

Postgraduate Certificate Energy Savings in Building Envelopes



Postgraduate Certificate Energy Savings in Building Envelopes

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

Website: www.techtitude.com/us/engineering/postgraduate-certificate/energy-savings-building-envelopes

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01

Introduction

In this comprehensive course, the content related to intervention measures for optimizing the building envelope is covered, including the use of thermal insulation and the proper arrangement of materials, both in rehabilitation projects and new construction.

A high-quality program designed for the most demanding professionals in the sector.



“

Acquire the most advanced and up-to-date knowledge in Energy Savings for Building Envelopes through a high-qualification, high-impact training program”

Throughout this intensive program, key analytical concepts will be covered, such as the thermal transmittances and conductivities of materials and construction details, as well as the methods for calculating them in order to compare parameters of different intervention options.

Various types of insulation materials for foundations, façades, roofs, and floors in contact with the outside air will be analyzed, whether in floor or ceiling arrangements. Unique junctions, such as insulation for retaining walls in contact with the building and junctions with service ducts and chimneys, will also be explored.

We will describe various ways to optimize other more specialized types of construction, such as prefabricated buildings, with solutions using wood construction, including both light framing and cross-laminated timber (CLT) panels, steel-frame, or industrialized modular construction using metal and concrete. These are forward-looking experiences with various innovative solutions.

The program will conclude with an analysis of the various construction details of different types of building envelopes, through an in-depth thermographic study that will provide a practical understanding of the energy performance of the proposed solutions.

This **Postgraduate Certificate in Energy Savings in Building Envelopes** 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 highly effective training program and open new pathways for your professional growth"



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

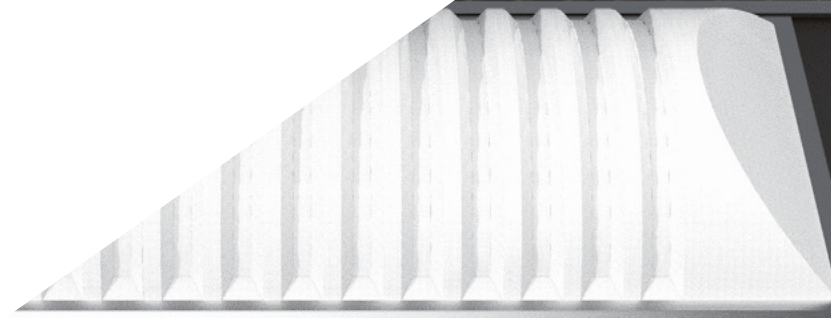
Our teaching staff is made up of professionals from different fields related to this specialty. In this way, we ensure that we provide you with the educational update we are aiming for. A multidisciplinary team of professionals trained and experienced in different environments, who will develop the theoretical 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

- Delve into the scope of the envelope study, such as parameters related to materials, thicknesses, conductivity, transmittance and as basic technical conditions to analyze the energy performance of a building
- Interpret the possible energy improvements based on the study of the energy optimization of foundations, roofs, facades and exterior slabs (floors and ceilings), as well as basement walls in contact with the building, developing the study from data collection, analysis and assessment, study of the different proposals for improvement and conclusions, study of technical regulations of application
- Approach singular encounters of the thermal envelope such as installation skirts and chimneys
- Acquire the knowledge of the study of the envelope in singular prefabricated constructions
- Plan and control the correct execution by means of a thermographic study according to the materials, their layout, development of the thermographic analysis, and study of the solutions to be implemented



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



“

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.



“

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 Savings in Building Envelopes

- 1.1. Key Concepts
 - 1.1.1. Materials
 - 1.1.2. Thicknesses
 - 1.1.3. Conductivity
 - 1.1.4. Thermal Transmittance
- 1.2. Foundation Insulation
 - 1.2.1. Materials
 - 1.2.2. Arrangement
 - 1.2.3. Technical Justifications
 - 1.2.4. Innovative Solutions
- 1.3. Facade Insulation
 - 1.3.1. Materials
 - 1.3.2. Arrangement
 - 1.3.3. Technical Justifications
 - 1.3.4. Innovative Solutions
- 1.4. Roof Insulation
 - 1.4.1. Materials
 - 1.4.2. Arrangement
 - 1.4.3. Technical Justifications
 - 1.4.4. Innovative Solutions
- 1.5. Floor Insulation
 - 1.5.1. Materials
 - 1.5.2. Arrangement
 - 1.5.3. Technical Justifications
 - 1.5.4. Innovative Solutions
- 1.6. Ceiling Insulation
 - 1.6.1. Materials
 - 1.6.2. Arrangement
 - 1.6.3. Technical Justifications
 - 1.6.4. Innovative Solutions





- 1.7. Basement Wall Insulation
 - 1.7.1. Materials
 - 1.7.2. Arrangement
 - 1.7.3. Technical Justifications
 - 1.7.4. Innovative Solutions
- 1.8. Service Ducts vs. Chimneys
 - 1.8.1. Materials
 - 1.8.2. Arrangement
 - 1.8.3. Technical Justifications
 - 1.8.4. Innovative Solutions
- 1.9. Envelope in Prefabricated Construction
 - 1.9.1. Materials
 - 1.9.2. Arrangement
 - 1.9.3. Technical Justifications
 - 1.9.4. Innovative Solutions
- 1.10. Thermographic Analysis
 - 1.10.1. Thermography by Materials
 - 1.10.2. Thermography by Arrangement
 - 1.10.3. Development of Thermographic Analysis
 - 1.10.4. Solutions to Implement

“ *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.



“

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.

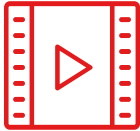
The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

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

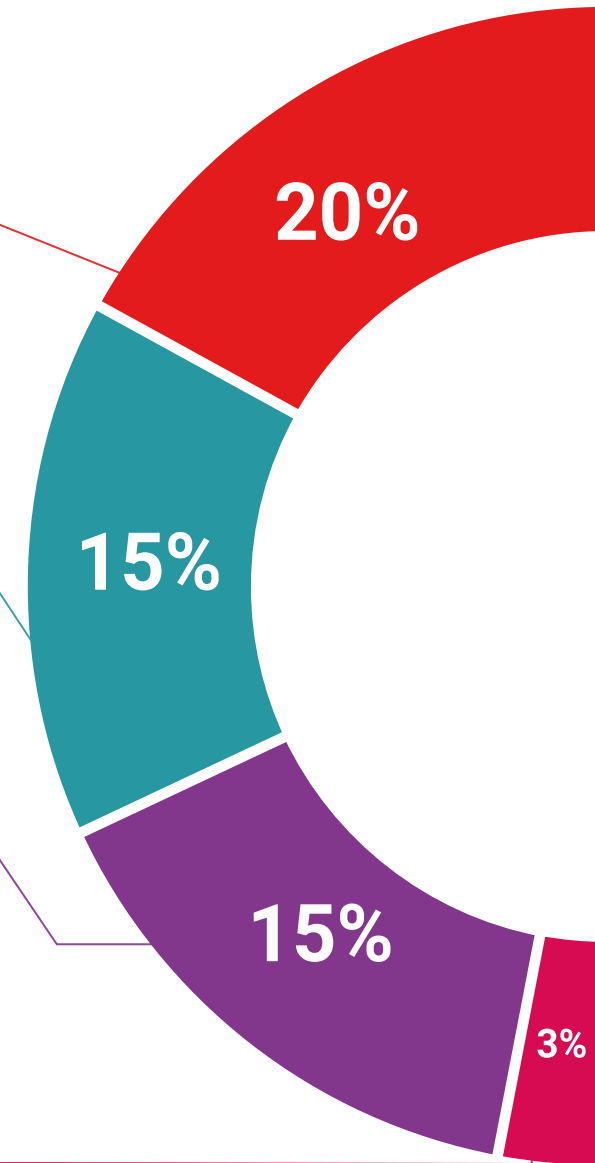
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

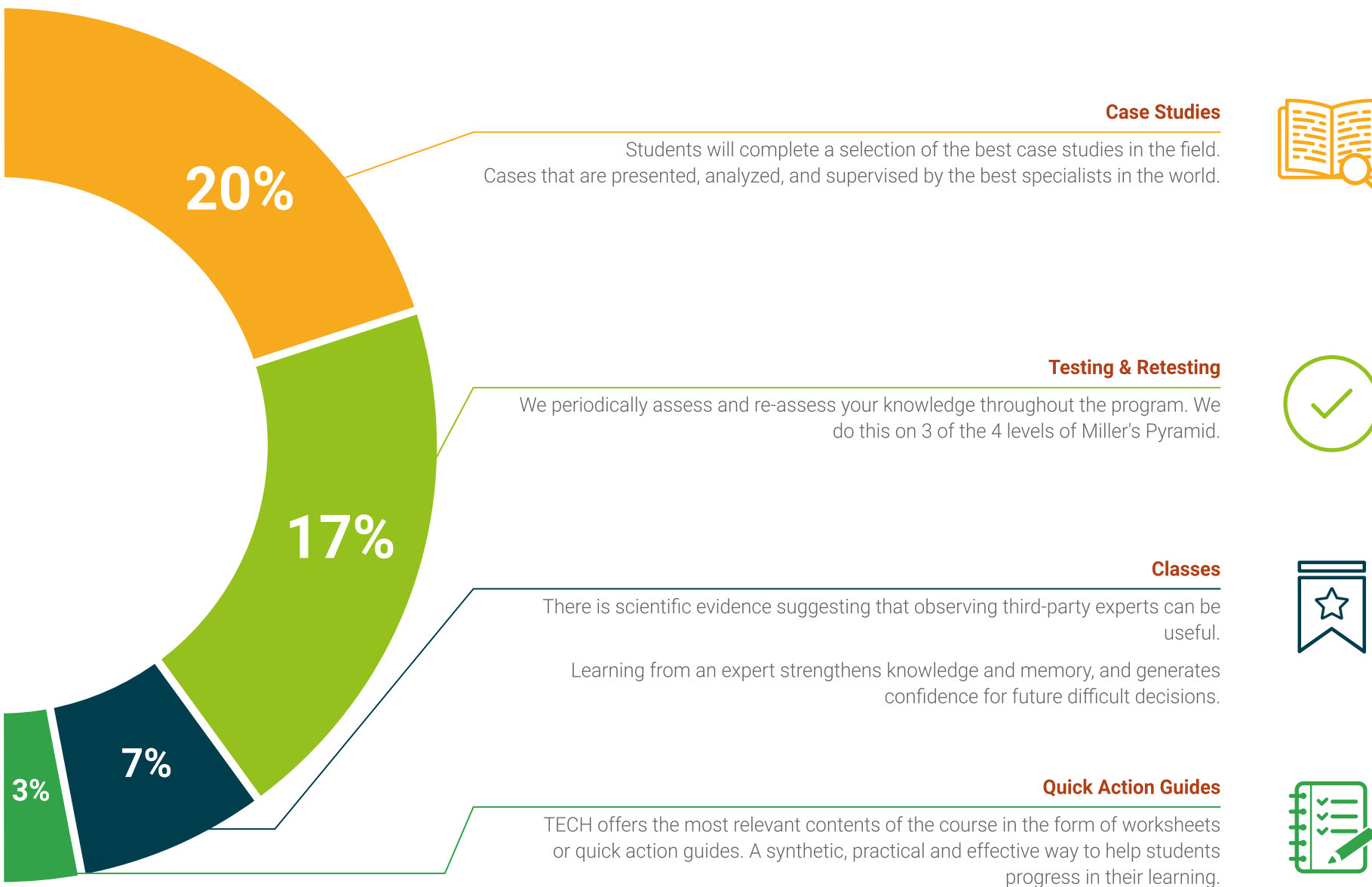
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



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

The Postgraduate Certificate in Energy Savings in Building Envelopes 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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Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”

This private qualification will allow you to obtain a diploma for the **Postgraduate Certificate in Energy Savings in Building Envelopes** 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 Savings in Building Envelopes**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



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



Postgraduate Certificate Energy Savings in Building Envelopes

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Accreditation: 6 ECTS
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Postgraduate Certificate

Energy Savings in Building Envelopes

