

Hybrid Professional Master's Degree

Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations





Hybrid Professional Master's Degree Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations

Modality: Hybrid (online + internship)

Duration: 12 months

Certificate: TECH Global University

Accreditation: 60 + 4 ECTS

Website: www.techtute.com/us/engineering/hybrid-professional-master's-degree/hybrid-professional-master's-degree-design-construction-maintenance-high-voltage-electrical-infrastructures-electrical-substations

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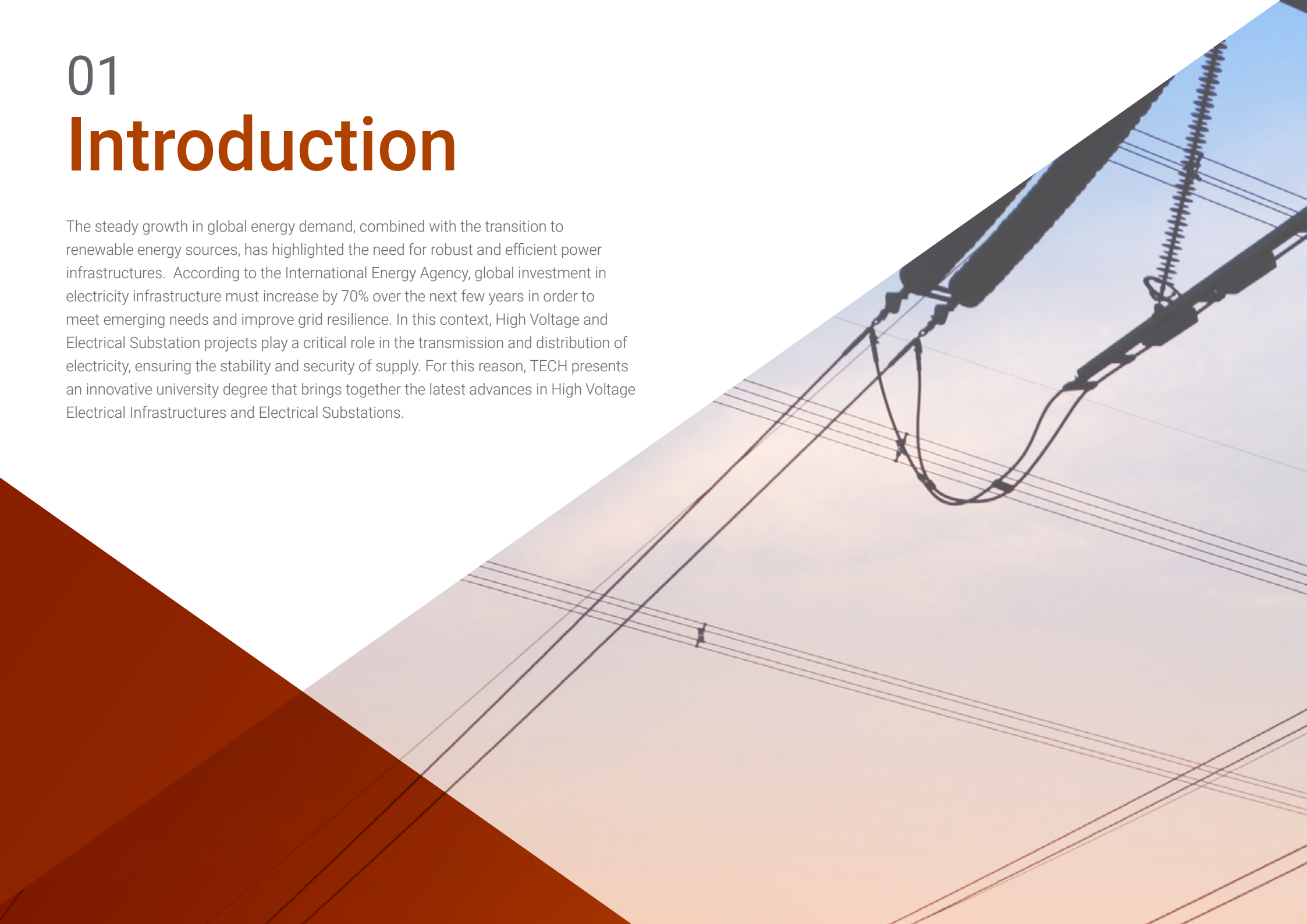
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01

Introduction

The steady growth in global energy demand, combined with the transition to renewable energy sources, has highlighted the need for robust and efficient power infrastructures. According to the International Energy Agency, global investment in electricity infrastructure must increase by 70% over the next few years in order to meet emerging needs and improve grid resilience. In this context, High Voltage and Electrical Substation projects play a critical role in the transmission and distribution of electricity, ensuring the stability and security of supply. For this reason, TECH presents an innovative university degree that brings together the latest advances in High Voltage Electrical Infrastructures and Electrical Substations.



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With this Hybrid Professional Master's Degree, you will master the most effective simulation tools to evaluate the response of electrical networks to different contingency scenarios”

Power Substations and High Voltage lines are the fundamental pillars of the power transmission network, enabling the efficient transfer of energy from generation points to end consumers. With the increasing focus on sustainability and energy efficiency, the modernization of these infrastructures has gained unprecedented relevance. Therefore, it is essential that experts develop solutions in the maintenance of High Voltage Electrical Infrastructures addressing aspects such as the integration of renewable energies, substation automation and asset life cycle management.

In this scenario, TECH presents a revolutionary Hybrid Professional Master's Degree in Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations. Composed of 10 specialized modules, the academic itinerary will delve into the most recent innovations in areas such as the transport of electrical energy, the maintenance of electrical substations or the operation of infrastructures. In this way, graduates will develop advanced skills to design High Voltage lines, also using state-of-the-art simulation tools.

Moreover, the methodology of this university degree is divided into two stages. The first phase is theoretical and is taught in a convenient 100% online format, which allows engineers to individually plan their own schedules. In addition, TECH employs its disruptive Relearning system, which promotes progressive and natural learning without the need to resort to traditional memorization. Subsequently, the program includes a 3-week internship in a prestigious entity specialized in High Voltage Electrical Infrastructures and Electrical Substations. This will enable graduates to apply their knowledge in a real environment, working alongside a team of experienced professionals in this field.

This **Hybrid Professional Master's Degree in Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ Development of more of 100 case studies are given by experts in high voltage electrical infrastructure and electrical substations
- ♦ Its graphic, schematic and practical contents provide essential information on those disciplines that are indispensable for professional practice
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Special emphasis is given to innovative methodologies in the project, construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations
- ♦ All of this will be complemented by 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
- ♦ Furthermore, you will be able to carry out an internship in one of the best companies



You will have access to the multimedia resources library and the entire syllabus from day one, without fixed schedules or attendance”

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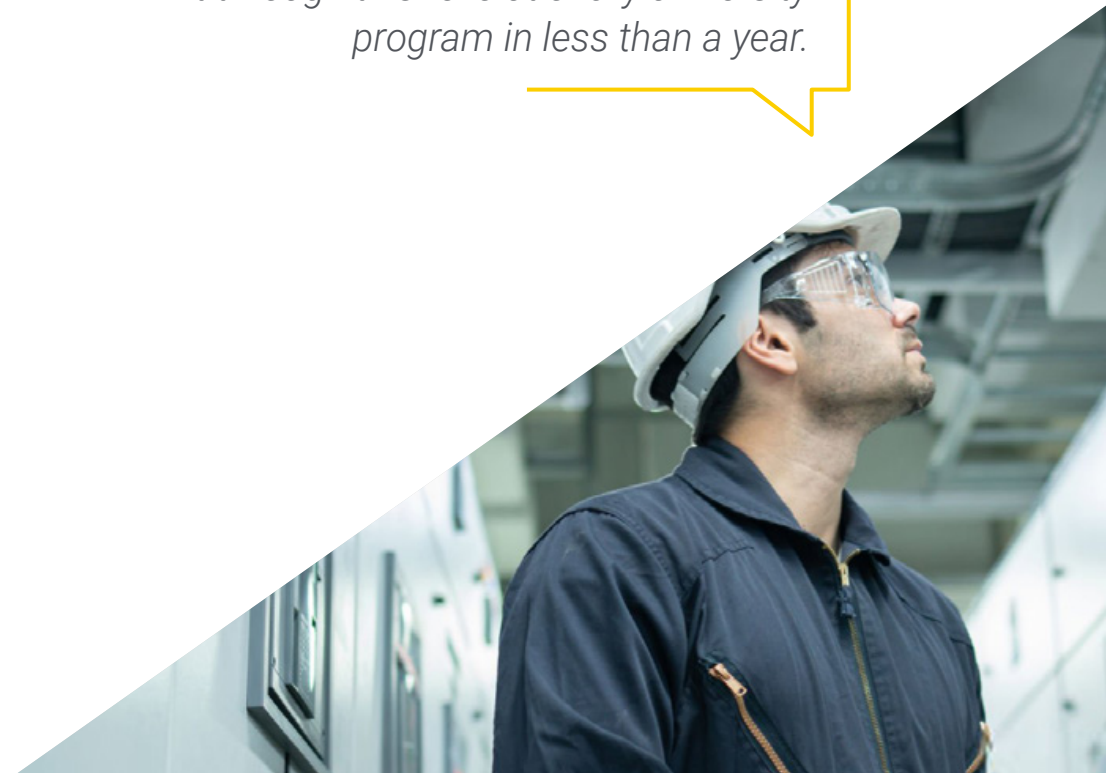
You will carry out a practical internship in a prestigious entity, where you will acquire all the knowledge you need to boost your career as an engineer specialized in Electrical Infrastructures”

In this Professional Master's Degree proposal, of a professionalizing nature and blended learning modality, the program is aimed at updating engineering professionals who provide services for the Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations. The contents are based on the latest scientific evidence, and oriented in a didactic way to integrate theoretical knowledge in practice, and the theoretical-practical elements will facilitate the updating of knowledge and will facilitate decision making significantly.

Thanks to its multimedia content elaborated with the latest educational technology, they will allow the engineering professional a situated and contextual learning, that is, a simulated environment that will provide an immersive learning programmed to learn in real situations. The design of this program is based on Problem-Based Learning, by means of which they will have to try to solve the different situations of professional practice that will be presented to them throughout the program. For this purpose, students will be assisted by an innovative interactive video system created by renowned experts in the field of educational coaching with extensive experience.

You will implement new technologies that improve the efficiency, sustainability and safety of electrical infrastructures.

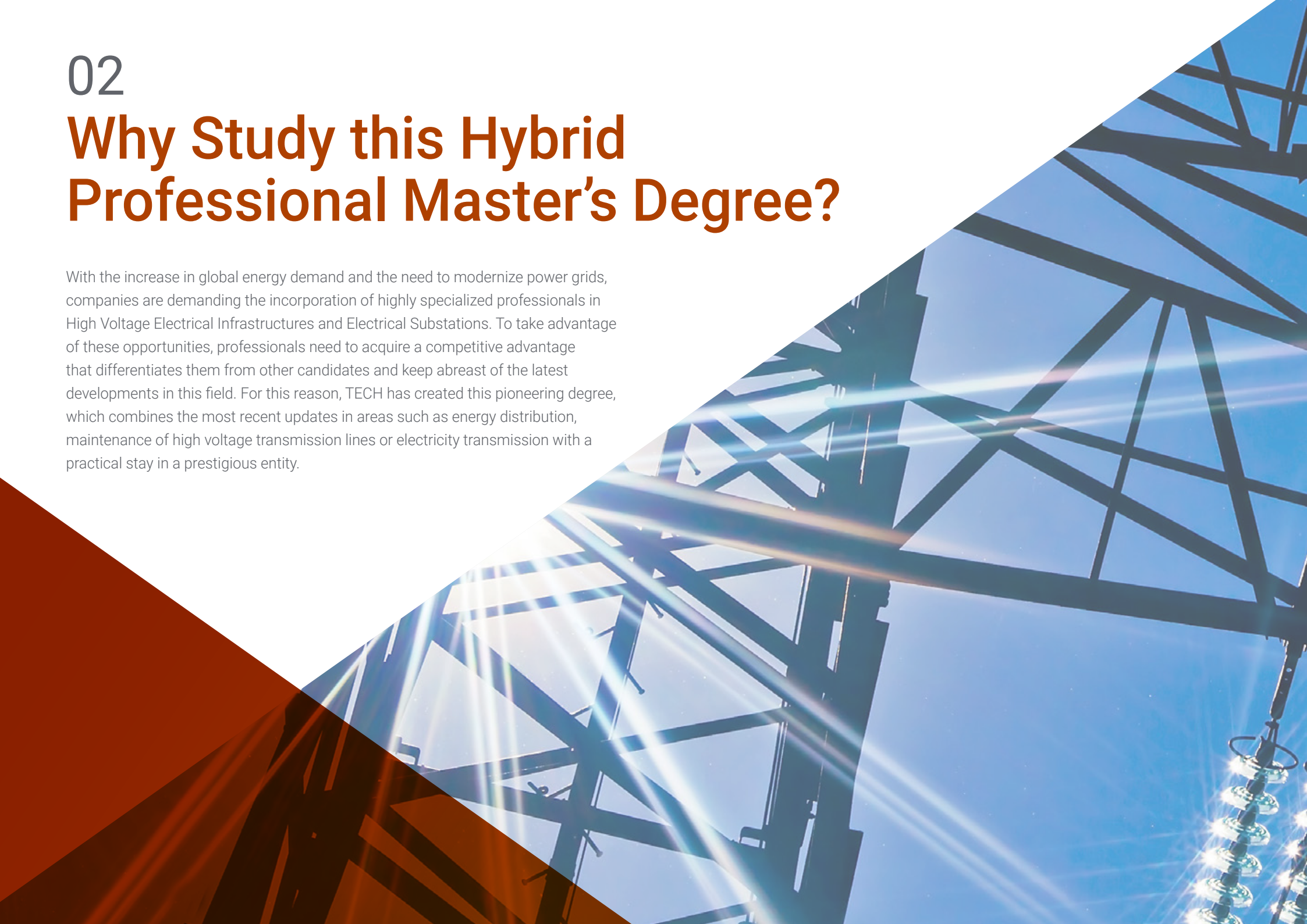
Are you looking to incorporate into your practice the most sophisticated techniques to mitigate the environmental impact of electrical projects? Achieve it through this revolutionary university program in less than a year.



02

Why Study this Hybrid Professional Master's Degree?

With the increase in global energy demand and the need to modernize power grids, companies are demanding the incorporation of highly specialized professionals in High Voltage Electrical Infrastructures and Electrical Substations. To take advantage of these opportunities, professionals need to acquire a competitive advantage that differentiates them from other candidates and keep abreast of the latest developments in this field. For this reason, TECH has created this pioneering degree, which combines the most recent updates in areas such as energy distribution, maintenance of high voltage transmission lines or electricity transmission with a practical stay in a prestigious entity.



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The university degree will include real case studies in simulated learning environments”

1. Updating from the latest technology available

The field of High Voltage Electrical Infrastructures and Electrical Substations has undergone a real revolution with the integration of new technologies that significantly optimize projects. For example, SCADA systems allow real-time monitoring of substations and high voltage networks. With the objective of bringing engineers closer to these advances, TECH presents this Internship Program with which the professional will enter a prestigious entity, equipped with the latest technology in this field.

2. Gaining in-depth knowledge from the experience of top specialists

This academic itinerary has been designed by leading experts in the field of High Voltage Electrical Infrastructures and Electrical Substations. During the first phase of the program, teachers will provide personalized guidance to students. Subsequently, during the practical stay, engineers will receive support from experienced professionals in the institution that will receive them for this training modality.

3. Entering first-class professional environments

Loyal to its commitment to provide the most complete university programs in the academic market, TECH carefully selects the institutions that will receive its students during the 3-week Internship Program included in this degree. These institutions, recognized for their high prestige, have highly specialized personnel in High Voltage Electrical Infrastructures and Electrical Substations.





4. Combining the best theory with state-of-the-art practice

This Hybrid Professional Master's Degree makes a radical break with traditional pedagogical models, which often offer university programs that are not very focused on practical training. In contrast, TECH has developed an innovative learning model, combining theory and practice, which allows engineering professionals to access institutions of reference in the sector.

5. Expanding the boundaries of knowledge

Through this university degree, TECH offers engineers the opportunity to expand their professional horizons internationally. This is possible thanks to the vast network of contacts and collaborators available at TECH, the largest online university in the world.



*You will have full practical immersion
at the center of your choice"*

03

Objectives

Through this intensive university program, engineers will have a comprehensive knowledge of the design and planning of High Voltage Electrical Infrastructures, ensuring the implementation of projects that comply with international technical and regulatory standards. Likewise, professionals will implement predictive maintenance programs using innovative technologies to minimize the risk of failures and maximize the useful life of electrical infrastructures. In addition, graduates will skillfully handle technological tools such as real-time monitoring for efficient asset management and prediction of maintenance needs.



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You will implement protection, control and automation systems for High Voltage Infrastructures to ensure network stability”



General Objective

- ♦ This Hybrid Professional Master's Degree in Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations will provide students with advanced skills to dimension High Voltage lines and Electrical Substations. In this way, they will select the appropriate components and materials according to the needs of the projects and the applicable regulations. Furthermore, the specialists will use disruptive software tools for the simulation, modeling and analysis of electrical systems. This will allow them to optimize the design and evaluate the response of infrastructures to different operating conditions



With TECH's revolutionary Relearning methodology, you will integrate all the knowledge in an optimal way to successfully achieve the results you are looking for"





Specific Objectives

Module 1. High and Very High Voltage Infrastructure and Associated Resource Management

- ♦ Interpret the operation and regulation of the electricity system, its main actors, the regulations applicable to the purchase/sale and transportation of energy
- ♦ Know and diversify which activities are regulated and which are in free competition within the electricity sector
- ♦ Acquire the necessary background knowledge of the existing technologies and techniques in the generation of electric power and the future trend of the same
- ♦ Specify the necessary elements for human resources management: planning, recruitment, selection and administration
- ♦ Establish the guidelines that must be taken into account in the environmental management of this type of facilities
- ♦ Addressing quality assurance by analyzing potential suppliers and the associated costs involved
- ♦ Study the profitability of a high-voltage electrical infrastructure based on distribution revenues/costs, economic data of the installations and financial planning
- ♦ Develop bidding procedures, award contracts to the best technical and economic options and formalize the corresponding contracts

Module 2. Planning and Organization of Projects

- ♦ Interpret the legislative framework applicable to electric power transmission and distribution infrastructures in the construction, electricity and occupational risk prevention sectors
- ♦ Address environmental requirements and minimize polluting effects in the construction of electric system infrastructures, analyzing the need or not of an environmental impact study and how to carry it out
- ♦ Understand the policy for interconnection of high voltage grids between different countries, the appropriate financial instruments and the horizon of the power grid up to 2030
- ♦ Acquire knowledge of how the electricity market works, how prices are formed in the daily market and forward price formation
- ♦ Discover the business opportunities offered by the electricity market and the profit analysis of the electricity sector
- ♦ Analyze the mechanisms of adjustment and demand of electrical energy and competition in the electricity market
- ♦ Process the files and grant the necessary permits for the execution and start-up of high voltage infrastructure facilities and electrical substations, together with the expropriation procedures, if necessary
- ♦ Correctly manage procurement in the construction phase, identifying the corresponding processes and their participants in each phase of the process

- ♦ Planning and control of construction, with allocation of the corresponding responsibility centers
- ♦ Prepare and draft the bidding documents for high voltage electrical infrastructure projects and electrical substations

Module 3. Electric Power Transmission

- ♦ Interpret the legislative framework in the design and execution of high voltage lines, their classification and the particular conditions for the type of installation in question
- ♦ Address the protection of birdlife and other species in the selection of components during the construction of a high voltage overhead line
- ♦ Know the composition of High Voltage lines in order to make a correct selection of the elements that compose them during their design and project
- ♦ Acquire knowledge of the technology and current trends in the construction of High Voltage overhead lines
- ♦ Correctly dimension High Voltage lines, taking into account the characteristics of the terrain, the area where the line is to be built and the properties of the electrical energy to be transported
- ♦ Correctly manage the construction of High Voltage lines in all its phases: civil works, hoisting, laying, etc.
- ♦ Elaborate the health and safety plan in the High Voltage line installation project
- ♦ Analyze projects and preliminary projects to undertake the bidding process for the execution of high voltage installations

Module 4. Electric Energy Distribution

- ♦ Interpret the legislative framework in the design and execution of electrical substations, their classification, the human and material means necessary to carry them out and the particular conditions for the type of installation in question
- ♦ Address the needs of particular situations taking into account the architecture of the high-voltage grid in the Iberian Peninsula
- ♦ Know the composition of high voltage lines in order to be able to make a correct selection of the elements that compose them during their design and project
- ♦ Acquire knowledge of current technology and trends in the construction of electrical substations overhead lines
- ♦ Select and size correctly the power and protection elements to be installed for the correct operation of the electrical substation
- ♦ Correctly manage the construction of electrical substations in all its phases: civil works, hoisting, buildings, etc.

Module 5. Mandatory Ancillary Services in High Voltage Electrical Infrastructures

- ♦ Coordinate the insulation system of high voltage infrastructures to avoid interference, overlapping and malfunctioning caused by them
- ♦ Size the installations according to fire protection legislation and regulations both in their passive and active dimensions
- ♦ Know the telecommunication systems that are implemented in electrical infrastructures avoiding interferences, identifying communication protocols and the variants of remote control and remote management
- ♦ Acquire knowledge of the technology and current trends in protection and control systems against failures due to natural causes and/or disturbances of the electrical network

- ♦ Identify the emergency and safety systems associated with AC and DC power supplies, prioritizing actions
- ♦ Establish the guidelines for the correct management of the occupational risk prevention law during the execution of construction works of high voltage infrastructures and electrical substations
- ♦ Correctly manage waste generation, taking into account its classification, treatment and corresponding segregation measures
- ♦ Characterize the automation of the operation of a high voltage infrastructure according to the specifications of the iec 61850 protocol

Module 6. Infrastructure Operation and Maintenance

- ♦ Establish the criteria for operation and safety according to the requirements of the electric system
- ♦ Operate within the electric system according to the requirements and demands of national and international connections and interconnections
- ♦ Assign priorities in the operation and maintenance of High Voltage Infrastructures and Electric Substations
- ♦ Supervise and control the correct operation of an infrastructure, taking into account alarms, signaling, execution of maneuvers and associated procedures
- ♦ Organize and correctly delimit the maintenance functions of an infrastructure
- ♦ Optimize and manage available resources to obtain the best performance in terms of equipment, personnel and assigned work time

- ♦ Identify in advance possible and potential failures in critical and safety equipment to maximize the economic performance of the infrastructure
- ♦ Establish predictive maintenance systems according to currently existing technologies and techniques
- ♦ Plan, select and implement computerized maintenance management systems
- ♦ Integrate new trends and procedures for maintenance operations in power grid infrastructures

Module 7. Maintenance of High Voltage Transmission Lines

- ♦ Identify, accredit and insist on the companies and professionals authorized by the administration to carry out work on high voltage lines
- ♦ Understand and evaluate the technical-regulatory inspections of high voltage overhead lines required by the authorities and which external agents are allowed to undertake such inspections
- ♦ Control and prepare the work environment for the execution of maintenance work and assign tasks to professionals
- ♦ Apply the different work techniques available for the execution of operations with electrical voltage
- ♦ Prepare the annual maintenance plan required for high voltage lines
- ♦ Diagnose equipment and perform preventive maintenance operations on high-voltage power lines

- ♦ Locate faults in underground high voltage lines and use the necessary equipment for this purpose
- ♦ Troubleshooting and corrective maintenance work on high voltage lines

Module 8. Electrical Substation Maintenance

- ♦ Evaluate the condition of the critical equipment of an electrical substation
- ♦ Draw up the annual maintenance plan required in electrical substations
- ♦ Diagnose equipment and perform preventive maintenance operations on Electric Substations
- ♦ Locate faults in Underground High Voltage Lines and use the necessary equipment for this purpose
- ♦ Troubleshooting and corrective maintenance work on electric substations
- ♦ Investigate the most frequent anomalies and future failures in electrical substations
- ♦ Draw up the maintenance manual for the Electrical Substation
- ♦ Plan and predict in advance the shutdown of the substation to perform scheduled maintenance operations, as well as to stockpile critical spare parts to optimize the continuous operation of an electrical substation

Module 9. Current Trends and Ancillary Services

- ♦ Learn the new trends in electrical substation maintenance based on the Reliability Principle
- ♦ Evaluate and act accordingly to the state of conservation of the power transformers of an electrical substation
- ♦ Maintain and handle encapsulated gis-type electrical substations
- ♦ Interact with the Telecommunications Systems integrated in an Electrical Substation
- ♦ Draw up the Self-Protection Plan of an electrical substation, as well as identify its risks and the associated protection means and measures
- ♦ Operate and maintain the low voltage installations associated with an electrical substation
- ♦ Prepare and compose the corresponding worksheets and inspection sheets, and associate them to the programmed maintenance schedule
- ♦ Identify and declassify potentially explosive areas within an electrical substation
- ♦ Establish the Fire Protection System Maintenance Plan
- ♦ Evaluate and classify the workers of the Electrical Substation based on their specific knowledge in installation and maintenance matters

Module 10. Setting and Coordination of Safeguards in National High Voltage Networks

- ♦ Coordinate safeguards on lines, cables, transformers, busbars and bus couplings
- ♦ Analyze the coordination depending on the type of network and element to be protected
- ♦ Parameterize the admissible Setting limits on the Safeguards
- ♦ Calculate the parameters of the Safeguards
- ♦ Identify the protections according to their mode of operation: main protection, back-up, cubicle, substation back-up and/or remote back-up., etc.
- ♦ Operate the opening of High Voltage and Very High Voltage Switchgear



Boost your career path with holistic teaching, allowing you to advance both theoretically and practically"

04 Skills

Through this Hybrid Professional Master's Degree, graduates will acquire advanced skills to design highly efficient High Voltage networks and Electric Substations. In this sense, engineers will handle the most advanced techniques for the installation of transmission lines, ensuring compliance with quality and safety standards. At the same time, students will apply advanced technologies such as SCADA systems in the supervision of Electrical Infrastructures, which will allow them to improve operational efficiency and incident response capacity.



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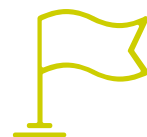
You will be able to identify, evaluate and mitigate risks associated with the construction of electrical infrastructures, applying sophisticated risk analysis techniques”



General Skills

- ♦ Design High Voltage Infrastructure and Electrical Substation projects
- ♦ Work as a project manager for High Voltage Electrical Infrastructures and Electrical Substation projects
- ♦ Work as a site manager for High Voltage Electrical Infrastructures and Electrical Substations projects
- ♦ Manage plants of energy production facilities
- ♦ Operate within the electricity market
- ♦ Coordinate and plan the maintenance of high voltage electrical maintenance companies
- ♦ Coordinate and plan the maintenance of factories/companies with proprietary high-voltage power grids
- ♦ Manage execution and installation departments of High Voltage Infrastructures and Electrical Substations in large installers and integrators
- ♦ Access to management positions in the energy resources business areas
- ♦ Qualify as a specialist technician in construction of High Voltage Electrical Infrastructures and Electrical Substations
- ♦ Qualify as a specialist technician in maintenance of High Voltage Electrical Infrastructures and Electrical Substations
- ♦ Bid and prepare bids for the awarding of contracts for the construction of High Voltage Infrastructures and Electric Substations





Specific Skills

- ♦ Undertake the preliminary design, economic pre-analysis and feasibility analysis of the investment required for the construction of a High-Voltage Infrastructure
- ♦ Plan, manage and organize High-Voltage Infrastructure and Electrical Substation Projects
- ♦ Design high voltage lines, their dimensioning, components, structure, administrative permits, occupational risk prevention and environmental protection
- ♦ Design electrical substations according to the required needs, with adequate protection systems and the necessary power and transmission devices
- ♦ Design and size the mandatory auxiliary systems and services to be implemented in the construction of High Voltage Electrical Infrastructures
- ♦ Program and establish the criteria and procedures for the general operation and maintenance of electrical infrastructures
- ♦ Schedule, identify and establish maintenance and repair criteria and procedures for high voltage power lines
- ♦ Schedule, identify and establish maintenance and repair criteria and procedures for electrical substations
- ♦ Schedule, identify and establish maintenance and repair criteria and procedures for auxiliary systems and learn new trends in electrical substation maintenance
- ♦ Coordinate the protections of an electrical substation and synchronize them with the national electrical system

05

Course Management

In its commitment to offer the university most comprehensive and programs in the pedagogical panorama, TECH carries out a meticulous process to form its teaching staff. Thanks to this, this Hybrid Professional Master's Degree has the participation of the best experts in the fields of in High Voltage Electrical Infrastructures and Electrical Substations. In this way, they have elaborated a wide range of top quality didactic contents that will significantly raise the professional horizons of engineers.



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You will have access to a curriculum designed by authentic references in High Voltage Electrical Infrastructures and Electrical Substations”

Management



Mr. Palomino Bustos, Raúl

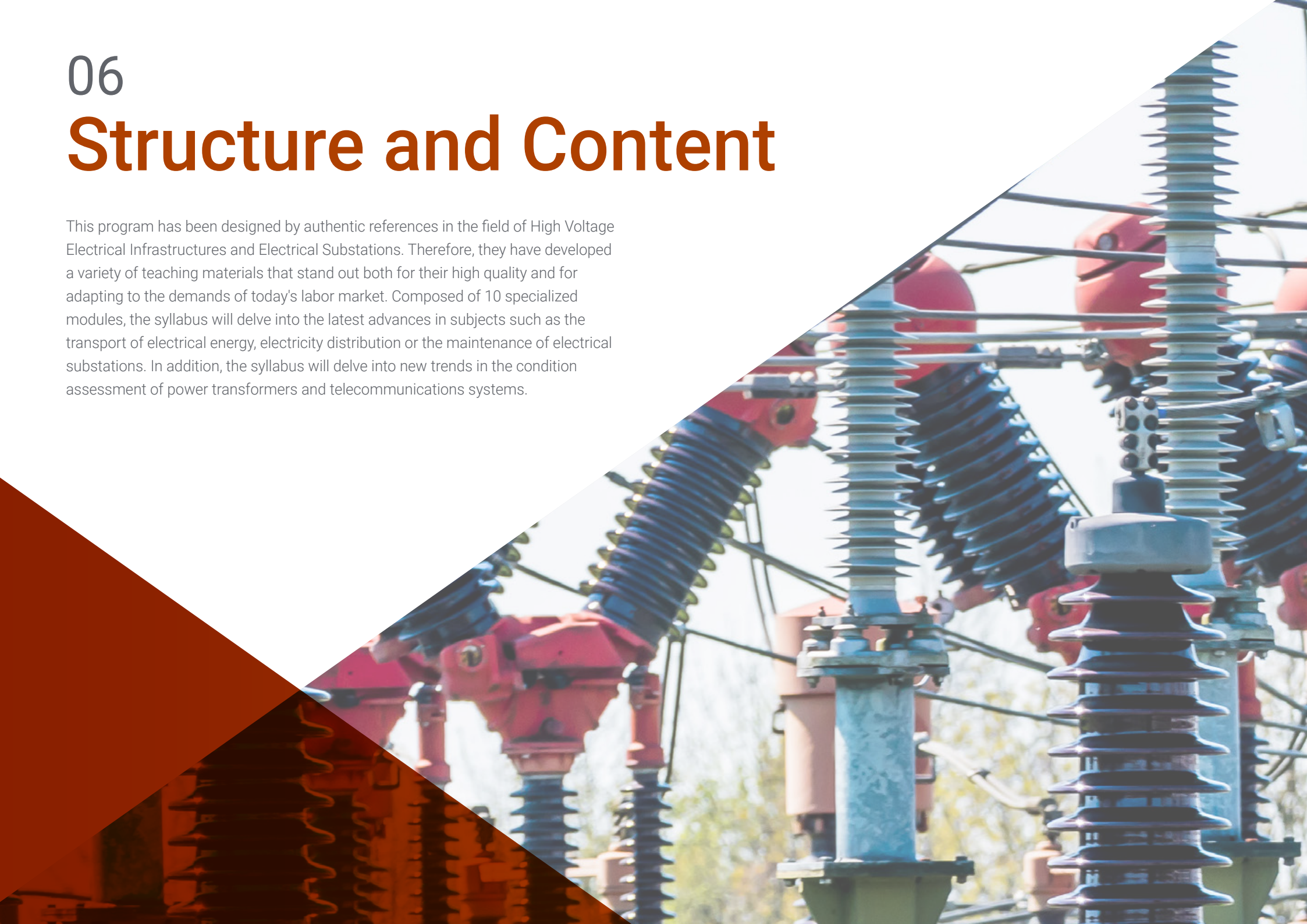
- ♦ International Consultant in Engineering, Construction and Maintenance of Energy Production Plants for the company RENOVETEC
- ♦ Expert Engineer accredited by the Official Council of Industrial Engineering of Spain (COGITI) through the DPC Ingenieros Accreditation System
- ♦ Director at the Institute for Technical Training and Innovation
- ♦ Head of the Automation and Electricity Department of Engineering and Consulting at RRJ
- ♦ Industrial Engineer, University of Carlos III in Madrid
- ♦ Industrial Technical Engineer from the Toledo University School of Industrial Technical Engineering (EUITI).
- ♦ Master's Degree in Occupational Risk Prevention from the Francisco de Vitoria University
- ♦ Master's Degree in Public Health and Health Technology by the Castilla-La Mancha Health Service
- ♦ Master's Degree in Quality and Environment by the Spanish Quality Association
- ♦ Master's Degree in European Organization Quality Managers by the Spanish Quality Association



06

Structure and Content

This program has been designed by authentic references in the field of High Voltage Electrical Infrastructures and Electrical Substations. Therefore, they have developed a variety of teaching materials that stand out both for their high quality and for adapting to the demands of today's labor market. Composed of 10 specialized modules, the syllabus will delve into the latest advances in subjects such as the transport of electrical energy, electricity distribution or the maintenance of electrical substations. In addition, the syllabus will delve into new trends in the condition assessment of power transformers and telecommunications systems.



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You will develop leadership skills to effectively manage human and technical resources involved in electrical infrastructure projects”

Module 1. High and Very High Voltage Infrastructure and Associated Resource Management

- 1.1. The Electric System
 - 1.1.1. Electricity Distribution
 - 1.1.2. Reference Standards
 - 1.1.3. Regulated Activities and Activities in Free Competition
- 1.2. Generating Electric Energy
 - 1.2.1. Power Generation Technologies and Costs
 - 1.2.2. Regulated Activities in the Electricity Sector
 - 1.2.3. Supply Assurance and Infrastructure Planning
- 1.3. Electric Energy Distribution
 - 1.3.1. Transportation and Operation of the Electric System
 - 1.3.2. Distribution
 - 1.3.3. Quality of Supply
- 1.4. Marketing
 - 1.4.1. The Retail Market
 - 1.4.2. The Wholesale Market
- 1.5. Access Tolls, Charges and Tariff Deficits
 - 1.5.1. Access Tolls
 - 1.5.2. Tariff Deficits
- 1.6. Planning and Management of Human Resources
 - 1.6.1. Recruitment and Selection of Human Resources
 - 1.6.2. Human Resources Management
- 1.7. Environmental Management
 - 1.7.1. Environment Aspects and Their Management
 - 1.7.2. Control Measures
- 1.8. Organization and Quality Management
 - 1.8.1. Assuring Quality
 - 1.8.2. Supplier Analysis
 - 1.8.3. Associated Costs

- 1.9. Financing Sources and Cost Analysis
 - 1.9.1. Electricity Distribution Revenues and Expenses
 - 1.9.2. Economic Data of the Facilities
 - 1.9.3. Financial Plan
- 1.10. Bidding, Contracting and Awarding
 - 1.10.1. Types of Bidding
 - 1.10.2. Awarding Process
 - 1.10.3. Formalizing the Contract

Module 2. Planning and Organization of Projects

- 2.1. European Legislative Framework
 - 2.1.1. Electricity Sector Legislation
 - 2.1.2. Construction Legislation
 - 2.1.3. Occupational Health and Safety Legislation
- 2.2. Environmental Regulations and Requirements
 - 2.2.1. International, National and Local Regulations
 - 2.2.2. Types of Environmental Evaluation
 - 2.2.3. Environmental Impact
- 2.3. High Voltage Interconnection Policy in the European Union
 - 2.3.1. International Energy Infrastructure Policy
 - 2.3.2. Financial Instruments
 - 2.3.3. Future Perspectives
- 2.4. The Electricity Market
 - 2.4.1. Daily Market Price Training
 - 2.4.2. Electricity Forward Pricing Training
- 2.5. Processing of High Voltage Files
 - 2.5.1. Necessary Documentation
 - 2.5.2. Procedure
 - 2.5.3. Common Administrative Procedure, Domanial, Patrimonial, Patrimonial and Public Interest Assets
 - 2.5.4. Expropriation Phase

- 2.6. Projects and Procurement Management
 - 2.6.1. Types of Processes
 - 2.6.2. Participants in Project Execution
- 2.7. Planning and Control in Construction of High Voltage Electrical Infrastructures and Electrical Substations
 - 2.7.1. Planning and Control
 - 2.7.2. Responsibility Centers
- 2.8. Specifications
 - 2.8.1. Object of the Specifications
 - 2.8.2. Specifications of Administrative Clauses
 - 2.8.3. Particular Technical Specifications

Module 3. Mandatory Ancillary Services in High Voltage Electrical Infrastructures

- 3.1. Insulation Coordination
 - 3.1.1. Coordination Procedure
 - 3.1.2. Coordination Methods
 - 3.1.3. Coordination of Isolation in Transmission Lines and Power Substations
- 3.2. Fire Protection System
 - 3.2.1. Reference Legislation
 - 3.2.2. Passive Protection
 - 3.2.3. Active Protection
- 3.3. Telecommunication System
 - 3.3.1. SCADA Systems
 - 3.3.2. Power Line Carrier – PLC
 - 3.3.3. Remote Management and Control
- 3.4. Protection and Control System
 - 3.4.1. Faults and Disturbances
 - 3.4.2. Protection Systems
 - 3.4.3. Control System

- 3.5. Security and Emergency Systems
 - 3.5.1. Alternating Current Services
 - 3.5.2. Continuous Current Services
 - 3.5.3. Boards
- 3.6. Prevention of Occupational Risks
 - 3.6.1. Job Descriptions
 - 3.6.2. Machinery
 - 3.6.3. Temporary Facilities
 - 3.6.4. Security Conditions
- 3.7. Waste Management
 - 3.7.1. Amount of Waste Estimation
 - 3.7.2. Reuse, Appraisal or Disposal Operations
 - 3.7.3. Segregation Measures
- 3.8. Quality Control
 - 3.8.1. Receiving Control of Products, Equipment and Systems
 - 3.8.2. Work Execution Control
 - 3.8.3. Finished Work Control
- 3.9. Automation of Electrical Infrastructures
 - 3.9.1. Protocol IEC 61850
 - 3.9.2. Levels of Control
 - 3.9.3. Interlocks
- 3.10. Preparation of Quotations
 - 3.10.1. High Voltage Lines
 - 3.10.2. Electrical Substations

Module 4. Infrastructure Operation and Maintenance

- 4.1. Performance and Safety Criteria for Operation within the Power System
 - 4.1.1. Control Parameters
 - 4.1.2. Operating and Allowable Margins on Control Parameters
 - 4.1.3. Reliability Criteria
- 4.2. Power System Operating Procedures
 - 4.2.1. Transportation Network Maintenance Program
 - 4.2.2. International Connections Management
 - 4.2.3. Information Exchanged by the System Regulator

- 4.3. Operating Principles
 - 4.3.1. Priority Order
 - 4.3.2. Equipment Operation and Maneuvering
 - 4.3.3. Switch Operations
 - 4.3.4. Disconnectors Operation
- 4.4. Supervision and Control
 - 4.4.1. Instalment Supervision
 - 4.4.2. Events, Alarms and Signalling
 - 4.4.3. Execution of Maneuvers and Procedures
- 4.5. Maintenance
 - 4.5.1. Action Areas
 - 4.5.2. Maintenance Organization
 - 4.5.3. Maintenance Levels
- 4.6. Maintenance Management
 - 4.6.1. Team Management
 - 4.6.2. Human Resource Management
 - 4.6.3. Work Management
 - 4.6.4. Management Control
- 4.7. Corrective Maintenance
 - 4.7.1. Equipment Fault Diagnosis
 - 4.7.2. Wear Mechanisms and Protection Techniques
 - 4.7.3. Breakdown Analysis
- 4.8. Predictive Maintenance
 - 4.8.1. Establishing a System of Predictive Maintenance
 - 4.8.2. Techniques of Predictive Maintenance
- 4.9. Management of Computer-Assisted Maintenance
 - 4.9.1. Maintenance Management Systems
 - 4.9.2. Functional and Organizational Description of a CMMS
 - 4.9.3. Development Stages of an CMMS Implementation
- 4.10. Current Trends in Infrastructure Maintenance
 - 4.10.1. RCM Reliability Centered Maintenance
 - 4.10.2. TPM Total Productive Maintenance
 - 4.10.3. Root Cause Analysis
 - 4.10.4. Assigning Jobs





Module 5. Maintenance of High Voltage Transmission Lines

- 5.1. Qualification of Professionals and Companies
 - 5.1.1. High Voltage Professional Credentials
 - 5.1.2. Authorized Companies
 - 5.1.3. Technical and Human Resources
- 5.2. Regulatory Inspections
 - 5.2.1. Verification and Inspection of High Voltage Power Lines
 - 5.2.2. Defect Classification
 - 5.2.3. Minimal Technical Resources
- 5.3. Inspection Procedures
 - 5.3.1. Cable Installations in Visitable Galleries and Overhead Lines
 - 5.3.2. Certification for Partial Discharge Measurements
 - 5.3.3. Tests to Be Performed in Periodic Inspections
- 5.4. Low Voltage Works
 - 5.4.1. The Five Golden Rules
 - 5.4.2. Close-Proximity Works
- 5.5. High Voltage Works
 - 5.5.1. Electric Potential Work
 - 5.5.2. Electric Remote Works
 - 5.5.3. Electric Contact Works
- 5.6. Yearly Maintenance Plan
 - 5.6.1. Corrosion Protection
 - 5.6.2. Insulator Washing
 - 5.6.3. Thermographic Review
 - 5.6.4. Cutting and Pruning of Vegetation
 - 5.6.5. Using Drones
- 5.7. Preventative Maintenance
 - 5.7.1. Equipment Subject to Preventative Maintenance
 - 5.7.2. Techniques of Predictive Maintenance
 - 5.7.3. Maintenance of Underground Networks
- 5.8. Locating Breakdowns in Underground Lines
 - 5.8.1. Cable Breakdowns
 - 5.8.2. Processes and Methods of Locating Breakdowns
 - 5.8.3. Using Equipment

- 5.9. Corrective Maintenance in High Voltage Lines
 - 5.9.1. Overhead Lines
 - 5.9.2. Underground Lines
- 5.10. Malfunctions in High Voltage Lines
 - 5.10.1. Defects and Anomalies After Inspection
 - 5.10.2. Electric Network Connection
 - 5.10.3. Environmental Conditions
 - 5.10.4. Line Surroundings

Module 6. Electrical Substation Maintenance

- 6.1. Qualification of Professionals and Companies
 - 6.1.1. Professional Credentials for Electrical Substations
 - 6.1.2. Authorized Companies
 - 6.1.3. Technical and Human Resources
- 6.2. Regulatory Inspections
 - 6.2.1. Verification and Inspection
 - 6.2.2. Defect Classification
- 6.3. Direct Current Testing
 - 6.3.1. Solid Insulation
 - 6.3.2. Remaining Insulation
 - 6.3.3. Test Execution
- 6.4. Alternating Current Testing
 - 6.4.1. Solid Insulation
 - 6.4.2. Remaining Insulation
 - 6.4.3. Test Execution
- 6.5. Other Critical Tests
 - 6.5.1. Test for the Insulation Oil
 - 6.5.2. Power Factor Testing
- 6.6. Preventative Maintenance of Electrical Substations
 - 6.6.1. visual Inspection
 - 6.6.2. Thermography

- 6.7. Disconnectors and Lightning Arresters Maintenance
 - 6.7.1. Disconnectors
 - 6.7.2. Lightning Arresters
- 6.8. Switch Maintenance
 - 6.8.1. General Inspection
 - 6.8.2. Preventative Maintenance
 - 6.8.3. Predictive Maintenance
- 6.9. Power Transformer Maintenance
 - 6.9.1. General Inspection
 - 6.9.2. Preventative Maintenance
 - 6.9.3. Predictive Maintenance
- 6.10. Elaborating a Maintenance Manual
 - 6.10.1. Routine Maintenance
 - 6.10.2. Critical Inspections
 - 6.10.3. Corrective Maintenance

Module 7. Current Trends and Ancillary Services

- 7.1. New Trends
 - 7.1.1. Maintenance Based on Reliability
 - 7.1.2. Development of a System Based on Reliability
 - 7.1.3. Cusum Control Tool
- 7.2. Power Transformer Condition Assessment
 - 7.2.1. Risk Evaluation
 - 7.2.2. Load and Temperature Tests
 - 7.2.3. Gas Fuel Chromatography
 - 7.2.4. Parameters to Be Controlled in Power Transformers
- 7.3. Encapsulated Substation Maintenance: GIS
 - 7.3.1. Components
 - 7.3.2. Settings
 - 7.3.3. System Operations
- 7.4. Telecommunication System: Protection and Control
 - 7.4.1. Reliability, Availability and Redundancy
 - 7.4.2. Media
 - 7.4.3. System Operations

- 7.5. Safety and Emergencies
 - 7.5.1. Self-Protection Measures and Means
 - 7.5.2. Emergency Action Plan
- 7.6. Maintenance Organization
 - 7.6.1. Elaborating Work Order
 - 7.6.2. Elaborating Maintenance Sheets
 - 7.6.3. Maintenance Schedule
- 7.7. Low Voltage Maintenance
 - 7.7.1. Electrical Panel Operations
 - 7.7.2. Technical-Regulatory Inspections and Revisions
- 7.8. Fire Protection System
 - 7.8.1. Legislative Framework
 - 7.8.2. Inspections and Revisions
- 7.9. Explosive Atmospheres
 - 7.9.1. Evaluation Methodologies
 - 7.9.2. Risk of Explosion Evaluation
- 7.10. Workers Qualifications
 - 7.10.1. Worker Training and Information
 - 7.10.2. Identifying Jobs With Electrical Risk
 - 7.10.3. Worker Consultation and Participation

Module 8. Setting and Coordination of Safeguards in National High Voltage Networks

- 8.1. Protection Coordination
 - 8.1.1. Impedances
 - 8.1.2. Intensities
 - 8.1.3. Protections
- 8.2. Protection Functions
 - 8.2.1. Distance Function
 - 8.2.2. Overcurrent Function
 - 8.3.3. Demands on the Protection System
- 8.3. Generalities
 - 8.3.1. Circuits
 - 8.3.2. Transformers

- 8.4. Protections for Meshed Network Circuits
 - 8.4.1. Generalities
 - 8.4.2. Fouls Between Phases
 - 8.4.3. Ground Faults
 - 8.4.4. Resistive Faults
- 8.5. Radial Distribution Circuit Protections
 - 8.5.1. Generalities
 - 8.5.2. Fouls Between Phases
 - 8.5.3. Ground Faults
- 8.6. Coupling Protections for Meshed Networks
 - 8.6.1. Generalities
 - 8.6.2. Fouls Between Phases
 - 8.6.3. Ground Faults
- 8.7. Coupling Protections for Non Meshed Networks
 - 8.7.1. Generalities
 - 8.7.2. Fouls Between Phases
 - 8.7.3. Ground Faults
- 8.8. Transformer Protections for Meshed Networks
 - 8.8.1. Generalities
 - 8.8.2. Phase to Phase Faults, HV Winding
 - 8.8.3. Phase to Earth, HV Winding
 - 8.8.4. Phase to Earth, Tertiary Winding
- 8.9. Transformer Protections for Non Meshed Networks
 - 8.9.1. Generalities
 - 8.9.2. Primary Winding, Interphase Faults
 - 8.9.3. Primary Winding, Ground Faults
- 8.10. Considerations to Consider
 - 8.10.1. Calculation Procedure: Infeed Factor
 - 8.10.2. Homopolar Compensation Factor
 - 8.10.3. High Voltage Circuit Breaker Opening Procedure

07

Internship

After completing the online theoretical stage, this university degree includes a period of Internship Program in a reference institution in the field of High Voltage Electrical Infrastructures and Electrical Substations. In addition, throughout this academic itinerary, graduates will have the support of a highly qualified tutor in this field, who will accompany them throughout the process, both in the preparation and in the development of the internship.



“

You will carry out a practical stay in a recognized entity in the field of High Voltage Electrical Infrastructures and Electrical Substations”

The Internship Program of this program in Project, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations consists of a practical stay in a distinguished company, lasting 3 weeks, from Monday to Friday, with 8 consecutive hours of practical training with an assistant specialist.

It should be noted that during this on-site stay, the graduates will be tutored by a professional in this field, who will guarantee the fulfillment of all the objectives for which this itinerary has been created. In this sense, their solid knowledge in this field will allow graduates to experience a notable leap in quality in their professional careers.

Undoubtedly, this is an ideal opportunity for engineers to learn by working in a sector that is highly demanded by companies, which requires constant updating in order to create long-lasting, safe and sustainable projects.

The practical part will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of teachers and other fellow students who facilitate teamwork and multidisciplinary integration as transversal competencies for engineering praxis (learning to be and learning to relate).

The procedures described below will be the basis of the practical part of the program, and its realization will be subject to the center's own availability and workload, being the proposed activities the following:





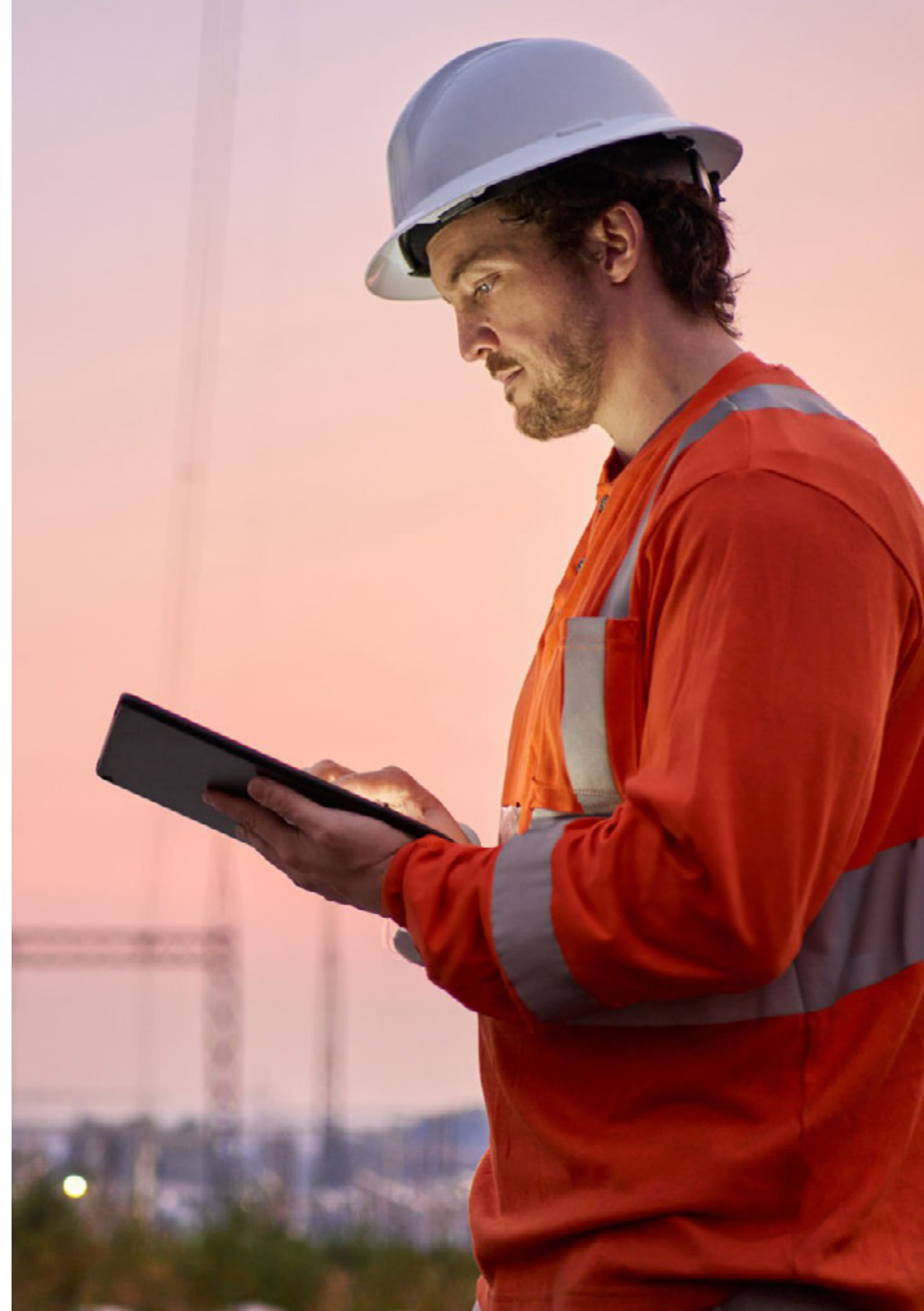
Module	Practical Activity
Power Transmission System and Resource Management	Design high and very high voltage transmission lines, ensuring the efficiency of the electrical system
	Guarantee the availability and correct allocation of resources for the efficient execution of projects
	Develop budgets, financial planning and management of contracts with suppliers
	Monitor the condition of assets to plan their replacement or upgrade according to their life cycle
Electricity Transmission	Determine optimal routes for transmission lines, minimizing impacts and costs
	Conduct technical and economic studies to assess the feasibility of new electricity transmission infrastructure projects
	Real-time monitoring of the operation of lines and substations
	Implement maintenance programs to prevent failures and make timely repairs
Electricity Distribution	Plan distribution network structure including transformer design
	Determine technical specifications for cables, switchgear and control equipment
	Quickly identify faults in the network, coordinating actions to restore power supply in the event of interruptions
	Apply measures to reduce losses in the distribution network, improving system efficiency
Electrical Substation Maintenance	Measure electrical parameters such as voltage, insulation resistance and oil level in transformers to ensure they are within specified values
	Use thermal cameras to detect hot spots in connections and equipment, detecting possible faults before they become critical problems
	Perform insulation resistance tests to analyze the condition of transformers
	Evaluate the functionality of protection systems such as relays, circuit breakers and disconnectors

Civil Liability Insurance

This institution's main concern is to guarantee the safety of the students and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.



General Conditions of the Internship Program

The general terms and conditions of the internship program agreement shall be as follows:

1. TUTOR: During the Hybrid Professional Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

2. DURATION: The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: If the students does not show up on the start date of the Hybrid Professional Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

4. CERTIFICATION: Professionals who pass the Hybrid Professional Master's Degree will receive a certificate accrediting their stay at the center.

5. EMPLOYMENT RELATIONSHIP: The Hybrid Professional Master's Degree shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: Some centers may require a certificate of prior education for the Hybrid Professional Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

7. DOES NOT INCLUDE: The Hybrid Professional Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed.

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

08

Where Can I Do the Internship?

In its philosophy of providing the most complete and updated university degrees in the market, TECH carefully selects the institutions to carry out its Internship Programs. Thanks to this effort, engineers will have the opportunity to carry out their internships in companies of international prestige, in an environment of excellence. In this way, graduates will join a multidisciplinary work team made up of renowned experts in the field of Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations.



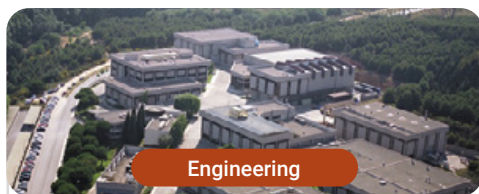


“

You will carry out your practical stay in an organization, where you will enjoy the support of experts in High Voltage Infrastructures and Electrical Substations”



The student will be able to complete the practical part of this Hybrid Professional Master's Degree at the following centers:



Engineering

Applus+ Bilbao

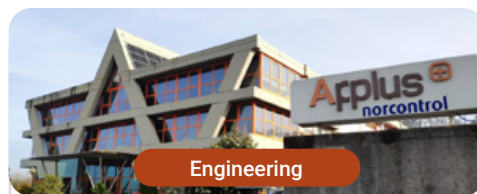
Country	City
Spain	Vizcaya

Address: Av. Lehendakari Aguirre, 9 - 5º izqda CP 48014

A company in the construction sector specialized in enhancing the quality and safety of infrastructures

Related internship programs:

- Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations



Engineering

Applus+ Headquarters A Coruña

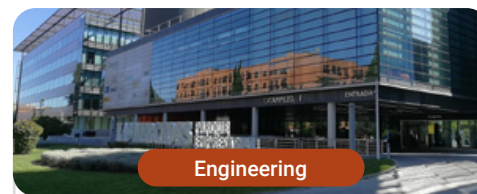
Country	City
Spain	Ciudad Real.

Address: Carretera Nacional VI Km.582 CP 15168

A company in the construction sector specialized in enhancing the quality and safety of infrastructures

Related internship programs:

- Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations



Engineering

Applus+ Headquarters Madrid

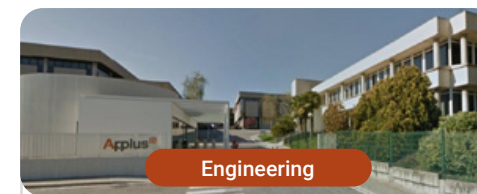
Country	City
Spain	Madrid

Address: Calle Campezo nº1 Parque Empresarial Las Mercedes, Edificio 3 CP 28022

A company in the construction sector specialized in enhancing the quality and safety of infrastructures

Related internship programs:

- Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations



Engineering

Applus+ Headquarters Barcelona

Country	City
Spain	Barcelona

Address: Campus UAB Ronda de la Font del Carme, s/n CP 08193

A company in the construction sector specialized in enhancing the quality and safety of infrastructures

Related internship programs:

- Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations



Engineering

Applus+ Valencia

Country	City
Spain	Valencia

Address: Ronda Auguste y Louis Lumiere, 23 Local 4, Parque Tecnológico Paterna CP 46980

A company in the construction sector specialized in enhancing the quality and safety of infrastructures

Related internship programs:

- Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations



Engineering

Applus+ San Cristóbal de la Laguna

Country	City
Spain	Santa Cruz de Tenerife

Address: C/ Presidente Adolfo Suárez González, 17 - Locales B1 y B2 38320

A company in the construction sector specialized in enhancing the quality and safety of infrastructures

Related internship programs:

- Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations



Engineering

Applus+ Sevilla

Country	City
Spain	Seville

Address: EDIFICIO CARTUJA Avda. Américo Vespucio, nº 5, Bloque 5-3, locales C-4, C-5 y C-6 41092

A company in the construction sector specialized in enhancing the quality and safety of infrastructures

Related internship programs:

- Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations



Engineering

Applus+ Toledo

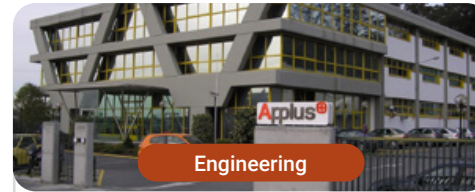
Country	City
Spain	Toledo

Address: Plaza Holanda, 3 local 5 45005 Toledo

A company in the construction sector specialized in enhancing the quality and safety of infrastructures

Related internship programs:

- Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations



Engineering

Applus+ Las Palmas

Country	City
Spain	Las Palmas

Address: Avda. Escaleritas 108, 1º, CP 35011

A company in the construction sector specialized in enhancing the quality and safety of infrastructures

Related internship programs:

- Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations



Engineering

Applus+ Ciudad Real

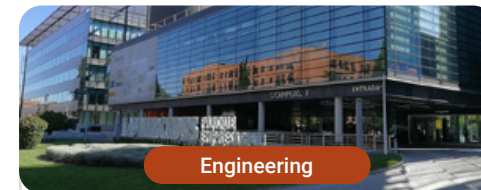
Country	City
Spain	Ciudad Real.

Address: Calle Toledo 8 1 of. 1 y 2 Edificio Miró CP 13001

A company in the construction sector specialized in enhancing the quality and safety of infrastructures

Related internship programs:

- Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations



Engineering

Applus+ Valladolid

Country	City
Spain	Valladolid

Address: Miguel Angel Blanco nº 32 Piso 1º 47014

A company in the construction sector specialized in enhancing the quality and safety of infrastructures

Related internship programs:

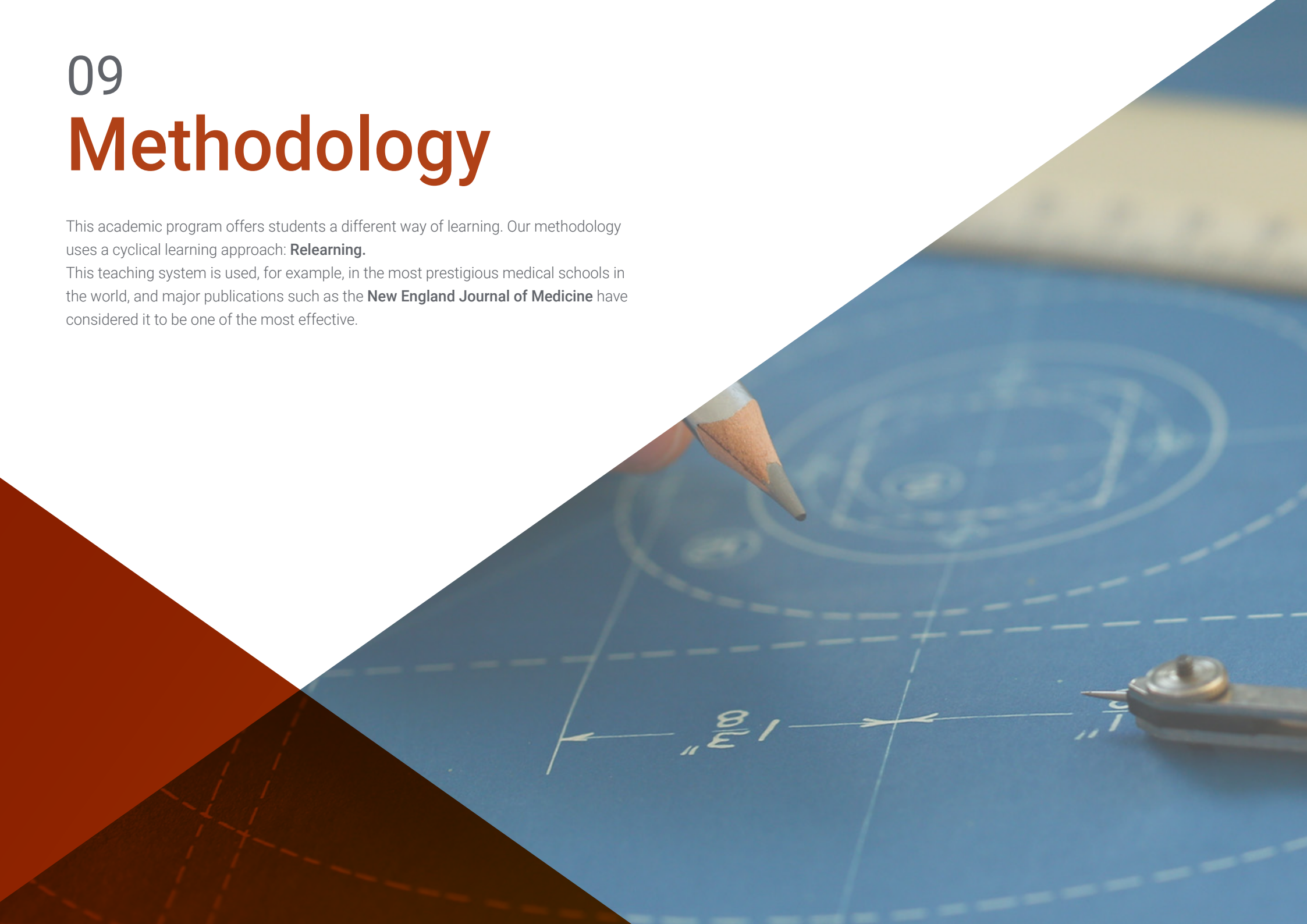
- Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations

09

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.





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.

“

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.



10 Certificate

The Hybrid Professional Master's Degree in Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations guarantees students, in addition to the most rigorous and up-to-date education, access to a Hybrid Professional Master's Degree issued by TECH Global University





“

*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 **Hybrid Professional Master's Degree diploma in Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations** 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.

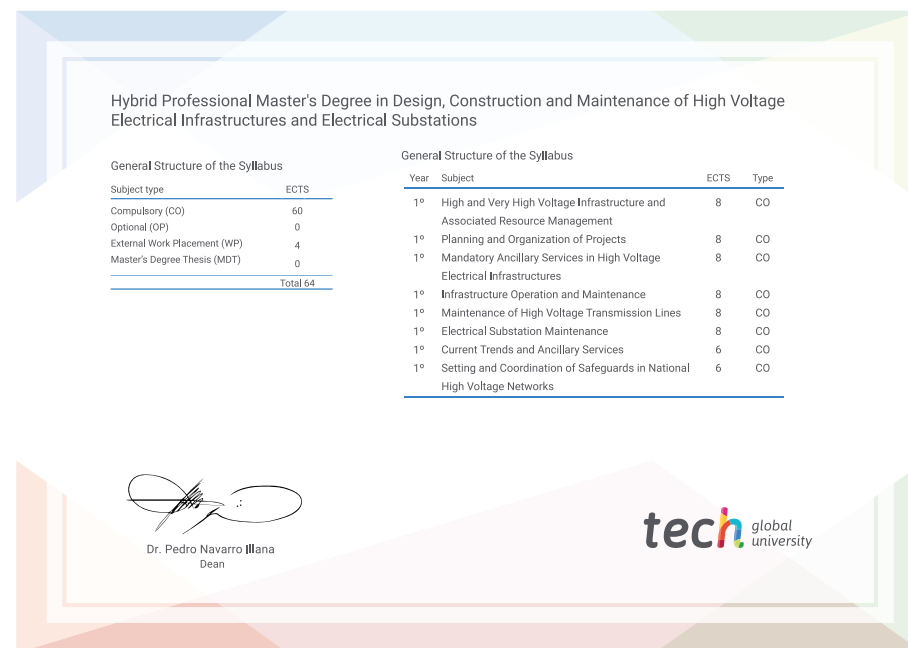
This **TECH Global University** private qualification is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Hybrid Professional Master's Degree in Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations**

Modality: **Hybrid (online + internship)**

Duration: **12 months**

Accreditation: **60 + 4 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.



Hybrid Professional Master's Degree

Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations

Modality: Hybrid (online + internship)

Duration: 12 months

Certificate: TECH Global University

Accreditation: 60 + 4 ECTS

Hybrid Professional Master's Degree

Design, Construction and Maintenance of High Voltage Electrical Infrastructures and Electrical Substations