

Postgraduate Certificate Wind Turbine Technology





Postgraduate Certificate Wind Turbine Technology

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

Website: www.techtitude.com/us/engineering/postgraduate-certificate/wind-turbine-technology

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01

Introduction to the Program

Wind Turbine Technology has reached an advanced level, achieving greater efficiency and power generation capacity. New tools in this renewable energy sector employ high-power turbines exceeding 5 MW, with blades over 80 meters long and optimized digital control systems to improve efficiency and reduce maintenance. In this context, TECH has developed a comprehensive 100% online program, requiring only an electronic device with internet access to access the educational material. Additionally, it is based on the innovative learning methodology known as Relearning, pioneered by this institution.



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With this 100% online program, you will gain specialized knowledge in one of the key technologies for the transition to Renewable Energy sources: Wind Turbine Technology”

Wind turbine technologies have advanced significantly, increasing their efficiency and energy generation capacity by being larger, with longer and lighter blades that maximize wind capture, even in low-speed conditions. Furthermore, their resistance and adaptability to complex environments, such as offshore, have improved. Digitalization has enabled remote monitoring and predictive maintenance, optimizing operation and reducing costs. Advances in materials and design have also reduced environmental impact, making wind energy an increasingly viable and sustainable option at a large scale.

This program was created to enable engineers to identify the key technologies of wind turbines, covering everything from onshore and offshore turbine systems to innovations in materials, design, and performance optimization. Additionally, students will become familiar with the current sector characteristics and trends, including the digitalization of processes and the use of Artificial Intelligence tools.

The program will also delve into the various systems that make up a wind turbine, emphasizing mechanical subsystems such as the nacelle, tower, and blades, as well as electrical systems including generators and converters. Key aspects such as control mechanisms and supervision software, which are essential for maximizing energy production and extending equipment lifespan, will also be explored.

Furthermore, the program will cover the decomposition and analysis of each stage of the process, from the blade movement and energy transmission through the drivetrain to voltage and frequency regulation in the generator. Predictive and corrective maintenance processes, essential for ensuring the reliability of wind turbines and optimizing their performance, will also be examined.

In this way, TECH has created a comprehensive, 100% online, and highly flexible program that allows graduates to avoid the inconvenience of traveling to a physical center or adapting to a fixed schedule. Additionally, the program will incorporate the revolutionary Relearning learning methodology, based on the repetition of key concepts to facilitate deep and natural assimilation of the content.

This **Postgraduate Certificate in Wind Turbine Technology** contains the most complete and up-to-date program on the market. The most important features include:

- ♦ The development of practical cases presented by experts in engineering focused on Wind Energy
- ♦ The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable 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 gain a deep understanding of the systems and components that make up a wind turbine, through the best educational materials available on the academic market, at the forefront of technology and education"

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You will explore the conversion of the kinetic energy of the wind into electrical energy through complex mechanisms that involve both mechanical components and electrical control systems. Enroll now!”

The program's teaching staff includes professionals from the sector who contribute their work experience to this specializing 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 learn 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 course. For this purpose, students will be assisted by an innovative interactive video system created by renowned experts.

You will delve into the role that each component plays in the overall functioning of the wind turbine, understanding how each part contributes to the conversion of wind energy into electrical energy.

You will identify the main technologies used in the manufacturing and operation of wind turbines, from the more traditional models to the most innovative ones, such as horizontal and vertical axis turbines.



02

Why Study at TECH?

TECH is the world's largest online university. With an impressive catalog of more than 14,000 university programs available in 11 languages, it is positioned as a leader in employability, with a 99% job placement rate. In addition, it relies on an enormous faculty of more than 6,000 professors of the highest international renown.



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*Study at the world's largest online university
and guarantee your professional success.
The future starts at TECH”*

The world's best online university, according to FORBES

The prestigious Forbes magazine, specialized in business and finance, has highlighted TECH as "the best online university in the world" This is what they have recently stated in an article in their digital edition in which they echo the success story of this institution, "thanks to the academic offer it provides, the selection of its teaching staff, and an innovative learning method oriented to form the professionals of the future".

The best top international faculty

TECH's faculty is made up of more than 6,000 professors of the highest international prestige. Professors, researchers and top executives of multinational companies, including Isaiah Covington, performance coach of the Boston Celtics; Magda Romanska, principal investigator at Harvard MetaLAB; Ignacio Wistumba, chairman of the department of translational molecular pathology at MD Anderson Cancer Center; and D.W. Pine, creative director of TIME magazine, among others.

The world's largest online university

TECH is the world's largest online university. We are the largest educational institution, with the best and widest digital educational catalog, one hundred percent online and covering most areas of knowledge. We offer the largest selection of our own degrees and accredited online undergraduate and postgraduate degrees. In total, more than 14,000 university programs, in ten different languages, making us the largest educational institution in the world.



The most complete syllabuses on the university scene

TECH offers the most complete syllabuses on the university scene, with programs that cover fundamental concepts and, at the same time, the main scientific advances in their specific scientific areas. In addition, these programs are continuously updated to guarantee students the academic vanguard and the most demanded professional skills. and the most in-demand professional competencies. In this way, the university's qualifications provide its graduates with a significant advantage to propel their careers to success.

A unique learning method

TECH is the first university to use Relearning in all its programs. This is the best online learning methodology, accredited with international teaching quality certifications, provided by prestigious educational agencies. In addition, this innovative academic model is complemented by the "Case Method", thereby configuring a unique online teaching strategy. Innovative teaching resources are also implemented, including detailed videos, infographics and interactive summaries.

The official online university of the NBA

TECH is the official online university of the NBA. Thanks to our agreement with the biggest league in basketball, we offer our students exclusive university programs, as well as a wide variety of educational resources focused on the business of the league and other areas of the sports industry. Each program is made up of a uniquely designed syllabus and features exceptional guest hosts: professionals with a distinguished sports background who will offer their expertise on the most relevant topics.

Leaders in employability

TECH has become the leading university in employability. Ninety-nine percent of its students obtain jobs in the academic field they have studied within one year of completing any of the university's programs. A similar number achieve immediate career enhancement. All this thanks to a study methodology that bases its effectiveness on the acquisition of practical skills, which are absolutely necessary for professional development.



Google Premier Partner

The American technology giant has awarded TECH the Google Premier Partner badge. This award, which is only available to 3% of the world's companies, highlights the efficient, flexible and tailored experience that this university provides to students. The recognition not only accredits the maximum rigor, performance and investment in TECH's digital infrastructures, but also places this university as one of the world's leading technology companies.



The top-rated university by its students

Students have positioned TECH as the world's top-rated university on the main review websites, with a highest rating of 4.9 out of 5, obtained from more than 1,000 reviews. These results consolidate TECH as the benchmark university institution at an international level, reflecting the excellence and positive impact of its educational model.



03 Syllabus

The academic program content will cover the main technologies and models of wind turbines, highlighting their applications and recent advancements in efficiency and sustainability. Furthermore, it will delve in detail into the fundamental components of a wind turbine, such as the rotor, blades, generator, and control systems, analyzing the function and operation of each. Topics will also include the mechanical and electrical processes involved in converting the wind's kinetic energy into electricity, as well as maintenance methodologies and performance optimization of wind systems.



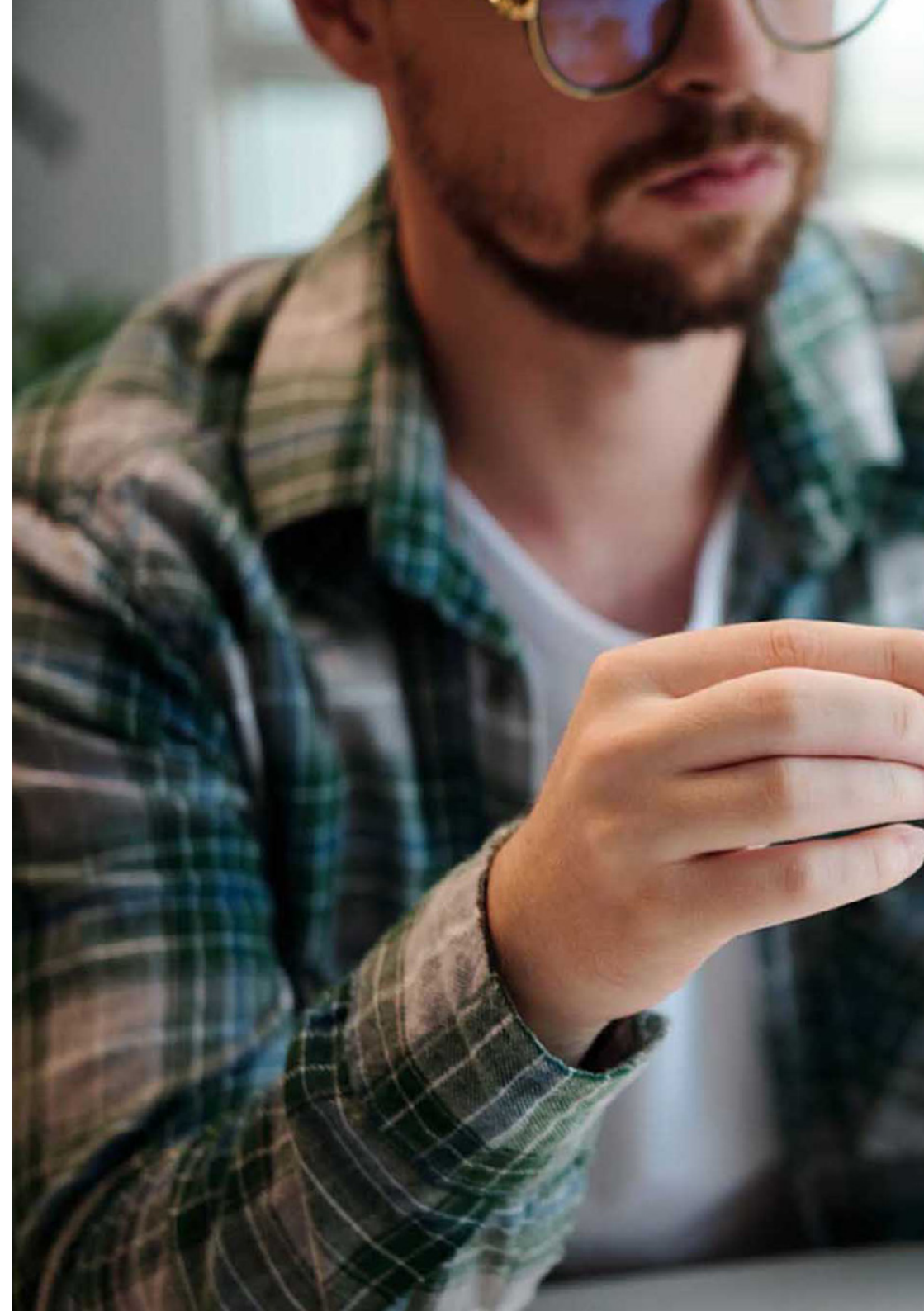


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The program content is designed to provide engineers with technical and specialized training on all key aspects of wind generation systems”

Module 1. Wind Technology: The Wind Turbine

- 1.1. Types of Wind Turbines
 - 1.1.1. Generation Capacity
 - 1.1.2. Rotor Axis Arrangement
 - 1.1.3. Equipment Positioning Relative to the Wind
 - 1.1.4. Number of Blades
 - 1.1.4.1. Based on Electric Generator Type
 - 1.1.4.2. Type of Control and Regulation System
 - 1.1.4.3. Based on Wind Type
- 1.2. Wind Turbine Components
 - 1.2.1. Main Components of the Darrieus Wind Turbine
 - 1.2.2. Main Components of the Savonius Wind Turbine
 - 1.2.3. Main Components of the Horizontal Axis Wind Turbine
- 1.3. Wind Turbine Tower
 - 1.3.1. Tower and Its Types
 - 1.3.2. Design Criteria
 - 1.3.3. Foundation
- 1.4. Wind Turbine Power Train
 - 1.4.1. Low-Speed Rotor Shaft
 - 1.4.2. Gearbox and Its Components
 - 1.4.3. High-Speed Shaft and Flexible Coupling
- 1.5. Wind Turbine Generator
 - 1.5.1. Types of Generators in Wind Turbines
 - 1.5.2. Power Converter
 - 1.5.3. Electrical Protection Systems
- 1.6. Wind Turbine Blades
 - 1.6.1. Hub and Blade Components
 - 1.6.2. Pitch System
 - 1.6.3. Blade Bearing





- 1.7. Wind Turbine Orientation System
 - 1.7.1. Vane System
 - 1.7.2. Yaw System
 - 1.7.3. Hydraulic Group and Brake System
- 1.8. Wind Turbine Transformer
 - 1.8.1. Transformer Station
 - 1.8.2. Collector System
 - 1.8.3. Sectioning Cell
- 1.9. Anemometers of the Wind Turbine
 - 1.9.1. Wind Measurement
 - 1.9.2. Types of Anemometers
 - 1.9.3. Anemometer Calibration
- 1.10. Wind Turbine Obstruction Lights
 - 1.10.1. Lighting Type
 - 1.10.2. Air Safety Standards
 - 1.10.3. Grouping of Wind Turbines

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These skills will translate into a competitive advantage in the job market, as well as the ability to contribute to clean energy projects, a field with growing demand and projection globally”

04

Teaching Objectives

The main objective of the program is to train engineers with the technical and practical knowledge necessary to design, analyze, and optimize wind energy generation systems. In this way, they will analyze the key technologies of wind turbines, including their components and systems, mastering the mechanical and electrical processes that integrate them. Furthermore, they will develop skills to evaluate the efficiency and sustainability of different types of turbines, identify opportunities for improvement in their operation, and carry out diagnostics that contribute to greater equipment reliability.



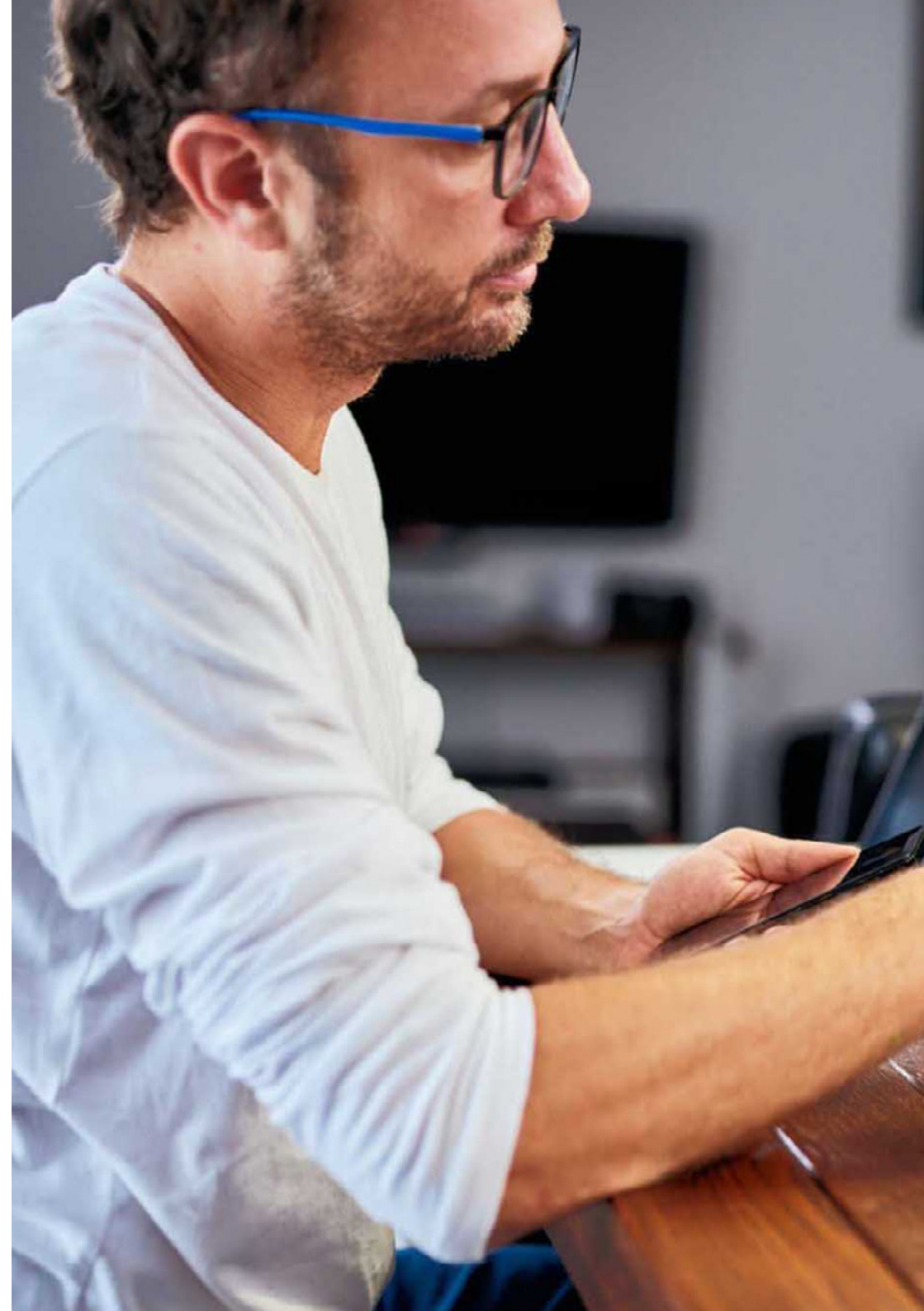
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Upon completion of this program, they will be prepared to face the current challenges in the energy sector, participating in the transition towards Renewable Energy sources”



General Objectives

- ♦ Develop a specialized vision of wind turbine technology
- ♦ Examine the transformation of energy through the components of a wind turbine
- ♦ Analyze the typology, components, and the advantages and disadvantages of wind turbines based on the orientation of the rotation axis
- ♦ Distinguish the typology, components, and the advantages and disadvantages of wind turbine configurations in relation to the type of electrical generator





Specific Objectives

- ♦ Identify the main technologies of wind turbines
- ♦ Examine the systems that make up a wind turbine
- ♦ Describe the function of each component of a wind turbine
- ♦ Determine the mechanical and electrical processes that integrate a wind turbine



You will develop skills in diagnosing and optimizing wind turbine systems, which is essential in a sector where efficiency and the reduction of operational costs are top priorities. With TECH's quality assurance!"

05

Study Methodology

TECH Euromed University is the first in the world to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This innovative pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and moving away from more conventional methodologies.



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TECH Euromed University will prepare you to face new challenges in uncertain environments and achieve success in your career”

The student: the priority of all TECH Euromed University programs

In TECH Euromed University's study methodology, the student is the main protagonist. The teaching tools for each program have been carefully selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions on the labor market.

With TECH Euromed University's asynchronous educational model, students have the flexibility to choose when and how much time they dedicate to studying, as well as how they establish their routines, and all this from the comfort of their preferred electronic device. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities can be completed at a time that is convenient for the student, allowing them to decide when and where they want to study.

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At TECH Euromed University you will NOT have live classes (which you might not be able to attend)”



The most comprehensive study plans at the international

TECH Euromed University is distinguished by offering the most complete academic itineraries on the higher education landscape. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs enable students to keep up with market changes and acquire the skills most valued by employers. As a result, those who complete their studies at TECH Euromed University receive a well-rounded education that provides them with a significant competitive edge to advance their careers.

Moreover, they can access their studies from any device-PC, tablet, or smartphone.

“*TECH Euromed University's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want*”

Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH Euromed University. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.



Relearning Methodology

At TECH Euromed University, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH Euromed University offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

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



A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH Euromed University focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH Euromed University students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.



The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule"

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH Euromed University graduates.

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

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH Euromed University is at the forefront of technology and teaching.

You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.



As such, the best educational materials, thoroughly prepared, will be available in this program:



Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



Interactive Summaries

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

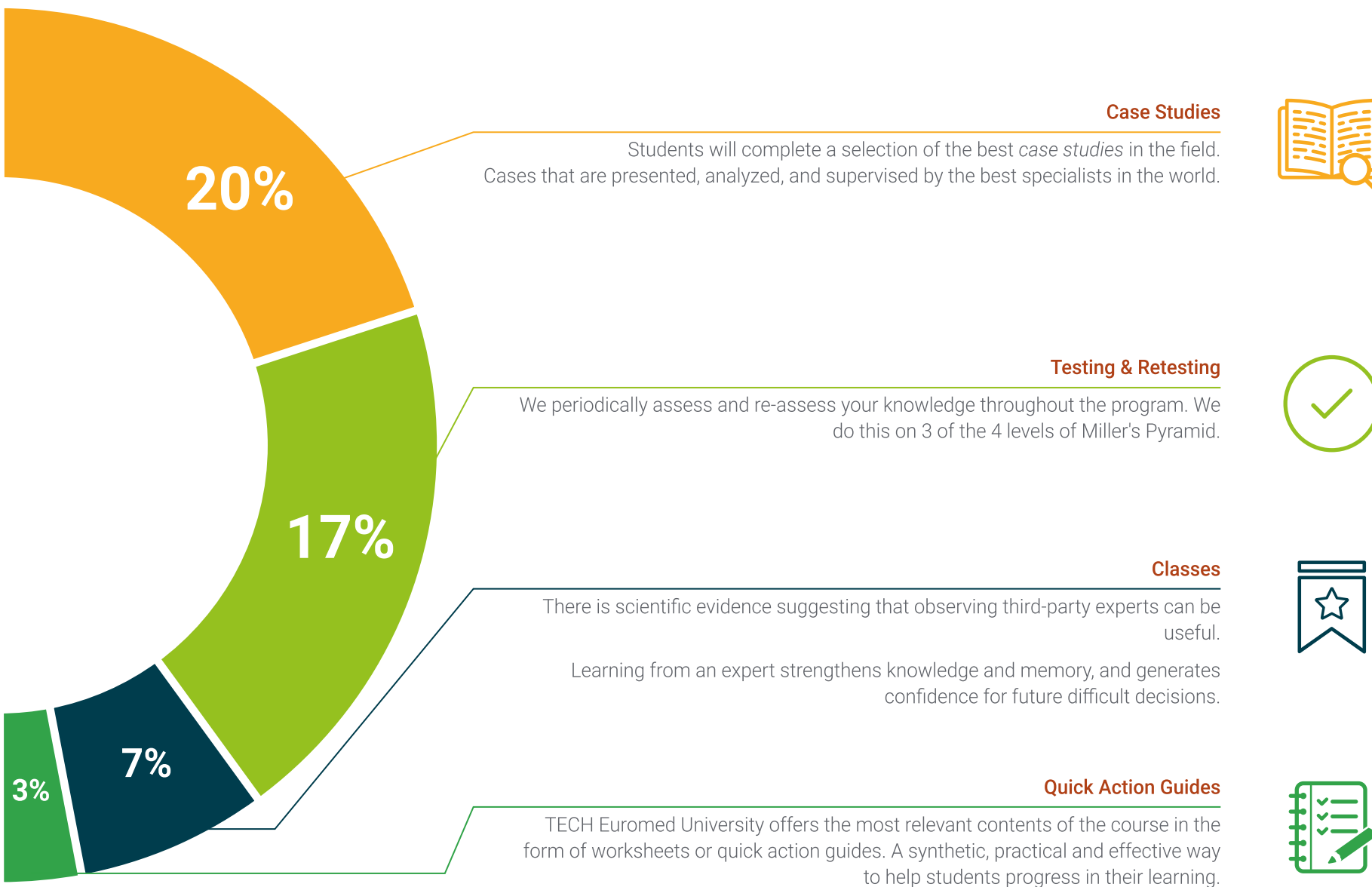
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



Additional Reading

Recent articles, consensus documents, international guides... In our virtual library you will have access to everything you need to complete your education.





06

Teaching Staff

The teaching staff is composed of professionals and experts in Energy Engineering, with extensive experience in the development, implementation, and optimization of wind technologies. In fact, they combine their solid academic training with practical experience in Renewable Energy projects, both at the national and international levels, providing graduates with a comprehensive and up-to-date understanding of the sector. Moreover, they not only excel in the technical field but also in their ability to impart knowledge in an applied manner, making it easier for students to understand the complex mechanical and electrical systems that make up wind turbines.



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The professors will offer real case studies, problem-solving strategies, and advanced analysis techniques, equipping you with the necessary skills to tackle the challenges presented by the wind industry”

Management



Mr. Melero Camarero, Jorge

- ♦ Deputy Director of Construction at Enery, Vienna
- ♦ Country Manager for Spain at Ezzing Solar
- ♦ General Manager of Environmental and Social Consulting at Natura Medioambiente
- ♦ Deputy Director of the Renewable Energy Division at Alatec Ingenieros Consultores y Arquitectos
- ♦ Director of the Renewable Energy Department at Gestionna Soluciones Energéticas
- ♦ Renewable Energy Project Director at ABO Wind Spain
- ♦ Master's Degree in Business Administration (MBA)
- ♦ Master's Degree in Renewable Energy Consulting
- ♦ Bachelor's Degree in Industrial Engineering from the Polytechnic University of Valencia



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Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice”

07

Certificate

The Postgraduate Certificate in Wind Turbine Technology guarantees students, in addition to the most rigorous and up-to-date education, access to a diploma for the Postgraduate Certificate issued by TECH Global University.



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Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”

This private qualification will allow you to obtain a diploma for the **Postgraduate Certificate in Wind Turbine Technology** 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 Wind Turbine Technology**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**





Postgraduate Certificate Wind Turbine Technology

- » Modality: online
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Postgraduate Certificate Wind Turbine Technology