

Postgraduate Certificate Energy Audit of Buildings



Postgraduate Certificate Energy Audit of Buildings

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

Website: www.techtute.com/us/engineering/postgraduate-certificate/energy-audit-buildings

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01

Introduction

This comprehensive course effectively combines the technical and technological knowledge of project design and construction required to develop a project or building in accordance with the necessary energy-saving measures, whether in the field of existing building intervention (Energy Retrofit) or new construction (Energy Efficiency).

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



“

Acquire the most advanced and up-to-date knowledge in the field of Building Energy Auditing with a highly qualified and impactful training program”

This course establishes a work dynamic that enables students to develop projects of various scales with the utmost rigor, analyzing different intervention options—whether through passive measures (affecting the building envelope) or active measures (affecting the building's systems and installations).

Over the course of six weeks of high-quality training, we offer a comprehensive learning path with a high density of content. Participants will analyze the various unique junctions of elements that make up the Thermal Envelope and are subject to optimization, such as foundations, roofs, façades, exterior floors, window frames and glazing, and existing installations.

In addition, the course examines interventions with energy-saving optimization measures in unique new construction buildings, where the technical constraints of material composition and alternative installations are significant.

We will describe the methodology for developing an economic study of different solutions or project alternatives with energy-saving optimization measures in new construction buildings.

The rigor of these studies will lead to the estimation of the most suitable solution and alternative intervention strategies.

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

- ♦ 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 practicing 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, debate and knowledge forums
- ♦ Communication with the teacher and individual reflection work
- ♦ Content that is accessible from any fixed or portable device with an internet connection
- ♦ Complementary documentation libraries permanently available, even after program completion



Join the elite with this high-impact, results-driven training and open new pathways for your professional growth

“Featuring the expertise of active professionals and the analysis of real-world success cases in the application and use of energy-saving systems in building construction”

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. To achieve this remotely, we will use **telepractice**: With the help of an innovative interactive video system and the **Learning from an Expert** approach, you will acquire knowledge as if you were facing the scenario you are learning about at that very moment. This concept will enable you to integrate and consolidate learning in a more realistic and lasting 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 skill and control. A goal that, in just a few months you will be able to achieve, with a high intensity and effective training.



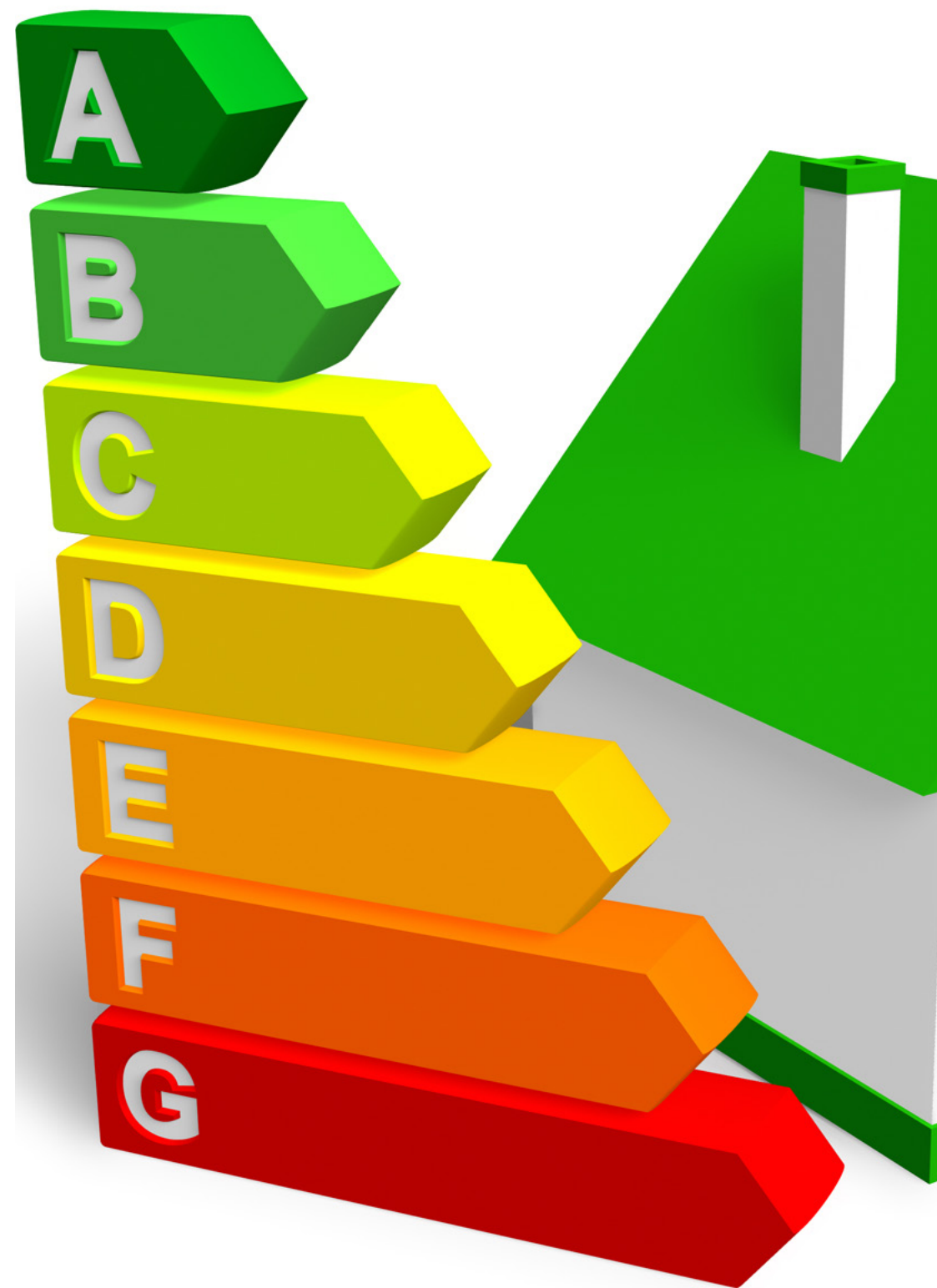
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If your objective is to broaden your skills set to include new paths of success and development, this is the course for you a training that aspires to excellence”



General Objectives

- ♦ 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 technical requirements
- ♦ Delve into the latest trends, technologies and techniques in the field of Energy Efficiency in the Construction of Buildings





Specific Objectives

- ♦ Discuss in detail the scope of an energy audit, the fundamental general concepts, objectives and analysis methodology
- ♦ Analyze the energy diagnosis based on the analysis of the envelope and systems, the analysis of consumption and energy accounting, the proposal of renewable energies to be implemented, as well as the proposal of various consumption control systems
- ♦ Analyze the benefits of an Energy Audit based on energy consumption, energy costs, environmental improvements, competitiveness improvements and building maintenance improvements
- ♦ Establish the guidelines that must be taken into account in the development of the energy audit such as the request of previous documentation of planimetries and invoices, visits to the building in operation, as well as the necessary equipment
- ♦ Gather previous information about the building to be audited based on general data, planimetries, previous projects, list of installations and technical data sheets, as well as energy invoices
- ♦ Elaborate preliminary data collection procedures with energy inventory, construction aspects, systems and installations, electrical measurements and operating conditions
- ♦ Interpret the analysis and evaluation of the envelope, systems and installations, the different options for action, energy balances and energy accounting of the building
- ♦ Develop a program of improvement proposals based on the energy supply and demand of the building, the type of action to be carried out, the optimization of the envelope and the systems and installations, as well as develop a final report that concludes the study developed
- ♦ Plan the development costs of the Energy Audit based on the scale of the building to be analyzed
- ♦ Delve into the current regulations and future forecasts in energy matters that condition the implementation of the measures proposed in the energy audit



A pathway for training and professional growth that will drive you toward greater competitiveness in the job market"

03

Course Management

As part of our total quality approach to education, we are proud to offer you a teaching staff of the highest caliber, selected for their proven expertise. 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

- An architect from the Polytechnic University of Madrid (ETSAM, 1999) with an outstanding grade on her Final Degree Project, she holds the LEED® AP BD+C credential from the U.S. Green Building Council (USGBC),
- BREEAM® ES Assessor from the Building Research Establishment (BRE), and WELL™ AP from the International WELL Building Institute (IWBI). She is also an expert in PASSIVHAUS buildings
- Her professional activity is carried out as Project Director at DMDV Arquitectos, specialists in Nearly Zero Energy Buildings (nZEB) under the PASSIVHAUS standard. She is also co-founder of CENERGETICA, a sustainability consultancy specializing in LEED, BREEAM, and WELL international certifications. Her professional record includes numerous national and international consulting projects in LEED, BREEAM, WELL, and PASSIVHAUS certifications. At DMDV Arquitectos, she is simultaneously leading multiple sustainability certification projects across all sectors for both private clients and public administrations. She has participated in numerous conferences related to passive building design and nearly zero energy consumption construction, and is the author of articles on the subject

Codirector



Mr. Diedrich Valero, Daniel

- An architect from the Polytechnic University of Madrid (ETSAM, 1999) with a “notable” average grade, he holds the Certified Passivhaus Designer credential (2017) from the Passivhaus Institut in Darmstadt, Germany. He is also an Associate Professor at the School of Architecture of the University of Alcalá de Henares, where he teaches the course “Environmental Rehabilitation and Energy Efficiency” within the Bachelor’s Degree in Building Science and Technology. He is currently pursuing a Ph.D. at the same school, developing his thesis on “Passivhaus, Nearly Zero Energy Buildings, and Industrialized Modular Construction.”
- His professional activity is carried out as Manager at DMDV Arquitectos, specialists in Nearly Zero Energy Buildings (nZEB) under the PASSIVHAUS standard. He is also co-founder of CENERGETICA, a sustainability consultancy specializing in LEED, BREEAM, and WELL international certifications
- His career includes the first building in Spain to achieve PASSIVHAUS PLUS certification, which is also the first zero-energy building in Madrid. At DMDV Arquitectos, he is currently developing multiple Passivhaus projects in both private and public residential sectors



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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”

04

Structure and Content

The contents of this program have been developed by the various experts involved, with a clear objective: to ensure that our students acquire each and every skill 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.

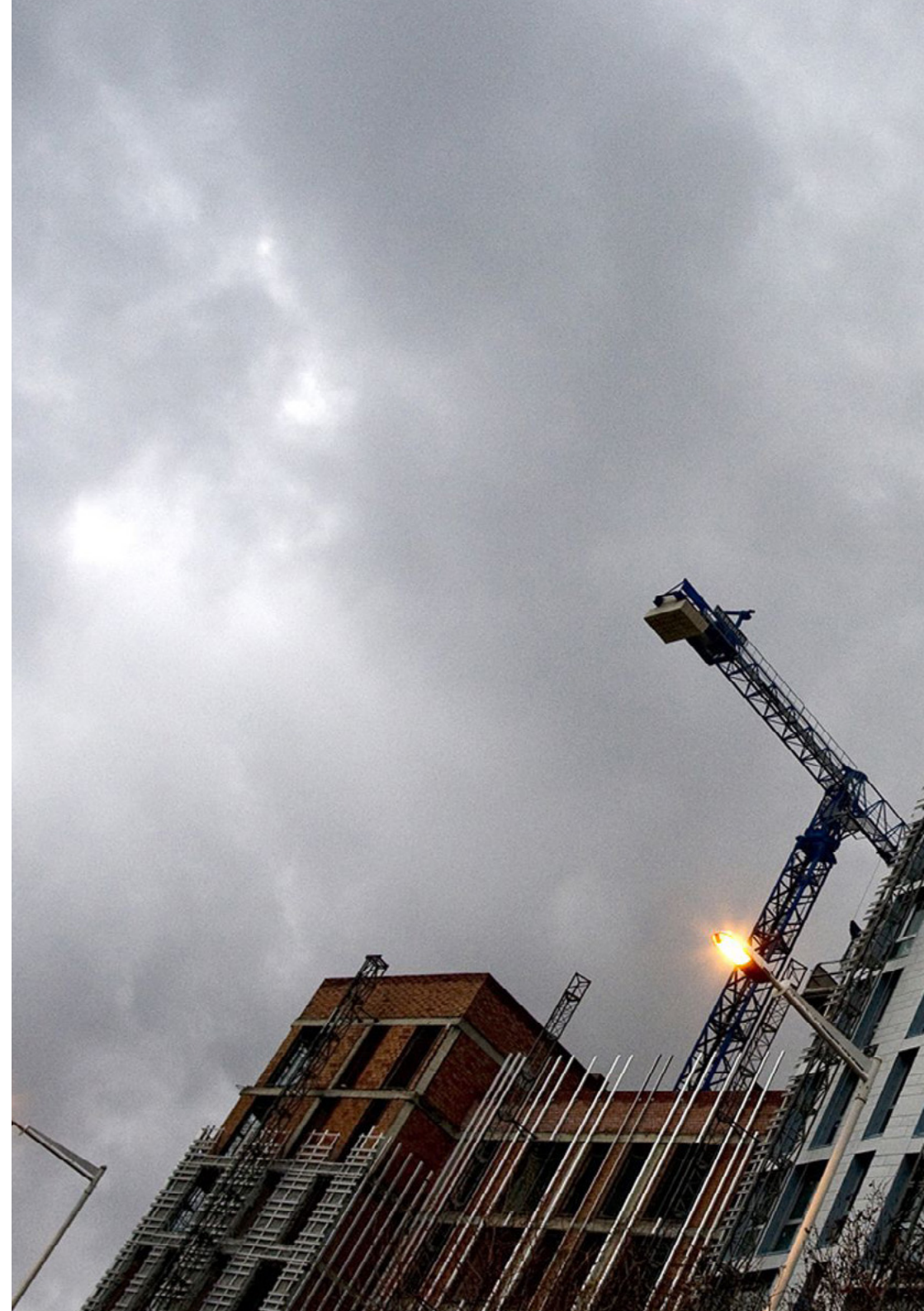


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*A comprehensive teaching program,
structured in well-developed teaching
units, oriented towards learning that
is compatible with your personal and
professional life”*

Module 1. Energy Audit

- 1.1. Scope of an Energy Audit
 - 1.1.1. Key Concepts
 - 1.1.2. Objectives
 - 1.1.3. Scope of an Energy Audit
 - 1.1.4. Methodology of an Energy Audit
- 1.2. Energy Diagnosis
 - 1.2.1. Analysis of the Building Envelope vs. Systems and Installations
 - 1.2.2. Analysis of Consumption and Energy Accounting
 - 1.2.3. Renewable Energy Proposals
 - 1.2.4. Proposals for Home Automation, Remote Management, and Automation Systems
- 1.3. Benefits of an Energy Audit
 - 1.3.1. Energy Consumption and Energy Costs
 - 1.3.2. Environmental Improvement
 - 1.3.3. Improved Competitiveness
 - 1.3.4. Improved Maintenance
- 1.4. Development Methodology
 - 1.4.1. Request for Preliminary Documentation. Plans
 - 1.4.2. Request for Preliminary Documentation. Utility Bills
 - 1.4.3. On-Site Visits to the Building in Operation
 - 1.4.4. Required Equipment
- 1.5. Information Gathering
 - 1.5.1. General Data
 - 1.5.2. Plans
 - 1.5.3. Project Documentation. List of Installations
 - 1.5.4. Technical Data Sheets. Energy Billing
- 1.6. Data Collection
 - 1.6.1. Energy Inventory
 - 1.6.2. Construction Aspects
 - 1.6.3. Systems and Installations
 - 1.6.4. Electrical Measurements and Operating Conditions





- 1.7. Analysis and Evaluation
 - 1.7.1. Building Envelope Analysis
 - 1.7.2. Systems and Installations Analysis
 - 1.7.3. Evaluation of Action Options
 - 1.7.4. Energy Balances and Energy Accounting
- 1.8. Improvement Proposals and Conclusions
 - 1.8.1. Energy Supply/Demand
 - 1.8.2. Type of Action to Be Taken
 - 1.8.3. Envelope and Systems/Installations
 - 1.8.4. Final Report
- 1.9. Economic Assessment vs. Scope
 - 1.9.1. Cost of Residential Energy Audit
 - 1.9.2. Cost of Multi-Family Residential Building Energy Audit
 - 1.9.3. Cost of Tertiary Building Audit
 - 1.9.4. Cost of Shopping Center Energy Audit
- 1.10. Current Regulations
 - 1.10.1. National Energy Efficiency Plan
 - 1.10.2. UNE 16247:2012 Standard. Energy Audits: Requirements
 - 1.10.3. COP21. Directive 2012/27/EU
 - 1.10.4. COP25. Chile-Madrid



This specialization will allow you to advance in your career comfortably”

05

Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.



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TECH will prepare you to face new challenges in uncertain environments and achieve success in your career”

The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.

The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

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*At TECH you will NOT have live classes
(which you might not be able to attend)”*



The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

“*TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want*”

Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.



Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

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



A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.



The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule"

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.

You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.



As such, the best educational materials, thoroughly prepared, will be available in this program:



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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



Interactive Summaries

We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

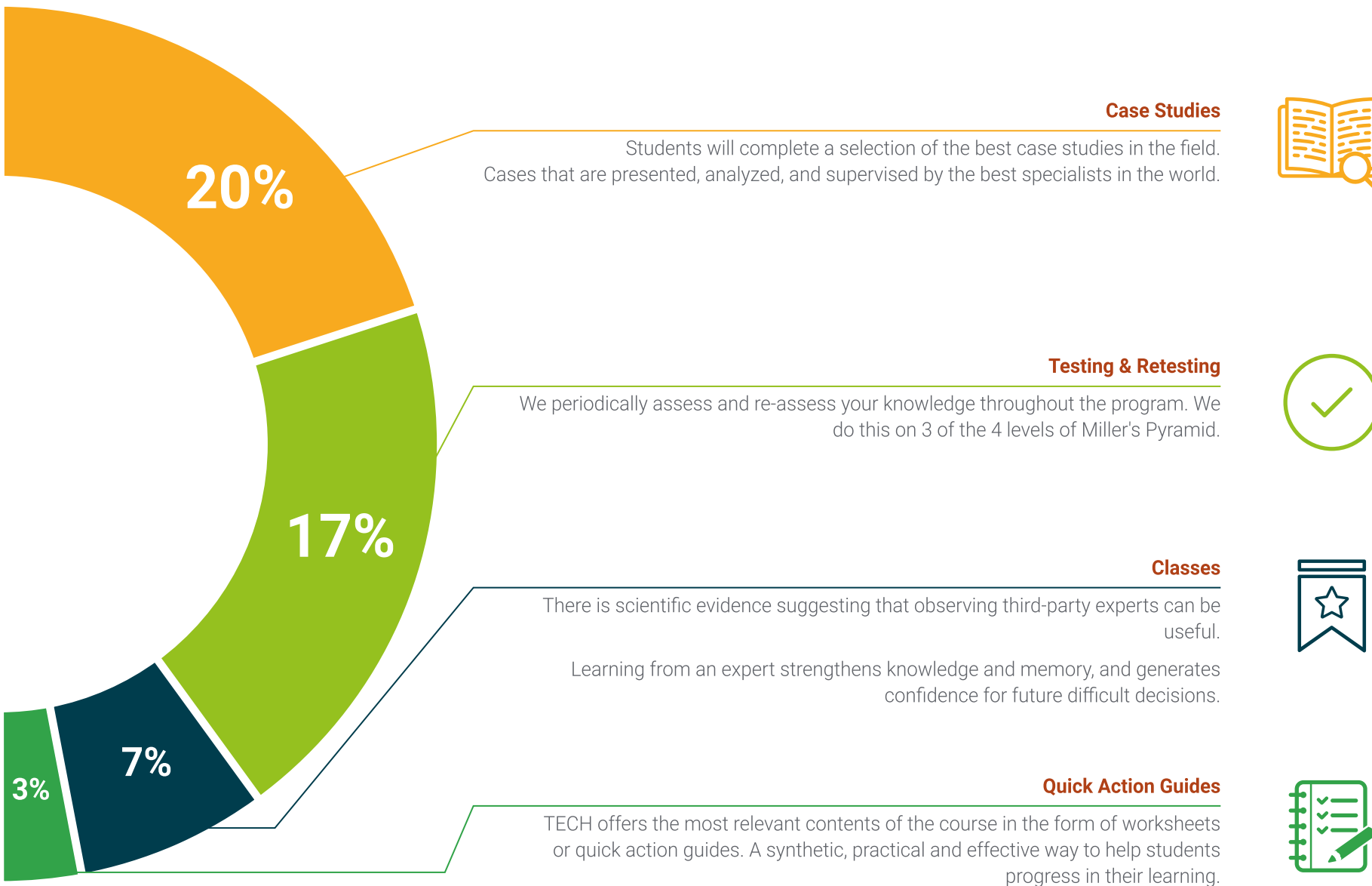
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



Additional Reading

Recent articles, consensus documents, international guides... In our virtual library you will have access to everything you need to complete your education.





05 Certificate

This Postgraduate Certificate in Energy Audit of Buildings guarantees students, in addition to the most rigorous and up-to-date education, access to a diploma for the Postgraduate Certificate issued by TECH Global University.



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Include in your education a Postgraduate Certificate in Energy Audit of Buildings—an added value of high qualification for any professional in this field”

This private qualification will allow you to obtain a diploma for the **Postgraduate Certificate in Energy Audit of Buildings** endorsed by TECH Global University, the world's largest online university.

TECH Global University, is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Energy Audit of Buildings**

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Accreditation: **6 ECTS**





Postgraduate Certificate Energy Audit of Buildings

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Postgraduate Certificate

Energy Audit of Buildings