

Postgraduate Certificate

Assembly and Maintenance of Photovoltaic Installations



Postgraduate Certificate Assembly and Maintenance of Photovoltaic Installations

- » 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/assembly-maintenance-photovoltaic-installations

Index

01

Introduction

p. 4

02

Objectives

p. 8

03

Course Management

p. 12

04

Structure and Content

p. 16

05

Methodology

p. 20

06

Certificate

p. 28

01

Introduction

Solar PV has emerged as a crucial solution to address the global challenges of energy sustainability and climate change. However, the efficient implementation of PV installations depends not only on the technology of the solar panels, but also on the quality of the assembly and maintenance of these systems. In this context, it is of vital importance that engineering professionals incorporate into their practice the most sophisticated measures to ensure electrical safety and optimize the operational efficiency of photovoltaic systems. For this reason, TECH is launching an avant-garde university program focused on the most recent advances in the Assembly and Maintenance of Photovoltaic Installations. In addition, it is taught in a 100% online modality. Also, it is taught in a 100% online format.



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With this 100% online Postgraduate Certificate, you will be able to configure photovoltaic systems and guarantee optimum performance"

The growing global demand for renewable energy has led to a rapid development in the Photovoltaic Installations field. So much so that a new report developed by the International Renewable Energy Agency, the global installed capacity of solar PV reached 1000 gigawatts last year. This significant development has highlighted the critical importance of efficient assembly and effective maintenance of these facilities to optimize both their performance and durability throughout their life cycle.

In response to this, TECH presents a revolutionary Postgraduate Certificate in Assembly and Maintenance of Photovoltaic Installations. The syllabus will examine in detail the assembly process, paying attention to aspects such as pre-planning, organization of supplies and commissioning of equipment. Along the same lines, the syllabus will highlight the importance of the verification of grid codes to ensure the safety, efficiency and interoperability of power generation facilities. Throughout the program, graduates will develop skills in photovoltaic system monitoring control, report writing and incident management.

Regarding the methodology of this university program, TECH offers a 100% online educational environment, adapted to the needs of photovoltaic engineers who want to advance in their careers. Likewise, it uses the Relearning methodology, based on the repetition of key concepts to consolidate knowledge. In this way, the combination of flexibility and a robust teaching approach makes it highly accessible. In addition, professionals will have access to a teaching library with a variety of multimedia resources in different formats such as interactive summaries, explanatory videos and infographics. In this sense, the only thing students will need is to have an electronic device with an Internet connection (such as a cell phone, tablet or computer) to access the Virtual Campus. In this way, they will have access to the most complete and up-to-date teaching materials on the educational market.

This **Postgraduate Certificate in Assembly and Maintenance of Photovoltaic Installations** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of case studies presented by experts in Photovoltaic Energy
- ♦ The graphic, schematic, and practical contents with which they are created, provide practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where self-assessment can be used to improve learning.
- ♦ Its special emphasis on innovative methodologies
- ♦ 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



Give a quality boost to your career as a Photovoltaic Engineer and work with the latest advances in the Assembly and Maintenance of Photovoltaic Installations"



You will delve into Incident Management and solve technical problems that can affect the performance of Photovoltaic Installations"

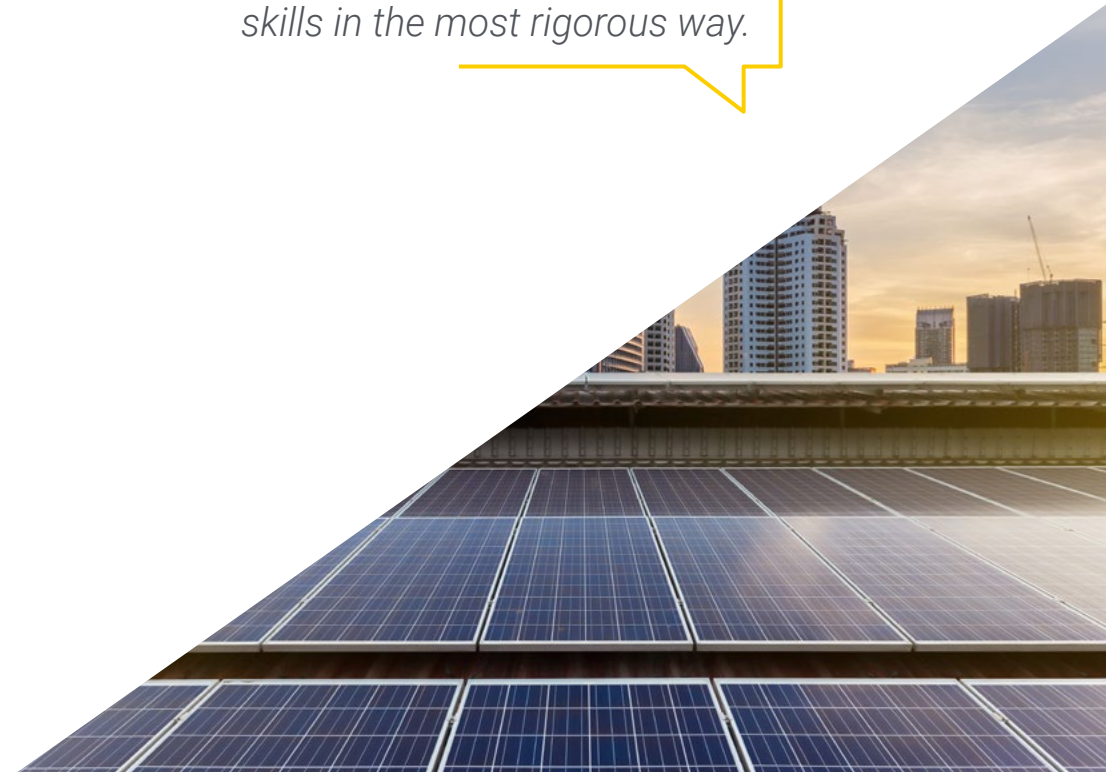
The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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

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

Want to stay on the cutting edge of the most innovative strategies for detecting faults in photovoltaic systems? Achieve it with this program.

TECH's exclusive Relearning system will allow you to update your knowledge and skills in the most rigorous way.



02

Objectives

Through this Postgraduate Certificate, engineers will have a solid understanding of the maintenance of the components that make up photovoltaic systems. At the same time, professionals will acquire advanced skills to carry out the installation of these projects, ensuring that all elements are correctly positioned and connected. Along the same lines, graduates will carry out preventive and corrective maintenance of photovoltaic systems in an optimal manner. This will include regular inspections, cleaning of solar panels, functional tests and diagnosis of possible problems.



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You will handle the most sophisticated tools to evaluate energy production, identify areas for improvement and optimize the operation of photovoltaic systems”



General Objectives

- ♦ Develop a specialized vision of the photovoltaic market and its lines of innovation
- ♦ Analyze the typology, components and advantages and disadvantages of all configurations and schemes of large photovoltaic plants
- ♦ Specify the typology, components and the advantages and disadvantages of all the configurations and schemes of self-consumption photovoltaic installations
- ♦ Examine the typology, components and advantages and disadvantages of all off-grid PV plant configurations and schemes
- ♦ Establish the typology, components and the advantages and disadvantages of hybridization of photovoltaic technology with other conventional and renewable generation technologies
- ♦ Establish the fundamentals of the operation of the components of the direct current part of the photovoltaic installations
- ♦ Understand all the properties of the components
- ♦ Establish the fundamentals of the operation of the components of the direct current part of the photovoltaic installations
- ♦ Understand all the properties of the components
- ♦ Characterize the solar resource on any site in the world
- ♦ Handle terrestrial and satellite databases
- ♦ Select optimal sites for photovoltaic systems
- ♦ Identify other factors and their influence on the photovoltaic installation
- ♦ Assess the profitability of investments, operation and maintenance activities and financing of photovoltaic projects
- ♦ Identify risks that may affect the viability of investments
- ♦ Manage PV projects
- ♦ Design and dimensioning of photovoltaic plants, including site selection, sizing of components and their coupling
- ♦ Estimate energy yields
- ♦ Monitor photovoltaic plants
- ♦ Manage health and safety
- ♦ Design and dimensioning of self-consumption photovoltaic installations, including site selection, sizing of components and their coupling
- ♦ Estimate energy yields
- ♦ Monitor photovoltaic installations
- ♦ Design and dimensioning of off-grid photovoltaic systems, including site selection, sizing of components and their coupling
- ♦ Estimate energy yields
- ♦ Monitor photovoltaic installations
- ♦ Analyze the potential of PVGIS, PVSYST and SAM software in the design and simulation of photovoltaic installations.
- ♦ Simulate, dimension and design photovoltaic installations using the following softwares: PVGIS, PVSYST and SAM
- ♦ Acquire skills in the assembly and commissioning of installations
- ♦ Develop specialized knowledge in the operation and preventive and corrective maintenance of the facilities



Specific Objectives

- ◆ Plan the assembly, operation and maintenance, both technically and in terms of Health and Safety
- ◆ Manage incidents during the useful life of the installation
- ◆ Perform technical reports of operation and maintenance: Productions, Alarms, Ratios
- ◆ Establish maintenance tasks



You will have at your disposal a wealth of audiovisual support material, including interactive summaries, study guides, activities for each topic and complementary readings”

03

Course Management

For the design of this Postgraduate Certificate, TECH has a first class teaching staff made up of experts in Assembly and Maintenance of Photovoltaic Installations. These professionals have an extensive professional background, which has allowed them to work in internationally renowned institutions. In this way, they have created various teaching materials that stand out for their excellent quality and full applicability to the requirements of the labor market. These specialists will be available at all times to answer any questions students may have. Undoubtedly, a high intensity experience that will improve the job prospects of engineers.





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*Learn from leading professionals
the latest advances in Assembly and
Maintenance of Photovoltaic Installations"*

Management



Dr. Blasco Chicano, Rodrigo

- ♦ Academic in Renewable Energy, Madrid
- ♦ Energy Consultant at JCM Bluenergy, Madrid
- ♦ PhD in Electronics from the University of Alcalá
- ♦ Specialist in Renewable Energy from the Complutense University of Madrid
- ♦ Master's Degree in Energy from the Complutense University of Madrid
- ♦ Degree in Physics from the Complutense University of Madrid



04

Structure and Content

Through this university program, engineers will be characterized by having a comprehensive knowledge of the physical and electrical fundamentals behind the operation of photovoltaic systems. In order to achieve this, the syllabus will delve into the assembly of photovoltaic plants, taking into account aspects such as safety, equipment selection in the market and incident management. Along these lines, the program will offer students the most innovative strategies for the maintenance of self-consumption installations without batteries. In this way, graduates will be able to identify and correct possible problems that could affect energy production.





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You will perform functional tests to ensure the correct and safe operation of the installed systems”

Module 1. Assembly, Operation and Maintenance of Photovoltaic Plants

- 1.1. Assembly of Photovoltaic Plants
 - 1.1.1. Health and Safety
 - 1.1.2. Selection of Equipment on the Market
 - 1.1.3. Incident Management
- 1.2. Commissioning of Photovoltaic Plants. Technical Aspects
 - 1.2.1. Commissioning Operations
 - 1.2.2. Grid Codes. Control Center
 - 1.2.3. Incident Management. Thermography, Electroluminescence, Certifications
- 1.3. Commissioning of Self-Consumption Installations. Technical Aspects
 - 1.3.1. Commissioning Operations
 - 1.3.2. Monitoring
 - 1.3.3. Incident Management. Thermography, Electroluminescence, Certifications
- 1.4. Commissioning of Off-Grid Installations. Technical Aspects
 - 1.4.1. Commissioning Operations
 - 1.4.2. Monitoring
 - 1.4.3. Incident Management
- 1.5. Operation and Maintenance Strategies for Photovoltaic Plants
 - 1.5.1. Operation Strategies
 - 1.5.2. Maintenance Strategies. Fault Detection
 - 1.5.3. Internal and External Incident Management
- 1.6. Operation and Maintenance Strategies for Self-Consumption Installations without Batteries.
 - 1.6.1. Operation Strategies. Surplus Management
 - 1.6.2. Maintenance Strategies. Fault Detection
 - 1.6.3. Internal and External Incident Management
- 1.7. Operation and Maintenance Strategies for Self-Consumption Installations with Batteries.
 - 1.7.1. Operation Strategies. Surplus Management
 - 1.7.2. Maintenance Strategies. Fault Detection
 - 1.7.3. Internal and External Incident Management





- 1.8. Operation and Maintenance Strategies for Stand-Alone Installations
 - 1.8.1. Operation Strategies
 - 1.8.2. Maintenance Strategies. Fault Detection
 - 1.8.3. Internal and External Incident Management
- 1.9. Health and Safety during Assembly, Operation and Maintenance
 - 1.9.1. Working at Heights. Roofs, Electric Poles
 - 1.9.2. High Voltage Works
 - 1.9.3. Other Works
- 1.10. As Built-Project Documentation
 - 1.10.1. Commissioning Documents
 - 1.10.2. Final Certifications
 - 1.10.3. Modifications and As-Built Project



A unique, key and decisive educational experience that will boost your professional development as a Photovoltaic Engineer. Enroll now!

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.

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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.



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.



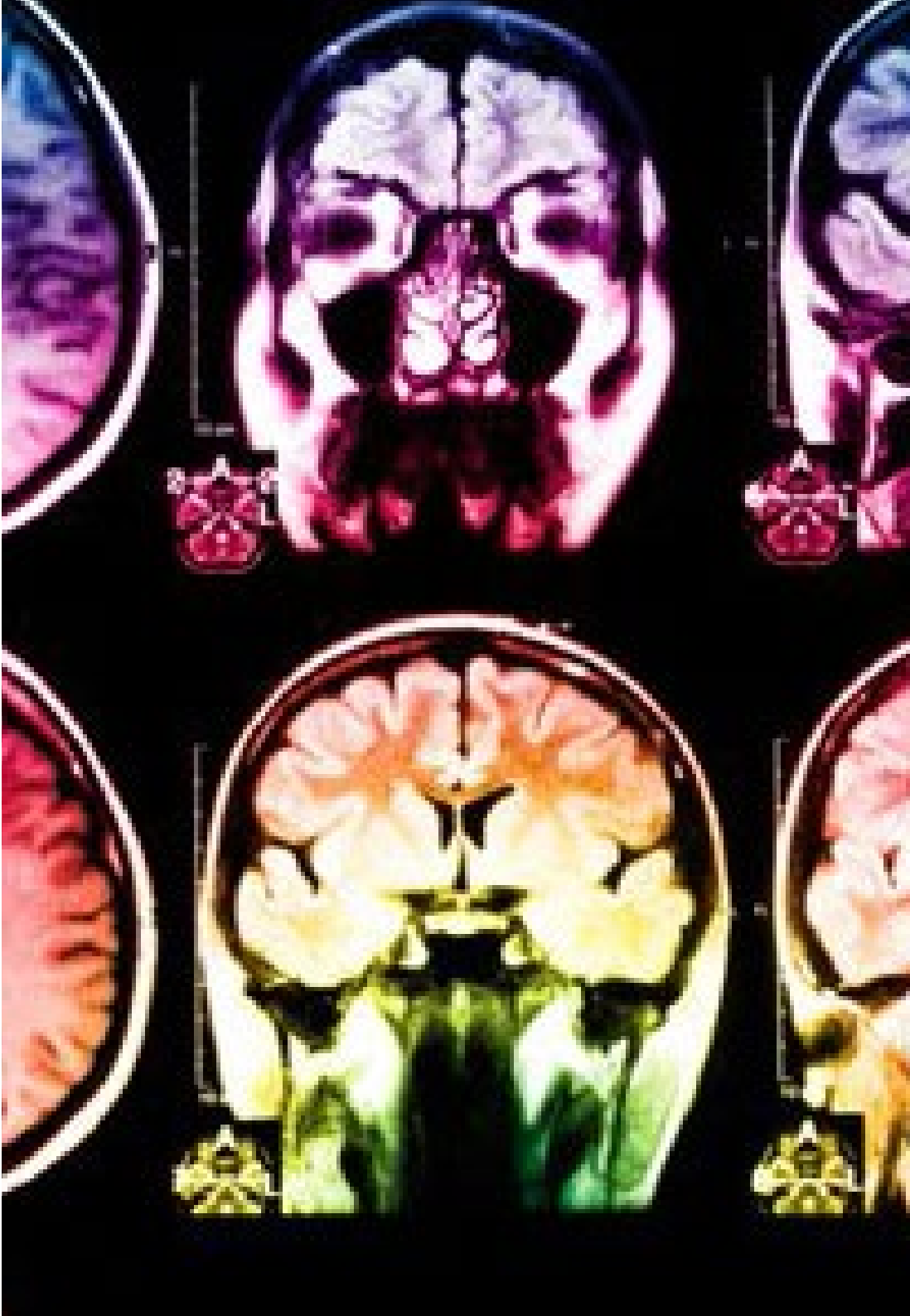
In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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.

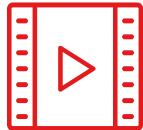
Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

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.



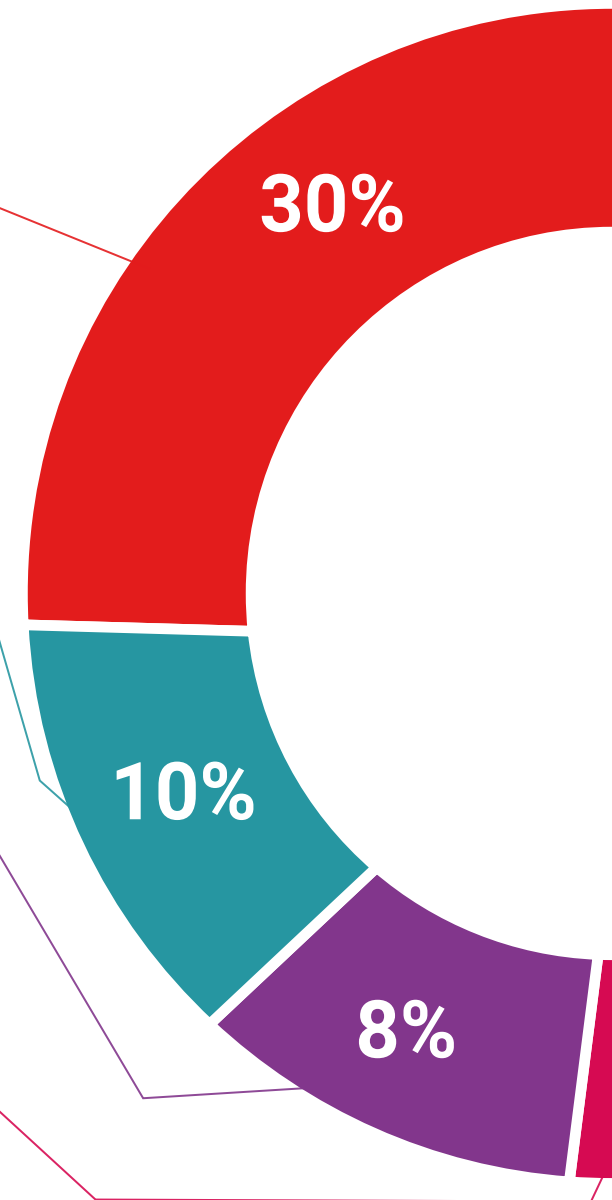
Practising Skills and Abilities

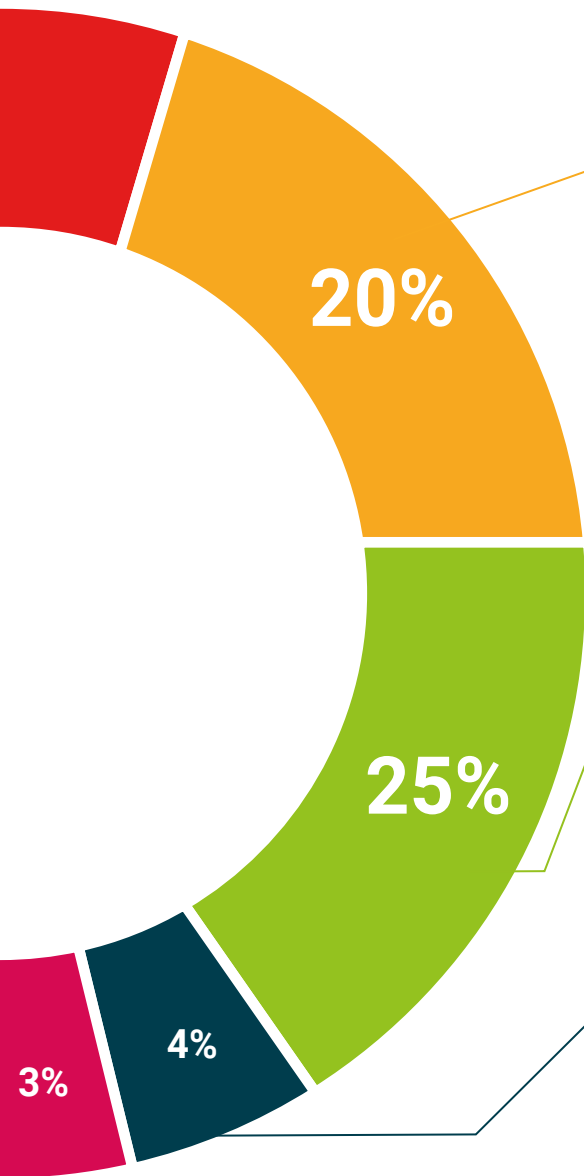
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



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 in Assembly and Maintenance of Photovoltaic Installations guarantees students, in addition to the most rigorous and up-to-date education, access to a 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 **Postgraduate Certificate in Assembly and Maintenance of Photovoltaic Installations** 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 Assembly and Maintenance of Photovoltaic Installations**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



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



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