Postgraduate Certificate

Economics of Electric Power Production and Generation

tech technological university

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Postgraduate Certificate

Economics of Electric Power Production and Generation

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

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/economics-electric-power-production-generation**

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01

Introduction

This program in Economics of Electric Power Production and Generation aims to provide students with the necessary tools for the economic viability of an electric power generation plant, as well as the financing of an electric power generation park with own resources and debt. It also analyzes the profitability of a power plant, the cost until its construction is completed and its operation begins, and finally, the financial planning of the entire operation. It includes an exhaustive study of the technical-economic variables and the viability of the investment required for the execution and construction of power generation plant projects, with special emphasis on the integration of renewable energies.

Learn all about the administrative management of a power plant and you will master the economic viability and financing with your own resources of a quality power generation park, typical of the 21st century"

This program details how the integration of the different technologies within the power generation park is operated and regulated For this reason, it deals in depth with the production technologies according to their characteristics, installed power and energy demand

On the other hand, the agenda includes the integration of renewable energies within the electricity generation market, given its relevance at present, in line with the SDGs promoted by the UN

The content of this Postgraduate Certificate will go in depth into the valuation of investments for the viability of a power generation plant, as well as the financing with own resources and with debt of a power generation plant.

It analyzes the profitability of a power plant, the cost until its construction is completed and its operation begins, and finally, the financial planning of the entire operation.

All of the above will allow the student to carry out an in-depth analysis of preliminary projects and studies, since the technical-economic variables and the viability of the investment necessary for the execution and construction of power generation plant projects are studied.

In addition, as it is a 100% online Postgraduate Certificate, it provides the student with the ease of being able to take it comfortably, wherever and whenever they want. All you need is a device with internet access to take your career one step further. A modality in line with the current times with all the guarantees to position the professional in a highly demanded area in continuous change, in line with the SDGs promoted by the UN.

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

- The development of case studies presented by experts in electrical engineering
- The deepening in Energy Resources Management
- The graphic, schematic, and eminently practical contents with which they are created, provide scientific and 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

You will establish the guidelines that must be taken into account in the environmental management of this type of facilities with accuracy and rigor"

Acquire the necessary tools for the economic viability of a power plant, the equity and debt financing of a successful power generation park thanks to TECH"

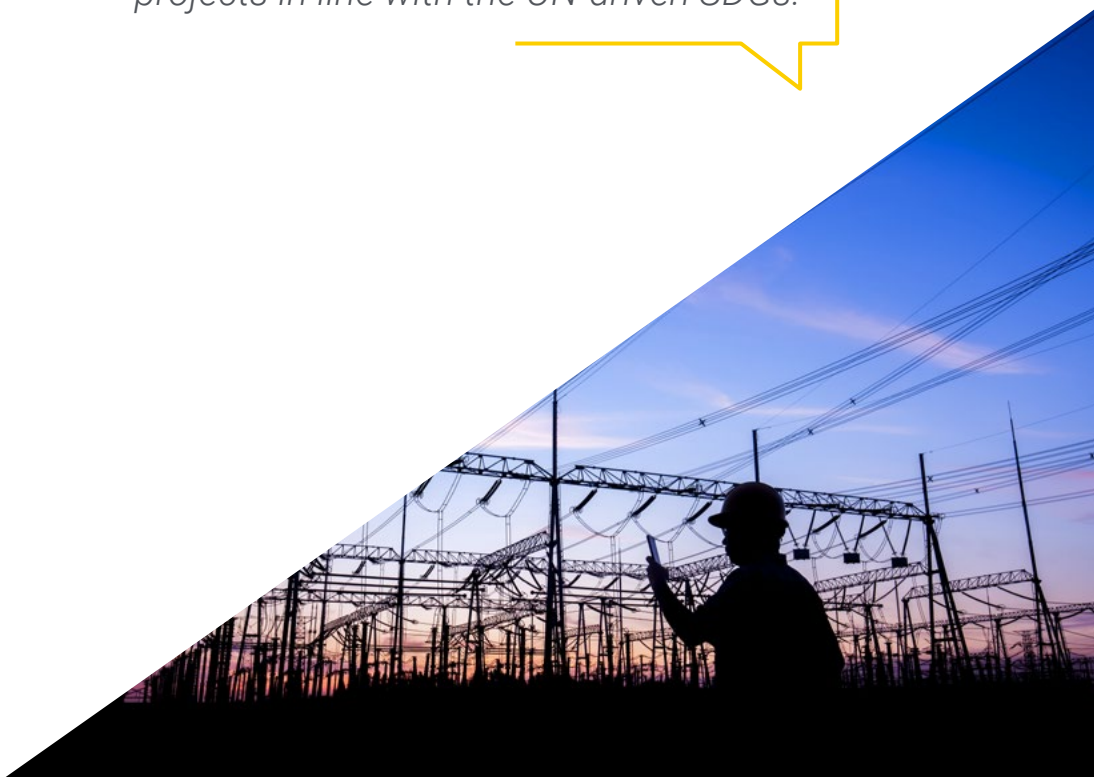
You will analyze the profitability of a power plant, the cost until its construction is completed and its operation begins, contemplating the financial planning of the entire operation.

Integrate renewable energies into the power generation market and drives future projects in line with the UN-driven SDGs.

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 an immersive training program designed to train in 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 academic year. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts.



02

Objectives

The Postgraduate Certificate in Economics of Electric Power Production and Generation is aimed at providing students with the necessary skills in financing within the electric power production and generation industry, thus enabling them to successfully manage and administer the economics of the associated power plants. In this way, we propose a specific and complete syllabus with quality content that, together with the guidance of experts, will enable the professional to achieve the following objectives

Discover the potential business opportunities offered by power generation infrastructures thanks to this TECH program"

General Objectives

- Interpret the investments and feasibility of power generation plants
- Discover the potential business opportunities offered by electricity generation infrastructures
- Delve into the latest trends, technologies and techniques in electric power generation
- Identify the components necessary for the correct functionality and operation of the facilities that make up the power generation plants
- Establish preventive maintenance plans that ensure and guarantee the proper operation of the power plants, taking into account human and material resources, the environment and the most rigorous quality standards
- Successfully manage maintenance plans for power generation plants
- Analyze the different productivity techniques existing in power generation plants, taking into account the particular characteristics of each facility
- Select the most appropriate contracting model according to the characteristics of the power plant to be built

Specific Objectives

- Identify the most appropriate generation technology for a given power demand or need to expand the power generation fleet demand or the need to expand the power generation park
- Detailed knowledge and diversification of the different generation techniques and technologies
- Acquire the necessary background knowledge of the existing technologies and techniques in the generation of electric power and the future trend of the same
- Integrating renewable energies into the electric power generation fleet
- Establish the guidelines that must be taken into account in the environmental management of this type of facilities
- Study the profitability of a power generation plant based on production revenues/costs, plant economics and financial planning

With this program you will be able to know in detail and diversify the different techniques and technologies of electricity generation"

03

Course Management

The TECH University, in its maxim of offering an elite education for all, has renowned teachers, professionals in the sector so that the student acquires a solid knowledge in the economic side that involves the production and generation of electricity today. Therefore, this program has a highly qualified professional with extensive experience in the industry, whose trajectory has positioned them as great executives within the sector In this way, it will offer the best tools to students in the development of their skills during the course, with the guarantees required to specialize in a sector in full update and innovation, so they will reflect on the different energy production technologies with accuracy and precision.

Acquire the skills you need in the electrical energy sector thanks to the level of the teaching staff of this TECH course"

Management

Mr. Palomino Bustos, Raúl

- Director at the Institute for Technical Training and Innovation
- International Consultant in Engineering, Construction and Maintenance of Energy Production Plants for the company RENOVETEC
- Technological/training expert recognized and accredited by the State Public Employment Service
- Industrial Engineer, University of Carlos III in Madrid
- Industrial Technical Engineer by the EUITI of Toledo
- Master's Degree in Occupational Risk Prevention from the Francisco de Vitoria University
- Master's Degree in Quality and Environment by the Spanish Quality Association

04

Structure and Content

The structure of the contents of this program has been designed by engineering professionals oriented to consulting and administrative management of the production and generation of electric power, so that they have poured their knowledge and experience into a complete and updated syllabus. The agenda includes information on electricity generation technologies and the financial components to be taken into account for their viability. Therefore, this curriculum is essential to move towards a more sustainable industry, covering all the knowledge that professionals need to be competent in their day-to-day work in this sector.

You will learn the keys to financing a successful power generation project, in line with current regulations"

Module 1. Economics of Electricity Generation

1.1. Electric Generation Technologies
- 1.1.1. Generation Activity
- 1.1.2. Hydraulic Power Plants
- 1.1.3. Conventional Thermal Plants
- 1.1.4. Combined Cycle
- 1.1.5. Cogeneration
- 1.1.6. Wind
- 1.1.7. Solar
- 1.1.8. Biomass
- 1.1.9. Tidal
- 1.1.10. Geothermal

1.2. Production Technologies
- 1.2.1. Features
- 1.2.2. Installed Power
- 1.2.3. Power Demand

1.3. Renewable Energies
- 1.3.1. Characterization and Technologies
- 1.3.2. Economy of Renewable Energies
- 1.3.3. Integration of Renewable Energies

1.4. Financing of a Generation Project
- 1.4.1. Financial Alternatives
- 1.4.2. Financial Instruments
- 1.4.3. Financial Strategies

1.5. Valuation of Investments in Power Generation
- 1.5.1. Current Net Value
- 1.5.2. Internal Rate of Return
- 1.5.3. Capital Asset Pricing Model (CAPM)
- 1.5.4. Recuperation of Investment
- 1.5.5. Limitations to Traditional Techniques

1.6. Real Options
- 1.6.1. Typology
- 1.6.2. Principles of Option Pricing
- 1.6.3. Types of Real Options

1.7. Assessment of Real Options
- 1.7.1. Probability
- 1.7.2. Processes
- 1.7.3. Volatility
- 1.7.4. Estimation of the Value of the Underlying Asset

1.8. Economic-Financial Feasibility Analysis
- 1.8.1. Initial Investment
- 1.8.2. Direct Expenses
- 1.8.3. Income

1.9. Financing with Own Resources
- 1.9.1. Corporate Income Tax
- 1.9.2. Cash Flows
- 1.9.3. Payback
- 1.9.4. Net Present Value
- 1.9.5. Internal Rate of Return

1.10. Partial Debt Financing
- 1.10.1. Loan
- 1.10.2. Corporate Income Tax
- 1.10.3. Cash Flows
- 1.10.4. Debt Service Coverage Ratio
- 1.10.5. Shareholder Cash Flow
- 1.10.6. Shareholder Payback
- 1.10.7. Net Present Value of Shareholders
- 1.10.8. Internal Rate of Return to Shareholders

05

Methodology

This training program offers a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

Our program offers a revolutionary method of skills and knowledge development. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

At TECH, you will experience a way of learning that is shaking the foundations of traditional universities around the world"

We are the first online university to combine Harvard Business School case studies with a 100% online learning system based on repetition.

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

A learning method that is different and innovative.

This intensive Engineering program at TECH Technological University prepares you to face all the challenges in this field, both nationally and internationally. We are committed to promoting your personal and professional growth, the best way to strive for success, that is why at TECH Technological University you will use Harvard case studies, with which we have a strategic agreement that allows us, to offer you material from the best university in the world.

> *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 by 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

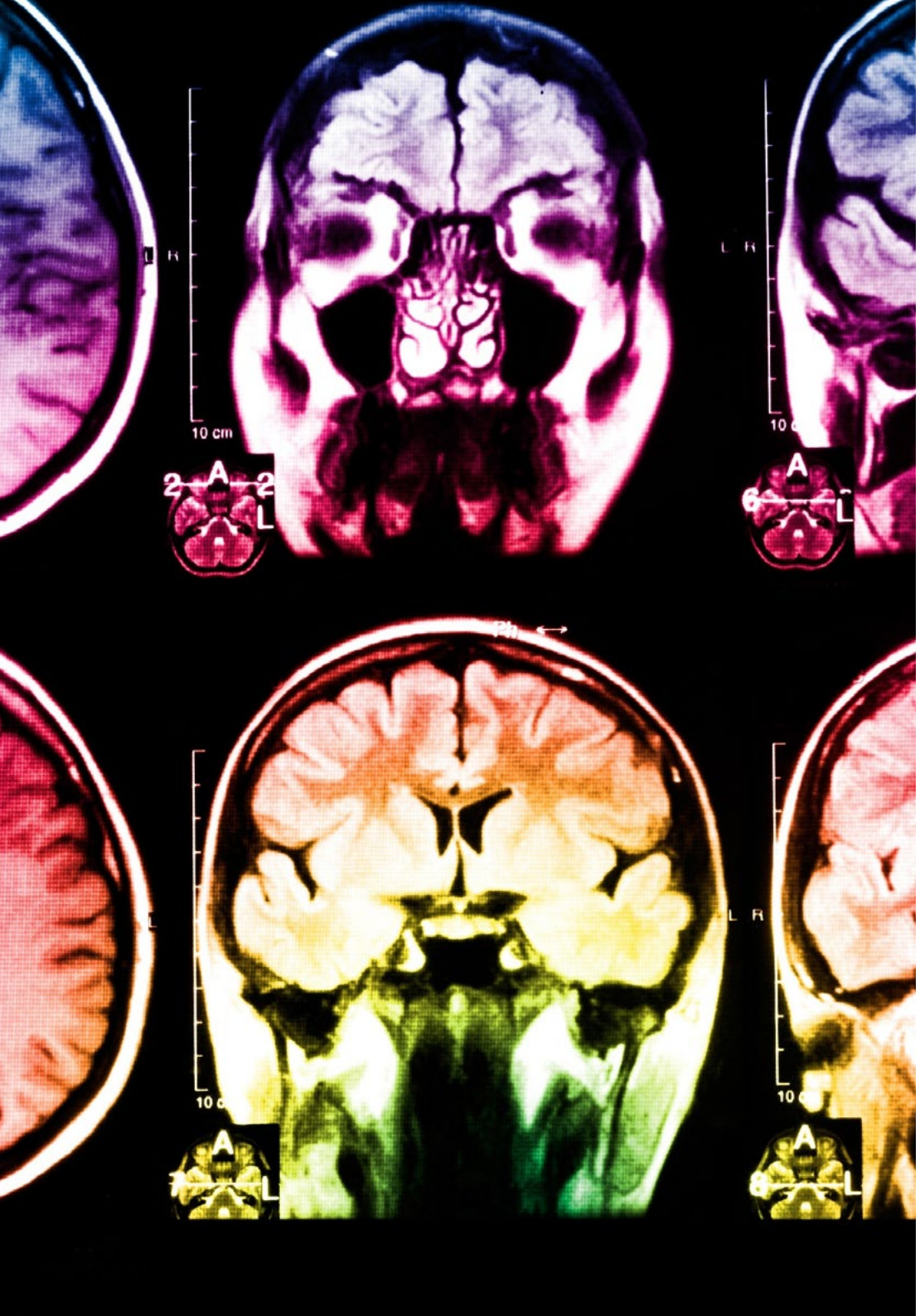
TECH is the first university in the world to combine Harvard University case studies with a 100% online learning system based on repetition, which combines 8 different didactic elements in each lesson.

We enhance Harvard case studies 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 university 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

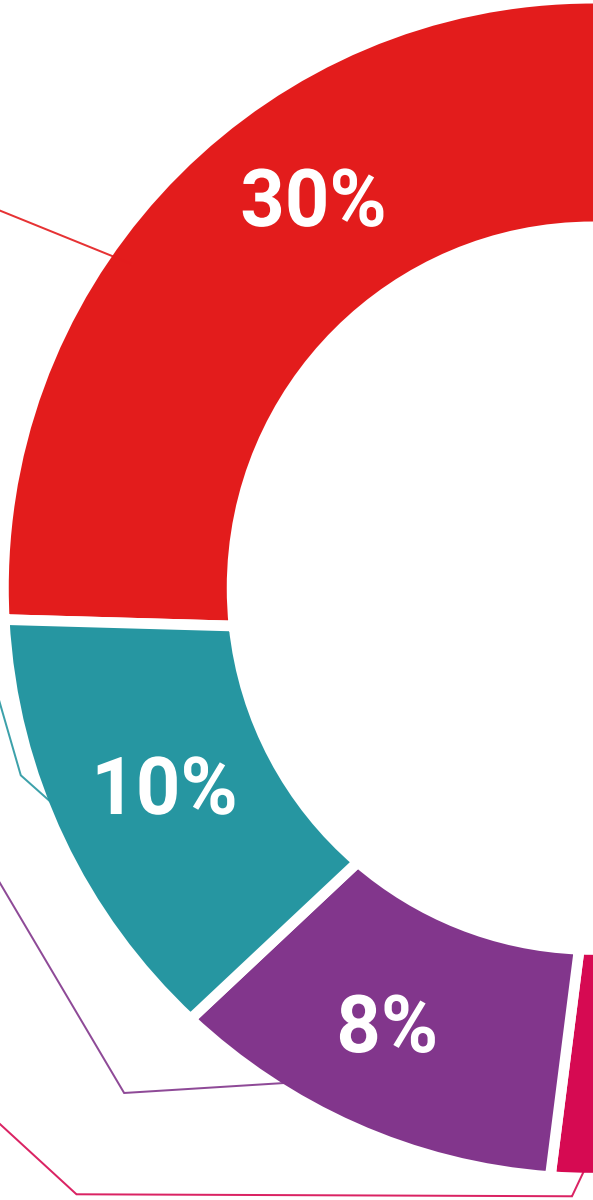
There is scientific evidence suggesting that observing third-party experts can be useful. Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

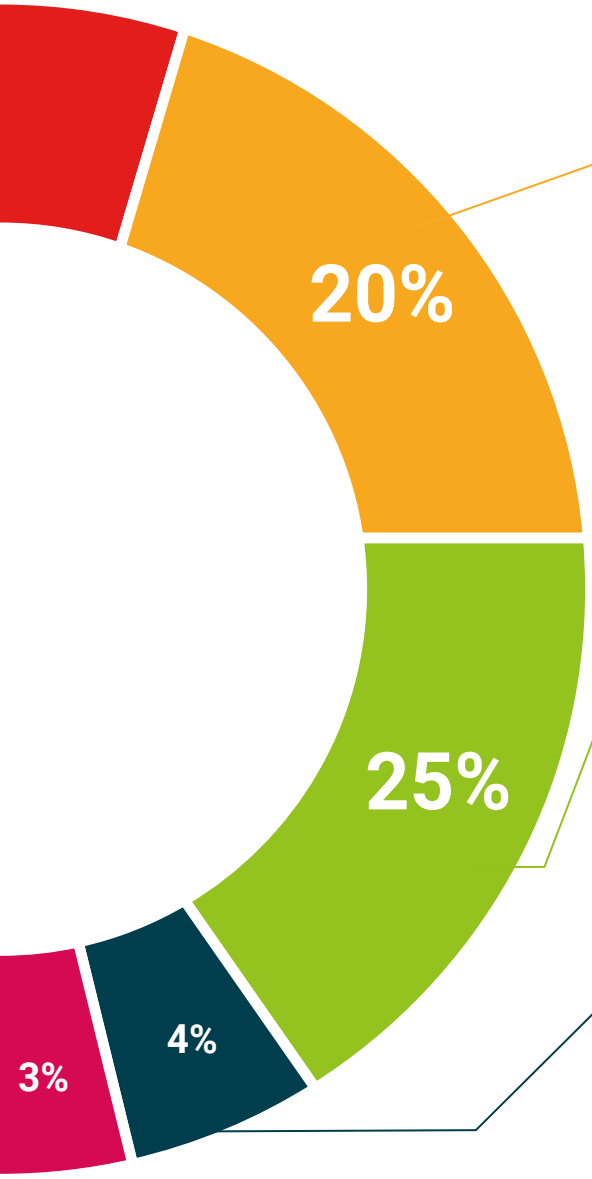
Practising Skills and Abilities

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

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

They will complete a selection of the best case studies in the field used at Harvard. Cases that are presented, analyzed, and supervised by the best senior management 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 multimedia content presentation training Exclusive system 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 your goals.

06

Certificate

The Postgraduate Certificate in Economy of Production and Generation of Electric Energy addition to the most rigorous and updated training, access to a Postgraduate Certificate issued by TECH Technological University.

Successfully complete this training and receive your university degree without travel or laborious paperwork"

This **Postgraduate Certificate in Economics of Electric Power Production and Generation** contains the most complete and updated program on the market.

After the student has passed the evaluations, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** by tracked delivery*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Economics of Electric Power Production and Generation**

Official Nº of hours: **150 h.**


tech technological university

Awards the following

DIPLOMA

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Economics of Electric Power Production and Generation

This is a qualification awarded by this University, equivalent to 150 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates

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

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