

Postgraduate Certificate

Large Photovoltaic Installation Design





Postgraduate Certificate Large Photovoltaic Installation Design

- » 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/large-photovoltaic-installation-design

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01

Introduction

One of the main challenges for institutions is the search for sustainable and economically viable energy solutions. In view of this, large-scale photovoltaic installations have become a key element in the global transition to renewable energy sources. Against this backdrop, engineers need to master the most innovative methodologies to optimize large-scale photovoltaic systems. Only then will experts be able to evaluate both the technical aspects related to energy efficiency and performance and the economic aspects that affect the feasibility of these projects. To help them with this, TECH implements a revolutionary online university program focused on the latest advances in Large Photovoltaic Installation Design.





Through this Postgraduate Certificate based on Relearning, you will design photovoltaic systems that maximize energy efficiency and renewable electricity production"

The increasing adoption of large-scale solar PV is completely transforming the global energy landscape. In this regard, the International Energy Agency estimates that Europe could generate up to 20% of its electricity from solar sources in the coming years. This underlines the strategic importance of optimizing the design and efficiency of these installations. In this context, engineering professionals play a key role as they are responsible for designing PV systems that maximize efficiency and renewable energy production. In order to achieve this, it is vital that experts select the right layout of solar panels, inverters and other key system components to improve energy yield.

Given this scenario, TECH presents a comprehensive Postgraduate Certificate in Large Photovoltaic System Design. Designed by references in this field, the academic itinerary will address in detail the most sophisticated methodologies for the estimation of the energy production of the installations, as well as the technical conditions for their access and connection to the grid. In line with this, the syllabus will delve into Energy Production Estimation, which will enable graduates to properly size the components of the energy system and ensure that the system operates optimally during its lifetime. Moreover, the program will provide students with advanced strategies to ensure safety in photovoltaic plants.

This is an intensive 180-hour program, where students will increase their knowledge on the Design of Large Photovoltaic Installations. All this through a syllabus made up of multimedia resources that include interactive summaries, case studies and complementary readings. Along the same lines, with the Relearning system promoted by TECH, based on the reiteration of the most important concepts throughout this academic itinerary, engineers will obtain a much more effective update.

This **Postgraduate Certificate in Large Photovoltaic Installation Design** 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 the self-assessment process can be carried out 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



A cutting-edge academic itinerary that will make you progressively advance from the comfort of your home"

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A program that will give you the flexibility you need thanks to its 100% online format. You will be able to plan your schedule individually!"

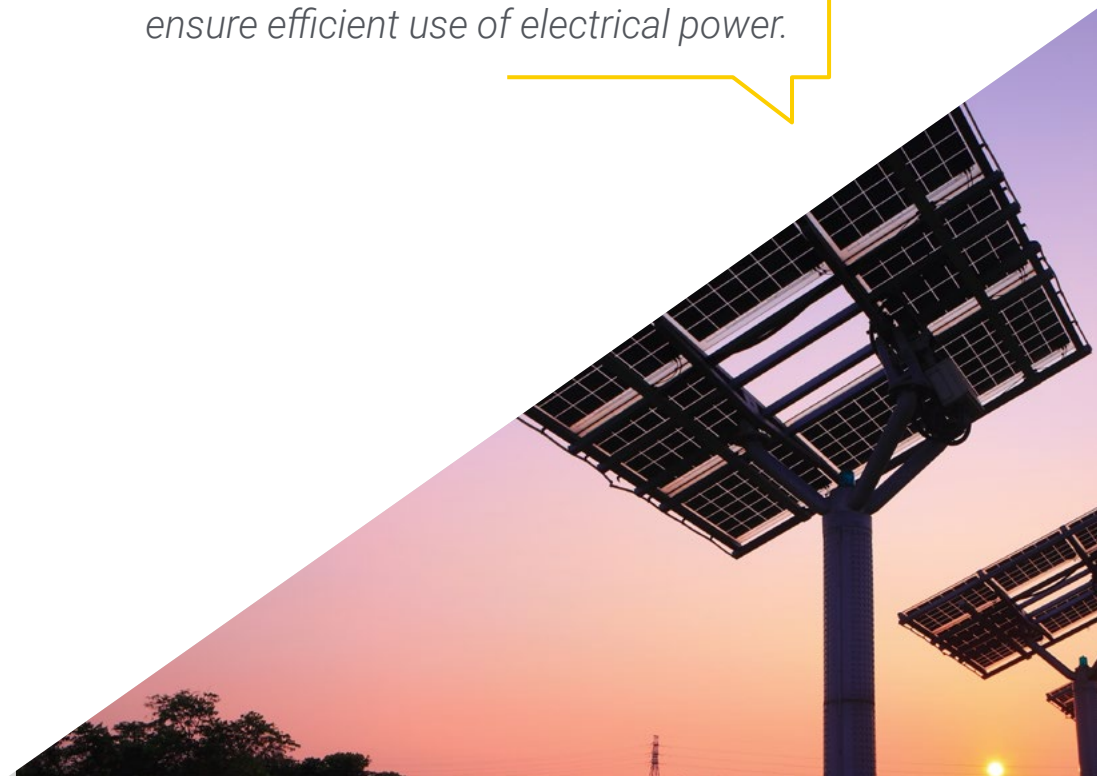
The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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 master the most cutting-edge alarm issuance strategies? Achieve it with this revolutionary program in only 180 hours.

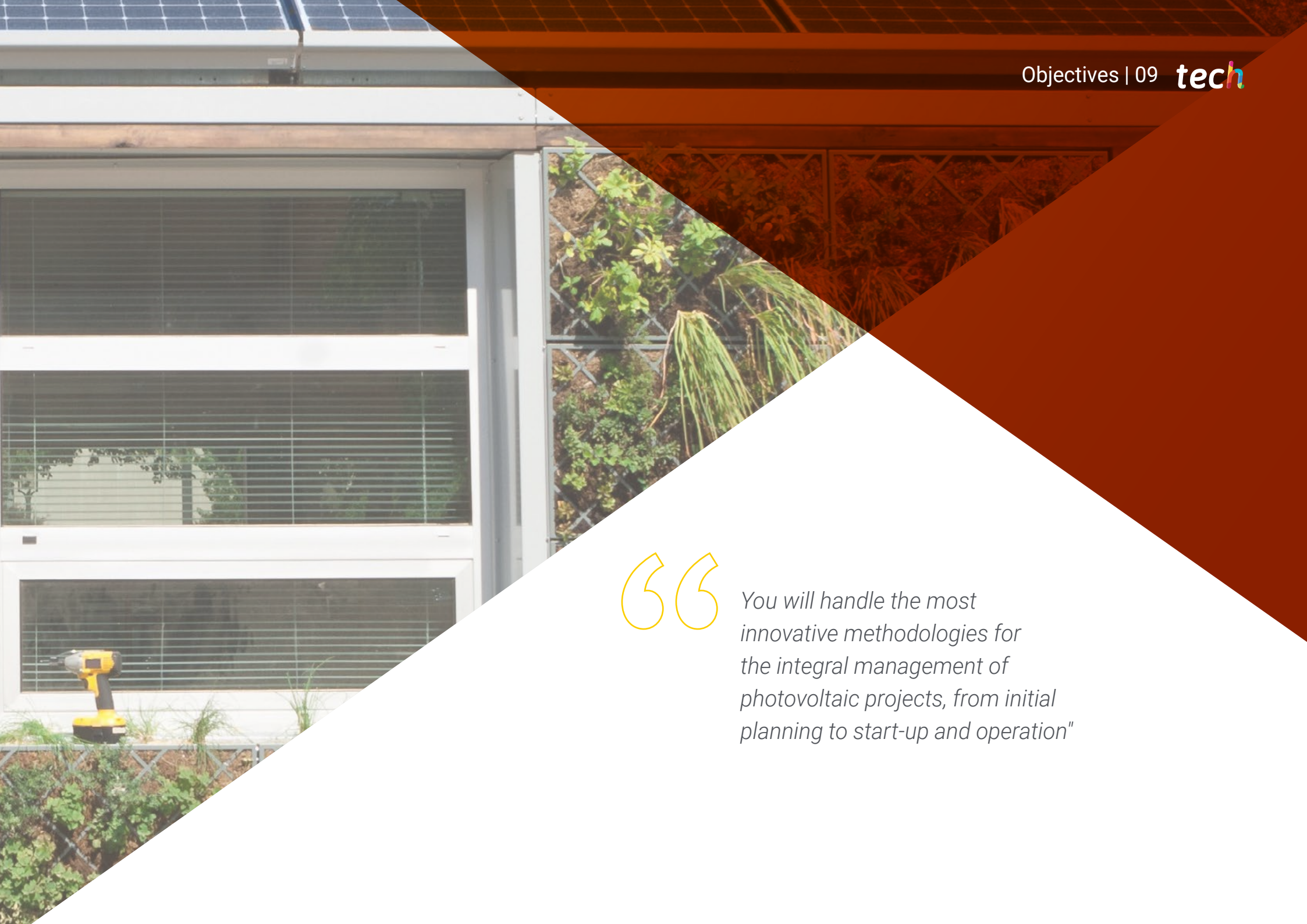
You'll delve into Alternating Current/ Low Voltage Component Sizing and ensure efficient use of electrical power.



02 Objectives

After completing this Postgraduate Certificate, engineers will have a comprehensive understanding of the technologies used in the design of large-scale photovoltaic installations. Likewise, professionals will obtain advanced skills to carry out detailed technical-economic analyses that evaluate the feasibility and profitability of large photovoltaic projects. At the same time, graduates will promote operating practices that contribute to environmental sustainability, maximizing the positive impact of photovoltaic installations on both communities and the environment.





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You will handle the most innovative methodologies for the integral management of photovoltaic projects, from initial planning to start-up and operation”



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

- ♦ Select site locations for photovoltaic plants, either for your own plant or for third parties
- ♦ Control the monitoring of the PV plant



You will draw valuable lessons through the analysis of real cases in simulated learning environments"

03

Course Management

TECH's philosophy is to offer the most complete programs on the educational market. For this reason, it carries out a meticulous process to constitute its teaching staff. As a result, this Postgraduate Certificate has the participation of distinguished experts in the field of Large Photovoltaic Installation Design. These specialists have designed multiple teaching materials that stand out for their quality and for meeting the requirements of today's labor market. In this way, engineers will have access to an experience that will significantly raise their professional horizons.



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You will achieve success as a photovoltaic engineer with this intensive program, developed by professionals with extensive experience in the field"

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

Thanks to this university program, students will have a holistic knowledge about advanced technologies used in the design of large-scale photovoltaic installations. The syllabus will focus on the selection of the photovoltaic plant scheme, taking into account aspects such as solar tracking system analysis, inverter topology and alternative uses. The program will also focus on the design of DC components, which will enable graduates to design more efficient electrical systems. The program will also provide the most effective measures to ensure safety in photovoltaic plants.



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You will develop skills to design photovoltaic systems that maximize energy efficiency and renewable electricity production”

Module 1. Large Photovoltaic Plant Design

- 1.1. Climate and Topographic Data, Power, Other Data
 - 1.1.1. Peak and/or Nominal Power
 - 1.1.2. Climate and Topographic Data
 - 1.1.3. Other Data: Required Floor Area, Access and Connection Network, Easements
- 1.2. Selection of the Photovoltaic Plant Layout
 - 1.2.1. Analysis of Solar Tracking Systems
 - 1.2.2. Topology of Inverters: Central or String
 - 1.2.3. Alternative Uses: Agrivoltaics
- 1.3. Dimensioning of Components in DC
 - 1.3.1. Solar Field Sizing
 - 1.3.2. Solar Tracker Sizing
 - 1.3.3. Wiring and Protection Sizing
- 1.4. Alternating Current/Low Voltage Component Sizing
 - 1.4.1. Inverter Sizing
 - 1.4.2. Other Elements: Monitoring, Control and Counters
 - 1.4.3. Wiring and Protection Sizing
- 1.5. Alternating Current/High Voltage Component Sizing
 - 1.5.1. Transformers Sizing
 - 1.5.2. Other Elements: Monitoring, Control and Counters
 - 1.5.3. High-Voltage Wiring and Protection Sizing
- 1.6. Energy Yield Estimation
 - 1.6.1. Daily, Monthly and Annual Yield
 - 1.6.2. Production Parameters: Performance Ratio
 - 1.6.3. Strategies for Sizing Optimization. Peak and Nominal Power Ratio
- 1.7. Monitoring of Variables
 - 1.7.1. Identification of Variables to be Monitored
 - 1.7.2. Strategies for Alarm Issuance
 - 1.7.3. Alternative Monitoring and Alarms for the Photovoltaic Plant
- 1.8. Grid Integration
 - 1.8.1. Electrical Quality
 - 1.8.2. Grid Codes
 - 1.8.3. Control Centers





- 1.9. Safety and Health of Photovoltaic Plants
 - 1.9.1. Risk Analysis
 - 1.9.2. Prevention Measures
 - 1.9.3. Protection Measures
- 1.10. Examples of Photovoltaic Plant Design
 - 1.10.1. Plant Design with Central and Fixed Inverter
 - 1.10.2. Plant Design with Single-Phase Photovoltaic Module, with Inverter by String and Single-Axis Tracker
 - 1.10.3. Plant Design with Bifacial Photovoltaic Module, with Inverter by String and Single-Axis Tracker

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You can access the Virtual Campus at any time and download the contents to consult them whenever you want. 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.



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.



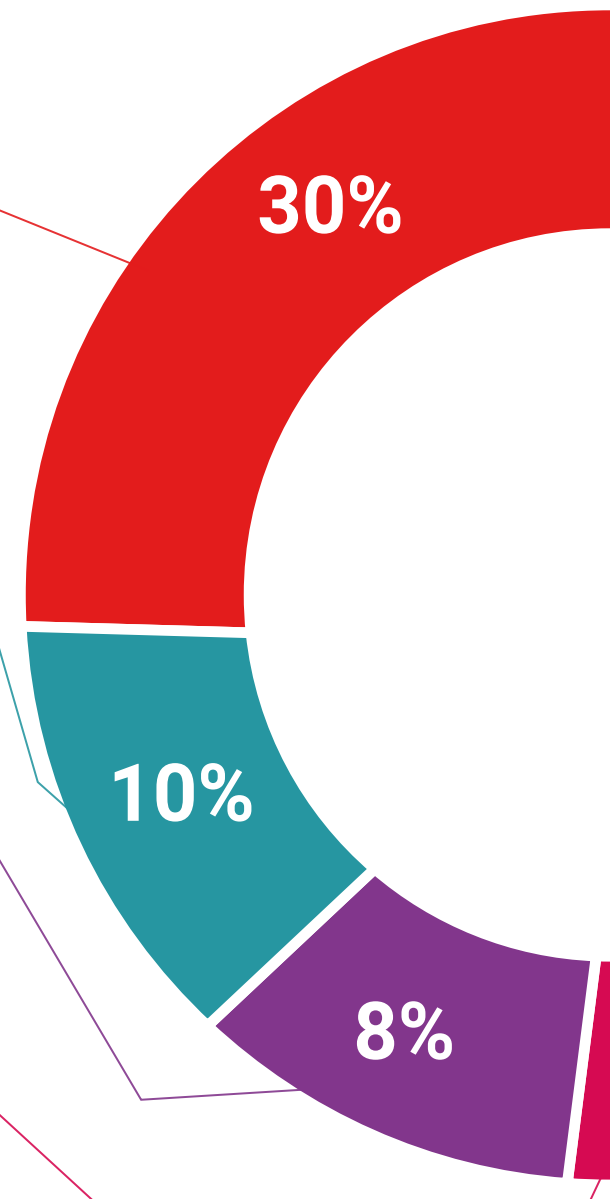
Practising Skills and Abilities

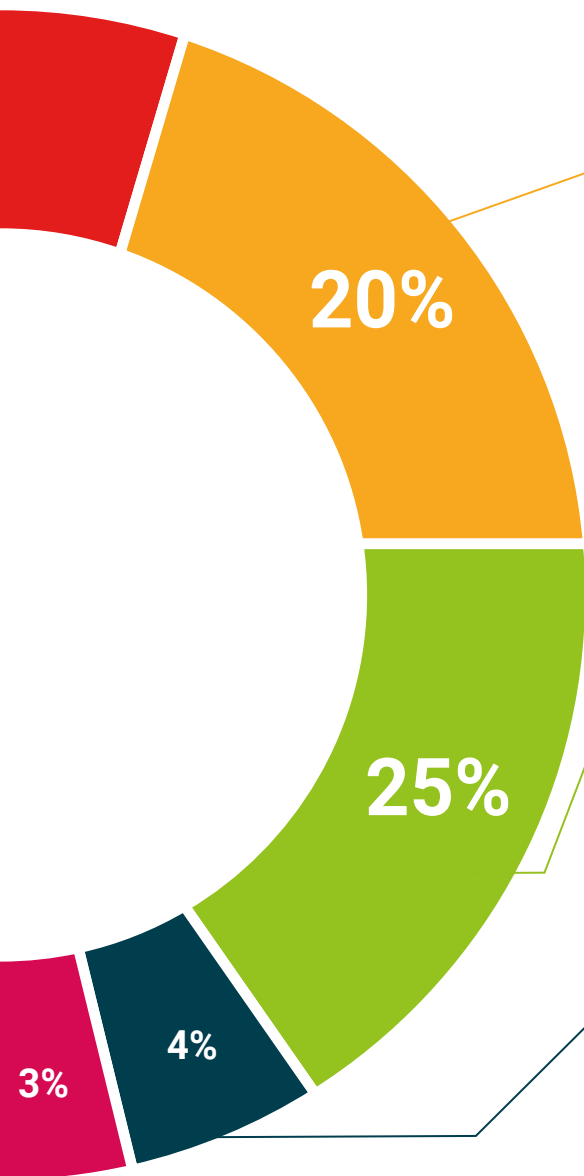
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



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.



06

Certificate

The Postgraduate Certificate in Large Photovoltaic Installation Design 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 Large Photovoltaic Installation Design** 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 Large Photovoltaic Installation Design**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**





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