**: With the help of an innovative interactive video system and **Learning from an expert**, you will be able to acquire the knowledge as if you were facing the scenario you are currently learning. A concept that will allow you to integrate and fix learning in a more realistic and permanent way.

*With a methodological design based on proven teaching techniques, this innovative course will take you through different teaching approaches to allow you to learn in a dynamic and effective way.*

*Our innovative telepractice concept will give you the opportunity to learn through an immersive experience, which will provide you with a faster integration and a much more realistic view of the contents: “learning from an expert”.*



02

# Objectives

Our objective is to train highly qualified professionals for work experience. An objective that is complemented, moreover, in a global manner, by promoting human development that lays the foundations for a better society. This objective is materialized in helping professionals to reach a much higher level of competence and control. A goal that, in just a few months you will be able to achieve, with a high intensity and effective training.





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*If your objective is to broaden your skills set to include new paths of success and development, this is the course for you a training that aspires to excellence"*



## General Objectives

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- ◆ Undertake the particularities to correctly manage the design, project, construction and execution of Energy Rehabilitation Works (Existing Buildings) and Energy Saving (New Buildings)
- ◆ Interpret the current regulatory framework based on current regulations and the possible criteria to be implemented for energy efficiency in buildings
- ◆ Discover the potential business opportunities offered by the knowledge of the various energy efficiency measures, from studying tenders and technical tenders for construction contracts, projecting buildings, analyzing and directing the works, managing, coordinating and planning the development of Energy Saving and Rehabilitation Projects
- ◆ Ability to analyze Building Maintenance programs developing the study of appropriate Energy Saving measures to be implemented according to the technical requirements
- ◆ Delve into the latest trends, technologies and techniques in the field of Energy Efficiency in Buildings





## Specific Objectives

- ♦ Know the building categories, an analysis of the constructive solutions and objectives to be achieved, as well as the elaboration of a cost study of the various intervention proposals
- ♦ Interpret the possible pathologies of new buildings based on the study of foundations, roofs, facades and exterior slabs, carpentry and glazing, as well as installations, developing the complete energy rehabilitation study from data collection, analysis and evaluation, the study of the different improvement proposals and conclusions, study of the applicable technical regulations
- ♦ Establish the guidelines that must be taken into account in the development of new building interventions with energy saving in singular buildings, from data collection, analysis and evaluation, study of the different improvement proposals and conclusions, study of technical regulations of application
- ♦ Acquire the necessary knowledge to develop an economic study of New Energy Saving Works based on the analysis of the cost, execution times, the conditions of specialization of the works, the guarantees and specific tests to be requested
- ♦ Elaborate an assessment of the appropriate intervention of a New Energy Efficiency Building intervention and its alternatives based on the analysis of the different intervention options, based on the analysis of costs based on amortization, the correct selection of objectives, as well as a final extract with the possible courses of action



*A path to achieve specialization and professional growth that will propel you towards a greater level of competitiveness in the employment market"*



04

# Course Management

For our course to be of the highest quality, we are proud to work with a teaching staff of the highest level, chosen for their proven track record. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.







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

## Management



### Ms. Dombritz Martialay, Talia

- Architect by the Universidad Politécnica de Madrid 1999 (ETSAM), with an A in her PFC, she holds the LEED® AP BD+C program from the U.S. Green Building Council (USGBC), and the LEED® AP BD+C program from the U.S. Green Building Council (USGBC). Green Building Council (USGBC),
- BREEAM® ES assessor by the Building Research Establishment (BRE) and WELL™ AP by the International WELL Building Institute (IWBI) and PASSIVHAUS building expert.
- Her professional activity is developed as Project Director of DMDV Architects, specialists in Nearly Zero or Zero Energy Efficiency Buildings (nZEB) under the PASSIVHAUS standard, and she is also co-founder of CENERGETICA, a sustainability consultancy in international LEED, BREEAM and WELL certifications. In her professional practice curriculum she has multiple national and international consultancies for LEED, BREEAM and WELL certifications, as well as PASSIVHAUS. DMDV Architects are simultaneously developing multiple projects with sustainability certification in all areas for both private and public administration clients.. He has participated in several congresses related to passive and nearly zero consumption construction and design and is the author of articles on the same subject.

## Codirector



### Mr. Diedrich Valero, Daniel

- Architect by the Polytechnic University of Madrid 1999 (ETSAM), with an average grade of "B", he has the program of Certified Passivhaus Designer 2017 by the Passivhaus Institut in Darmstadt (Germany) and Associate Professor at the School of Architecture of the University of Alcalá de Henares where he teaches the subject of "Environmental Rehabilitation and Energy Efficiency" within the Degree in Science and Technology of Building. He is currently a doctoral student at this school developing his thesis on "Passivhaus, Nearly Zero Energy Consumption Buildings and industrialized modular manufacturing".
- His professional activity is developed as Manager of DMDV Architects, specialists in Nearly Zero or Zero Energy Efficiency Buildings (nZEB) under the PASSIVHAUS standard, and she is also co-founder of CENERGETICA, a sustainability consultancy in international LEED, BREEAM and WELL certifications.
- His professional experience includes the first building in Spain with PASSIVHAUS PLUS certification, which at the same time is the first zero consumption building in Madrid city. DMDV Architects are simultaneously developing multiple Passivhaus projects in both private and public residential areas..

## Professors

### Mr. Fernando da Casa, Martín

- ◆ D. in Architecture ( Polytechnic University of Madrid), 2000
- ◆ Professor at the School of Architecture (University of Alcalá), since 1995
- ◆ Professor of Restoration and Architectural Heritage University School (2005)
- ◆ He held the position of Director of the Office of (2005)
- ◆ Infrastructure and Maintenance Management of the University of Alcalá (2010-2018)
- ◆ Other positions at the University of Alcalá: Director of the Department of Architecture (2000-2004) and Director of the School of Technical Architecture (2005-2010)
- ◆ He is a specialist in architectural intervention, geotechnical engineering, sustainable architecture and environment, and Heritage
- ◆ Obtained the 2018 European Community Prize (Europa Nostra) for heritage conservation
- ◆ He has participated in several projects related to architectural heritage and sustainable architecture as a researcher at the University of Alcalá
- ◆ He has participated in 2 patents and in more than 20 research projects (national and international) whose results have been published in journals and book chapters. (Spain, Italy, France, Portugal, Greece, Czech Republic, Chile, Mexico, Brazil, China, India)



*An impressive teaching staff, made up of professionals from different areas of expertise, will be your teachers during your training: a unique opportunity not to be missed”*

03

# Structure and Content

The contents of this program have been developed by the different experts participating in it, with a clear purpose: to ensure that our students acquire each and every one of the skills necessary to become true experts in this field.

A complete and well-structured program that will take you to the highest standards of quality and success.





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*A comprehensive teaching program, structured in well-developed teaching units, oriented towards learning that is compatible with your personal and professional life"*

## Module 1. Energy Rehabilitation of Existing Buildings

- 1.1. Methodology
  - 1.1.1. Main Concepts
  - 1.1.2. Establishment of Building Categories
  - 1.1.3. Analysis of Construction Pathologies
  - 1.1.4. Analysis of the Objectives of the Regulations
- 1.2. Study of Pathologies of Foundations of Existing Buildings
  - 1.2.1. Data Collection
  - 1.2.2. Analysis and Evaluation
  - 1.2.3. Proposals for Improvement and Conclusions
  - 1.2.4. Technical Regulations
- 1.3. Study of Roof Pathologies in Existing Buildings
  - 1.3.1. Data Collection
  - 1.3.2. Analysis and Evaluation
  - 1.3.3. Proposals for Improvement and Conclusions
  - 1.3.4. Technical Regulations
- 1.4. Studies of Pathologies of Facades of Existing Buildings
  - 1.4.1. Data Collection
  - 1.4.2. Analysis and Evaluation
  - 1.4.3. Proposals for Improvement and Conclusions
  - 1.4.4. Technical Regulations
- 1.5. Studies of Pathologies of Exterior Floor Slabs of Existing Buildings
  - 1.5.1. Data Collection
  - 1.5.2. Analysis and Evaluation
  - 1.5.3. Proposals for Improvement and Conclusions
  - 1.5.4. Technical Regulations
- 1.6. Studies of Pathologies of Carpentry and Glazing in Existing Buildings
  - 1.6.1. Data Collection
  - 1.6.2. Analysis and Evaluation
  - 1.6.3. Proposals for Improvement and Conclusions
  - 1.6.4. Technical Regulations







- 1.7. Analysis of Existing Building Installations
  - 1.7.1. Data Collection
  - 1.7.2. Analysis and Evaluation
  - 1.7.3. Proposals for Improvement and Conclusions
  - 1.7.4. Technical Regulations
- 1.8. Study of Energy Rehabilitation Interventions in Historic Buildings
  - 1.8.1. Data Collection
  - 1.8.2. Analysis and Evaluation
  - 1.8.3. Proposals for Improvement and Conclusions
  - 1.8.4. Technical Regulations
- 1.9. Economic Study of Energy Rehabilitation
  - 1.9.1. Cost Analysis
  - 1.9.2. Time Analysis
  - 1.9.3. Specialization of the Works
  - 1.9.4. Guarantees and Specific Tests
- 1.10. Evaluation of Appropriate Intervention and Alternatives
  - 1.10.1. Analysis of the Different Intervention Options
  - 1.10.2. Cost Analysis on a Depreciation Basis
  - 1.10.3. Target Selection
  - 1.10.4. Final Assessment of the Selected Intervention



*This training will allow you to advance in your career comfortably"*

# 04

# 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.







*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.

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*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.*



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

### 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 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

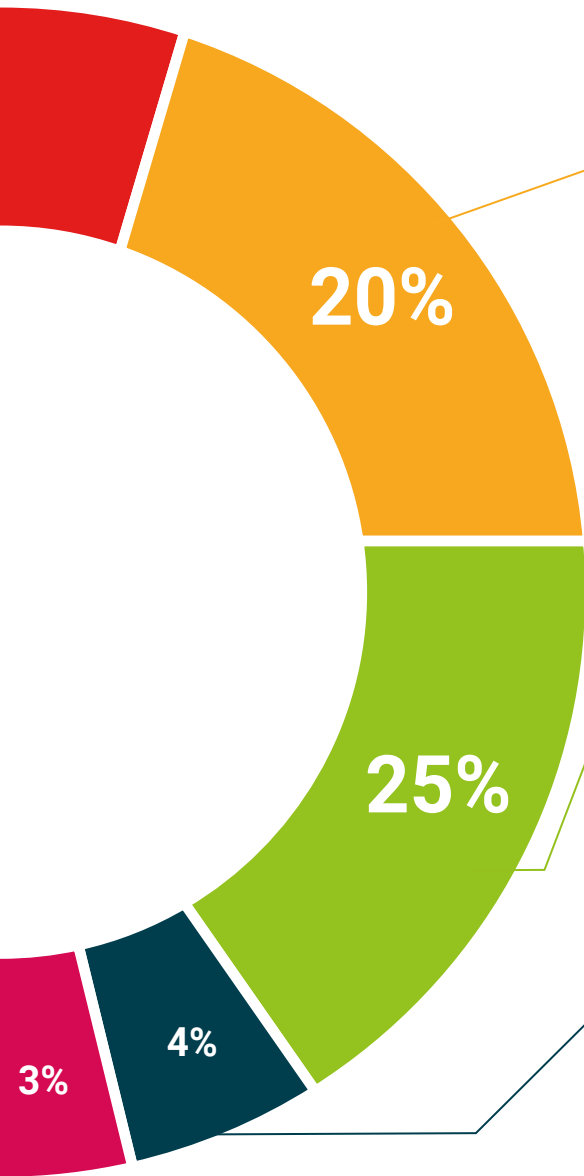
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



### 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.





05

# Certificate

The Postgraduate Certificate in Energy Rehabilitation of Existing Buildings guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.





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*Add to your education a Postgraduate Certificate program in Energy Rehabilitation of Existing Buildings: A highly qualified added value for any professional”*

This **Postgraduate Certificate in Energy Rehabilitation of Existing Buildings** contains the most complete and up-to-date scientific program on the market.

Once the student has passed the evaluations, they will receive their corresponding Postgraduate Certificate issued by **TECH - Technological University** by mail with acknowledgment of receipt.

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

Title: **Postgraduate Certificate in Energy Rehabilitation of Existing Buildings**

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.



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- » Exams: **online**



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