Master's Degree
Wind Energy

Accreditation/Membership

ASEE American Society for Engineering Education

tech global university

Master's Degree
Wind Energy

- » Modality: **online**
- » Duration: **12 months**
- » Certificate: **TECH Global University**
- » Accreditation: **60 ECTS**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/us/engineering/master-degree/master-degree-wind-energy**

Index

01

Introduction to the Program

Drive the Future of the Energy Transition with One of the Most Established Renewable Sources Globally. Wind Energy accounts for nearly 10% of global electricity generation, according to the International Energy Agency, and continues to expand due to technological innovation and the growing demand for sustainable solutions. This evolution has created a high demand for specialized engineers capable of leading complex projects in both onshore and offshore environments. In this context, TECH presents a 100% online program with an advanced technical focus, designed to address the current challenges of the sector from a practical, flexible, and future-oriented perspective for the engineer's professional development.

A comprehensive and 100% online program, exclusive to TECH, with an international perspective backed by our membership in the American Society for Engineering Education"

Wind Energy has evolved from being considered just an alternative within the wide range of electricity generation technologies to becoming a fundamental pillar in many global energy systems. This transformation not only highlights its capacity for innovation and adaptability but also underscores its potential to supply energy to entire populations, reaffirming its role as one of the most consistent and effective sustainable technologies.

In response to this global context, the Master's Degree has been designed to provide engineers with in-depth knowledge of Wind Energy, from wind characterization to the most advanced technologies for harnessing it. Additionally, the program covers the most practical aspects of promoting and financing wind projects, ensuring that professionals not only understand the engineering behind wind turbines but also the economic and financial keys to guaranteeing the viability of projects. The program will also address the challenges facing the Wind Energy sector in an integrated manner.

To this end, TECH has developed a comprehensive, fully online, and flexible program, allowing graduates to avoid issues such as traveling to a physical center and adjusting to a fixed schedule. Furthermore, students will benefit from the revolutionary Relearning methodology, which involves the repetition of key concepts for optimal and organic content assimilation.

Thanks to TECH's membership in the **American Society for Engineering Education (ASEE)**, its students gain free access to annual conferences and regional workshops that enrich their engineering education. Additionally, they enjoy online access to specialized publications such as Prism and the Journal of Engineering Education, enhancing their academic development and expanding their professional network on an international scale.

Este **Master's Degree in Wind Energy** conta com o conteúdo educacional mais completo e atualizado do mercado. As suas principais características são:

- The development of practical cases presented by experts in Wind Energy
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

Prepare yourself to take on strategic roles in a growing industry, with vast job opportunities and a positive impact on the transition to sustainable energy sources"

You will explore the specific characteristics of Offshore Wind Energy, highlighting its growing importance in the global energy context, supported by an extensive library of multimedia resources"

The program features a faculty of professionals from the Wind Energy sector, sharing their work experience, along with renowned specialists from leading societies and prestigious universities.

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

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

Upon completing the program, you will be prepared to contribute effectively to one of the most exciting and essential fields in the transition to a sustainable energy future.

You will deepen your understanding of various wind energy technologies, enabling you to make design and engineering decisions that optimize energy generation.

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.

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 program will delve into the construction and operation of Wind Energy facilities, examining best practices to optimize energy performance. It will also cover the financing of Wind Energy projects, enabling professionals to understand the crucial economic aspects for the sustainable development of these projects. Additionally, the program will explore offshore Wind Energy, analyzing the specificities and advantages of this emerging technology. Upon completion, engineers will have acquired in-depth, applicable knowledge, preparing them to effectively contribute to one of the most innovative and necessary industries of the 21st century.

The program content has been designed to provide engineers with comprehensive and specialized training in all aspects related to Wind Energy, as part of Renewable Energies"

Module 1. Design of Wind Measurement Campaigns and Technologies

1.1. Wind Energy
  1.1.1. Wind Energy
  1.1.2. Origin of Wind and Its Patterns on Earth
  1.1.3. Effects Impacting Wind Regimes
1.2. Wind Resource Characterization
  1.2.1. Relationship Between Wind Speed and Wind Power
  1.2.2. Betz Limit and Tip Speed of Blades
  1.2.3. Evolution of Wind Turbine Size and Global Installed Capacity
  1.2.4. Magnitudes to Measure to Validate a Wind Turbine Model According to IEC-61400
1.3. Meteorological Stations Based on Masts (I). Guyed Masts and Self-Supporting Masts
  1.3.1. Guyed Masts
  1.3.2. Self-Supporting Masts
  1.3.3. Instrumentation
1.4. Meteorological Stations Based on Masts (II). Configuration, Operation, and Auxiliary Equipment
  1.4.1. Instrument Calibration
  1.4.2. *Data Loggers*
  1.4.3. Power Supply Equipment
  1.4.4. Data Download and Storage
1.5. Meteorological Stations Based on Doppler Effect
  1.5.1. LIDAR
  1.5.2. SODAR
  1.5.3. Advantages and Disadvantages Compared to Mast-Based Stations
1.6. Design of Pre-Construction Measurement Campaigns
  1.6.1. Preliminary Wind Farm Design Generation
  1.6.2. Measurement Point Location Design Based on MEASNET Recommendations
  1.6.3. Iterative Design Adjustment Based on Practical Limitations

1.7. Design of Power Curve Measurement Campaigns
- 1.7.1. Essential Cases for Power Curve Measurement Campaigns
- 1.7.2. Measurement Point Location Design Based on IEC-61400 Requirements
- 1.7.3. Additional Requirements from Manufacturers

1.8. Specifics of Measurements for Offshore Projects
- 1.8.1. Meteorological Stations and Their Platforms
- 1.8.2. Power Supply Equipment
- 1.8.3. Campaign Design

Module 2. Wind Resource Modeling and Energy Production Studies

2.1. Topographic Maps and Spatial Limitations in Onshore Wind Farms
- 2.1.1. Orography
- 2.1.2. Roughness and Obstacles
- 2.1.3. Site Visit
- 2.1.4. Spatial Limitations for Wind Turbine Placement

2.2. Topographic Maps and Spatial Limitations in Offshore Wind Farms
- 2.2.1. Orography and Bathymetry
- 2.2.2. Oceanographic Data
- 2.2.3. Spatial Limitations for Wind Turbine Placement

2.3. Processing of Meteorological Station Measurements I: Data Filtering and Treatment
- 2.3.1. Analysis of Measurement Integrity
- 2.3.2. Data Filtering and Gap Filling
- 2.3.3. Specifics of Doppler-Based Meteorological Stations

2.4. Processing of Meteorological Station Measurements II. Extrapolation and Wind Resource Calculations
- 2.4.1. Vertical Profile
- 2.4.2. Reference Data
- 2.4.3. Long-Term Extrapolation

2.5. Wind Modeling I: Software Utilities
- 2.5.1. Requirements
- 2.5.2. Commercial Software for Simple Topographies
- 2.5.3. Commercial Software for Complex Topographies

2.6. Wind Modeling II. Estimating Production of a Wind Farm
- 2.6.1. Wind Conditions at Wind Turbine Locations I
    - 2.6.1.1. Vertical Profile and Air Density
- 2.6.2. Wind Conditions at Wind Turbine Locations II
    - 2.6.2.1. Turbulence and Wind Flow Inclination
- 2.6.3. Extreme Winds

2.7. Energy Production Estimation
- 2.7.1. Wind Turbines: Power Curves and Other Characteristics
- 2.7.2. Gross Production Estimation
- 2.7.3. Wake Losses and Other Losses Calculations
- 2.7.4. Net Production Estimation

2.8. Uncertainty Calculation in Energy Production Studies
- 2.8.1. Measurements and Long-Term Extrapolation
- 2.8.2. Wind Flow and Wake Modeling
- 2.8.3. Power Curve and Operational Losses
- 2.8.4. Exceedance Energy Levels

2.9. Other Software for Non-Wind Flow Modeling Purposes
- 2.9.1. Processing of Meteorological Measurements
- 2.9.2. Wind Turbine Placement Design
- 2.9.3. Other Purposes

2.10. Wind Production Time Series
- 2.10.1. Generation Methods
- 2.10.2. Utilities
- 2.10.3. Relevant Parameters and Statistics

Module 3. Wind Technology: The Wind Turbine

3.1. Types of Wind Turbines
 3.1.1. Generation Capacity
 3.1.2. Rotor Axis Arrangement
 3.1.3. Equipment Positioning Relative to the Wind
 3.1.4. Number of Blades
  3.1.4.1. Based on Electric Generator Type
  3.1.4.2. Type of Control and Regulation System
  3.1.4.3. Based on Wind Type
3.2. Wind Turbine Components
 3.2.1. Main Components of the Darrieus Wind Turbine
 3.2.2. Main Components of the Savonius Wind Turbine
 3.2.3. Main Components of the Horizontal Axis Wind Turbine
3.3. Wind Turbine Tower
 3.3.1. Tower and Its Types
 3.3.2. Design Criteria
 3.3.3. Foundation
3.4. Wind Turbine Power Train
 3.4.1. Low-Speed Rotor Shaft
 3.4.2. Gearbox and Its Components
 3.4.3. High-Speed Shaft and Flexible Coupling
3.5. Wind Turbine Generator
 3.5.1. Types of Generators in Wind Turbines
 3.5.2. Power Converter
 3.5.3. Electrical Protection Systems
3.6. Wind Turbine Blades
 3.6.1. Hub and Blade Components
 3.6.2. Pitch System
 3.6.3. Blade Bearing
3.7. Wind Turbine Orientation System
 3.7.1. Vane System
 3.7.2. *Yaw System*
 3.7.3. Hydraulic Group and Brake System
3.8. Wind Turbine Transformer
 3.8.1. Transformer Station
 3.8.2. Collector System
 3.8.3. Sectioning Cell
3.9. Anemometers of the Wind Turbine
 3.9.1. Wind Measurement
 3.9.2. Types of Anemometers
 3.9.3. Anemometer Calibration
3.10. Wind Turbine Obstruction Lights
 3.10.1. Lighting Type
 3.10.2. Air Safety Standards
 3.10.3. Grouping of Wind Turbines

Module 4. Development and Construction of Wind Farms

4.1. Wind Farm Site Selection: A Complex and Multidisciplinary Decision
 4.1.1. Energy Resource
 4.1.2. Land Ownership
 4.1.3. Interconnection Capacity
4.2. Wind Resource for Project Development
 4.2.1. Wind Speed and Direction
 4.2.2. Vertical Profile and Temporal Variability
 4.2.3. Turbulence
4.3. Terrain Complexity
 4.3.1. Access Roads
 4.3.2. Geographic Surroundings
 4.3.3. Site Orography

4.4. Social Considerations in Wind Farm Development
  - 4.4.1. Local Communities
  - 4.4.2. Positive Impacts
  - 4.4.3. Negative Impacts

4.5. Wind Farm Interconnection
  - 4.5.1. Step-Up Substation
  - 4.5.2. Interconnection Substation
  - 4.5.3. High Voltage Transmission Line (HVTL)

4.6. Technical-Economic Considerations in the Promotion and Development of Wind Farms
  - 4.6.1. Budget for Studies
  - 4.6.2. Budget for Administrative Procedures
  - 4.6.3. Total Budget

4.7. Scheduling and Planning for the Development and Promotion of Wind Farms
  - 4.7.1. Study Scheduling
  - 4.7.2. Administrative Procedure Scheduling
  - 4.7.3. Overall Timeline

Module 5. Civil Engineering Design for Wind Farm Construction

5.1. Programming and Planning of Wind Farm Civil Works
  - 5.1.1. Civil Works for Wind Farms
  - 5.1.2. Project Analysis
  - 5.1.3. Engineering Process Scheduling and Planning

5.2. Wind Turbine Foundations
  - 5.2.1. International Regulatory Framework
  - 5.2.2. Types of Foundations
  - 5.2.3. Foundation Analysis Based on Ground Characteristics

5.3. Shallow Foundations for Wind Turbines
  - 5.3.1. Calculation Methodology
  - 5.3.2. Wind Turbine Foundation. Calculation Example
  - 5.3.3. Construction Procedure

5.4. Deep Foundations for Wind Turbines
  - 5.4.1. Calculation Methodology
  - 5.4.2. Wind Turbine and Wind Resource Tower Foundation. Calculation Example
  - 5.4.3. Construction Procedure

5.5. Roads and Access for Wind Farms
  - 5.5.1. Calculation Methodology
  - 5.5.2. Roads and Access for Wind Farms. Calculation Example
  - 5.5.3. Construction Procedure

5.6. Trenches for Cabling
  - 5.6.1. Trench Layout and Characterization
  - 5.6.2. Geometric Definition of Trenches
  - 5.6.3. Construction Procedure

5.7. Wind Turbine Assembly Platforms
  - 5.7.1. Calculation Methodology for Platform Design
  - 5.7.2. Platform Design. Calculation Example
  - 5.7.3. Wind Turbine Construction Procedure

5.8. Civil Works for the Substation. Power Transformer and Medium/High Voltage Equipment
  - 5.8.1. Civil Engineering Applied to the Substation
  - 5.8.2. Transformer Bank. Calculation Example
  - 5.8.3. Construction Procedure

5.9. Civil Works for the Substation. Control and Measurement Building
  - 5.9.1. Characterization of the Control and Measurement Building
  - 5.9.2. Floor Plan Description of a Control Building
  - 5.9.3. Construction Procedure

Module 6. Electrical and Communications Design for Wind Farms

6.1. Electrical Circuits in the Wind Farm: Low Voltage, Transformer, Distribution, Substation
- 6.1.1. Electrical Distribution Networks
- 6.1.2. Distribution Substations
- 6.1.3. Low Voltage Network Components

6.2. Alignment of Wind Turbines and Single-Line Diagrams
- 6.2.1. The Wind Farm
- 6.2.2. Electrical Symbols
- 6.2.3. Single-Line Diagram of a Wind Turbine
- 6.2.4. Single-Line Diagram of Medium Voltage Collector System
- 6.2.5. Single-Line Diagram of Generation Substation

6.3. Medium Voltage Transformers
- 6.3.1. Medium Voltage Transformer
- 6.3.2. Electrical Connections
- 6.3.3. Protection Systems

6.4. Substation (I). High Voltage Transformer
- 6.4.1. High Voltage Transformer
- 6.4.2. Electrical Connections
- 6.4.3. Protection Systems

6.5. Substation (II). High Voltage Side and Connection to the Electric Company
- 6.5.1. Outdoor Park
- 6.5.2. Switchgear
- 6.5.3. Disconnectors

6.6. Substation (III). Medium Voltage Cells and Protection
- 6.6.1. Medium Voltage Cell
- 6.6.2. Current and Voltage Transformers
- 6.6.3. Electrical Connections

6.7. Fiber Optic Network for Communication and Monitoring System
- 6.7.1. Fiber Optic Systems. Advantages and Disadvantages
- 6.7.2. Fiber Optic Configurations
- 6.7.3. Fiber Optic Network in Wind Farms

6.8. Capacitor Banks in the Substation
- 6.8.1. Capacitor Bus
- 6.8.2. Current Collectors
- 6.8.3. Crowbar

6.9. SCADA. Wind Farm Measurement Parameters
- 6.9.1. SCADA System Configuration
- 6.9.2. Monitoring Parameters
- 6.9.3. Technology and Hardware

6.10. SCADA. Communication and Operation with the Electric Company
- 6.10.1. International Standards and Grid Codes
- 6.10.2. Client SCADA Operation
- 6.10.3. Local-Remote Operation

Module 7. Construction and Commissioning of Wind Farms

7.1. Preliminary Studies and Comprehensive Engineering Analysis
- 7.1.1. Energy Resource
- 7.1.2. Civil Studies
- 7.1.3. Electrical Studies

7.2. Logistics, Transportation, and Storage of Wind Farm Components
- 7.2.1. Route Study
- 7.2.2. Logistics and Transportation
- 7.2.3. Component Storage

7.3. Construction of Junctions, Roads, Foundations, and Mounting Platforms for Wind Farms
 7.3.1. Junctions
 7.3.2. Roads and Mounting Platforms
 7.3.3. Foundations
7.4. Trenches and Installation of Electrical and Communication Cabling for Wind Farm Setup
 7.4.1. Civil Works
 7.4.2. Cable Laying
 7.4.3. Border Points in High Voltage (HV) and Electrical Substation (ES)
7.5. Cranes for Wind Turbine Assembly
 7.5.1. Auxiliary Cranes
 7.5.2. Main Crane
 7.5.3. Crane Configuration
7.6. Assembly of Towers, Nacelle, and Blades for Wind Turbines
 7.6.1. Tower Assembly
 7.6.2. Nacelle Assembly
 7.6.3. Blade Assembly
7.7. Commissioning of the Wind Farm
 7.7.1. *Cold Commissioning*
 7.7.2. *Hot Commissioning*
 7.7.3. Grid Integration
7.8. Technical-Economic Considerations for Wind Farm Construction
 7.8.1. Turbine Supply Agreement (TSA)
 7.8.2. Balance of Plant (BoP) and Interconnection
 7.8.3. *CAPEX*
7.9. Scheduling and Planning for Wind Farm Execution
 7.9.1. TSA Scheduling
 7.9.2. BoP Scheduling
 7.9.3. Interconnection Scheduling

Module 8. Operation and Maintenance of Wind Farms

8.1. Operation and Maintenance (O&M) of Wind Farms
 8.1.1. Importance of O&M (Operation and Maintenance) in Wind Energy
 8.1.2. Wind Turbines Life Cycle
 8.1.3. Key Players in O&M (Operation and Maintenance) of Wind Energy
8.2. Maintenance and Reliability Strategies in Wind Farms
 8.2.1. Preventive Maintenance Strategies
 8.2.2. Corrective Maintenance Strategies
 8.2.3. Reliability and Failure Analysis in Wind Turbines
 8.2.4. Optimization of Maintenance Plans
8.3. Scheduled Maintenance Protocols and Wind Farm Inspections
 8.3.1. Establishing Maintenance Schedules
 8.3.2. Routine Inspection Techniques
  8.3.2.1. Visual Inspections
  8.3.2.2. Drone Inspections
 8.3.3. Use of Predictive Maintenance Tools
  8.3.3.1. Vibration Analysis
  8.3.3.2. Thermography
8.4. Fault Diagnosis and Troubleshooting in Wind Turbines
 8.4.1. Common Wind Turbine Failures
 8.4.2. Diagnostic Techniques
 8.4.3. Troubleshooting Procedures
 8.4.4. Case Studies of Fault Resolution
8.5. Advanced Monitoring and Control Systems for Wind Farms
 8.5.1. SCADA Systems in Wind Energy
 8.5.2. Real-Time Monitoring Technologies
 8.5.3. Data Analysis for Predictive Maintenance
 8.5.4. Remote Operations and Maintenance

8.6. Operation and Maintenance (O&M) of Offshore Wind Turbines
  8.6.1. Specific Challenges of Offshore O&M
  8.6.2. Maintenance Strategies for Offshore Wind Farms
  8.6.3. Access and Logistics
  8.6.4. Use of Autonomous and Remote-Controlled Systems
8.7. Health, Safety, and Environmental Considerations in Wind Farm Operation and Maintenance
  8.7.1. International Health and Safety Regulations in Wind Energy O&M
  8.7.2. Risk Assessment and Management
  8.7.3. Environmental Impact and Mitigation Strategies
  8.7.4. Emergency Response Planning
8.8. Cost Management and Economic Considerations
  8.8.1. Cost Structure of Wind Energy O&M
  8.8.2. Strategies to Reduce Maintenance Costs
  8.8.3. Economic Impact of Maintenance Strategies
  8.8.4. Financial Models for O&M Planning
8.9. Technological Innovations in Wind Energy O&M
  8.9.1. Emerging Technologies in Wind Turbine Maintenance
  8.9.2. Role of Artificial Intelligence and Machine Learning
  8.9.3. Future Trends in Wind Energy O&M
  8.9.4. Integration of Renewable Energy Systems
8.10. Successful O&M Programs and Industry Best Practices
  8.10.1. Successful O&M Programs
  8.10.2. Lessons Learned from Industry Leaders
  8.10.3. Best Practices for Wind Energy O&M
  8.10.4. Future Directions and Research Opportunities

Module 9. Financing Wind Energy Projects

9.1. Financing Energy Infrastructure Projects
  9.1.1. Infrastructure Projects
  9.1.2. Financing in Infrastructure Development
  9.1.3. Economic and Social Impact of Infrastructure Projects
9.2. Key Players in the Financing of Wind Energy Projects
  9.2.1. Project Developers
  9.2.2. Private Investors
  9.2.3. Financial Institutions
9.3. Financing Structures for Wind Farms
  9.3.1. Types of Financing Structures
  9.3.2. Design and Optimization of Capital Structure
  9.3.3. Financing Structures in Wind Energy Projects
9.4. Project Finance for Financing Energy Projects
  9.4.1. *Project Finance*
  9.4.2. Differences Between Project Finance and Other Forms of Financing
  9.4.3. Stages of Project Finance
9.5. Risks and Mitigation in Wind Energy Project Financing
  9.5.1. Risk Classification
  9.5.2. Risk Mitigation Strategies
  9.5.3. Risk Mitigation Examples in Wind Energy Projects
9.6. Financial Modeling for Wind Farms
  9.6.1. Financial Modeling
  9.6.2. Financial Modeling of the 3 Main Financial Statements
  9.6.3. Stages in Building a Financial Model
9.7. Key Assumptions and Critical Parameters in the Financial Modeling of a Wind Energy Project
  9.7.1. Defining the Base Case
  9.7.2. Validation and Adjustment of Assumptions
  9.7.3. Scenario Evaluation

9.8. Valuation and Assessment Techniques for Wind Energy Projects
- 9.8.1. Valuation Methods
- 9.8.2. Sensitivity and Scenario Analysis
- 9.8.3. Case Study Examples of Wind Energy Project Valuation

9.9. International Regulatory Analysis and Its Financial Impact on Energy Projects
- 9.9.1. International Regulatory Framework and Government Policies
- 9.9.2. Impact of Incentives and Subsidies on Project Financing
- 9.9.3. Case Study Examples of International Regulatory Frameworks

9.10. Current and Future Trends in Wind Energy Project Financing
- 9.10.1. Innovations in Wind Energy Project Financing
- 9.10.2. Examples of Innovation in Wind Energy Project Financing
- 9.10.3. Future Trends

Module 10. Offshore Wind Farms

10.1. Offshore Wind Energy
- 10.1.1. Offshore Wind Energy
- 10.1.2. Differences Between Offshore and Onshore Wind Energy
- 10.1.3. Current Market and International Agreements

10.2. Criteria for Offshore Wind Farm Installation
- 10.2.1. Aspects Related to Platform Ownership
- 10.2.2. Aspects Related to Wind Availability
- 10.2.3. Aspects Related to the Seabed

10.3. Advanced Offshore Technologies. Differences with Onshore
- 10.3.1. Offshore Wind Turbines
- 10.3.2. Machine Segments: Functions
- 10.3.3. Complementary Aspects of Offshore Wind Energy

10.4. Offshore Machines
- 10.4.1. Main Segments of the Nacelle
- 10.4.2. Main Segments of the Tower
- 10.4.3. Key Aspects of the Foundation

10.5. Offshore Wind Farms Worldwide: Contribution to the Energy Mix
- 10.5.1. Renewable Energy and Wind Energy Share in the Global Energy Mix
- 10.5.2. Offshore Wind Energy Share in the Global Energy Mix
- 10.5.3. Analysis of Projections and Possible Scenarios for this Technology

10.6. Potential Offshore Wind Projects: Future Projections
- 10.6.1. Existing Projects: Geographical Distribution and Context Analysis
- 10.6.2. Potential Offshore Wind Projects: Geographical Distribution and Context Analysis
- 10.6.3. Floating Wind Energy Projects

10.7. Logistics, Construction, and Maintenance of Offshore Wind Farms
- 10.7.1. Industrial Facility Location, Analysis of Existing Projects
- 10.7.2. Construction of Offshore Wind Farms
- 10.7.3. Maintenance and Operation of an Offshore Wind Farm

10.8. Safety and Environment in Offshore Wind Energy
- 10.8.1. International Safety Standards Applicable in the Offshore Industry
- 10.8.2. International Environmental Standards Applicable in the Offshore Industry
- 10.8.3. Safety and Environmental Management in an Offshore Wind Farm

10.9. Safety and Environmental Management in an Offshore Wind Turbine
- 10.9.1. Sustainability and Environmental Management Tools
- 10.9.2. Safety and Environmental Management Tools
- 10.9.3. Impact Studies in Offshore Wind Farms

10.10. Current Challenges in Offshore Wind Energy
- 10.10.1. Challenges Related to Economic-Financial Aspects
- 10.10.2. Challenges Related to Product Quality
- 10.10.3. Challenges Related to the Global Political-Economic Context

04

Teaching Objectives

Through a comprehensive syllabus, this university program will develop a deep understanding of Wind Technology, covering everything from wind characterization and production studies to the design, construction, and operation of Wind Farms. Additionally, critical analysis and informed decision-making will be promoted, preparing professionals to address the technical and economic challenges faced by the industry. Upon completion of this Master's Degree, graduates will be equipped with specialized knowledge and a global perspective, enabling them to effectively contribute to the transition towards a sustainable and efficient energy model.

The primary goal of this Wind Energy program is to equip engineers with the necessary competencies to lead and manage projects in the field of Wind Energy, both onshore and offshore”

General Objectives

- Establish the origin of wind and the history of wind turbines
- Analyze the types, components, advantages, and disadvantages of different meteorological stations
- Examine the different types of measurement campaigns
- Determine how to conduct a Wind Resource Study
- Identify the differences between various commercial options for modeling wind flow at a given location
- Establish the different categories of losses that should be considered when estimating wind farm production
- Examine energy transformation through the components of the wind turbine
- Describe the types, components, advantages, and disadvantages of all wind turbine configurations in relation to their control and regulation systems

Specific Objectives

Module 1. Design of Wind Measurement Campaigns and Technologies

- Determine how to record wind measurement data based on high-quality standards
- Analyze how to design onshore Wind Measurement campaigns in a way that makes the studies financially bankable

Module 2. Wind Resource Modeling and Energy Production Studies

- Analyze spatial limitations to consider in the design of a Wind Farm and the type of topographic sources to integrate into the calculations
- Establish the differences between the various options for generating Wind Production time series

Module 3. Wind Technology: The Wind Turbine

- Examine the systems that make up a wind turbine
- Describe the function of each component of a wind turbine

Module 4. Development and Construction of Wind Farms

- Describe the main items involved in the promotion and development of a Wind Farm
- Differentiate the order of importance of the stages and procedures required for promotion and development

Module 5. Civil Engineering Design for Wind Farm Construction

- Apply a planning process in the initial stage of designing a Wind Farm and the associated substation
- Identify and design each civil engineering discipline involved in Wind Farms and substations

Module 6. Electrical and Communications Design for Wind Farms

- Analyze the communication systems that make up a Wind Farm
- Describe the function of the data acquisition systems in a wind turbine

Module 7. Construction and Commissioning of Wind Farms

- Determine how to manage the key risks in the construction of Wind Farms
- Analyze the planning methods used in the construction of Wind Farms

Module 8. Operation and Maintenance of Wind Farms

- Determine preventive and corrective maintenance strategies and how they are implemented in Wind Farms
- Examine health, safety, and environmental regulations relevant to O&M in Wind Energy
- Analyze the specific O&M challenges and strategies for offshore wind turbines
- Evaluate the cost structure and develop strategies to reduce maintenance costs

Module 9. Financing Wind Energy Projects

- Explore the particularities and advantages of Project Finance that differentiate this technique from other financing structures
- Identify and categorize the different types of risks in financing Wind Energy Projects and apply effective risk mitigation strategies for each type of risk

Module 10. Offshore Wind Farms

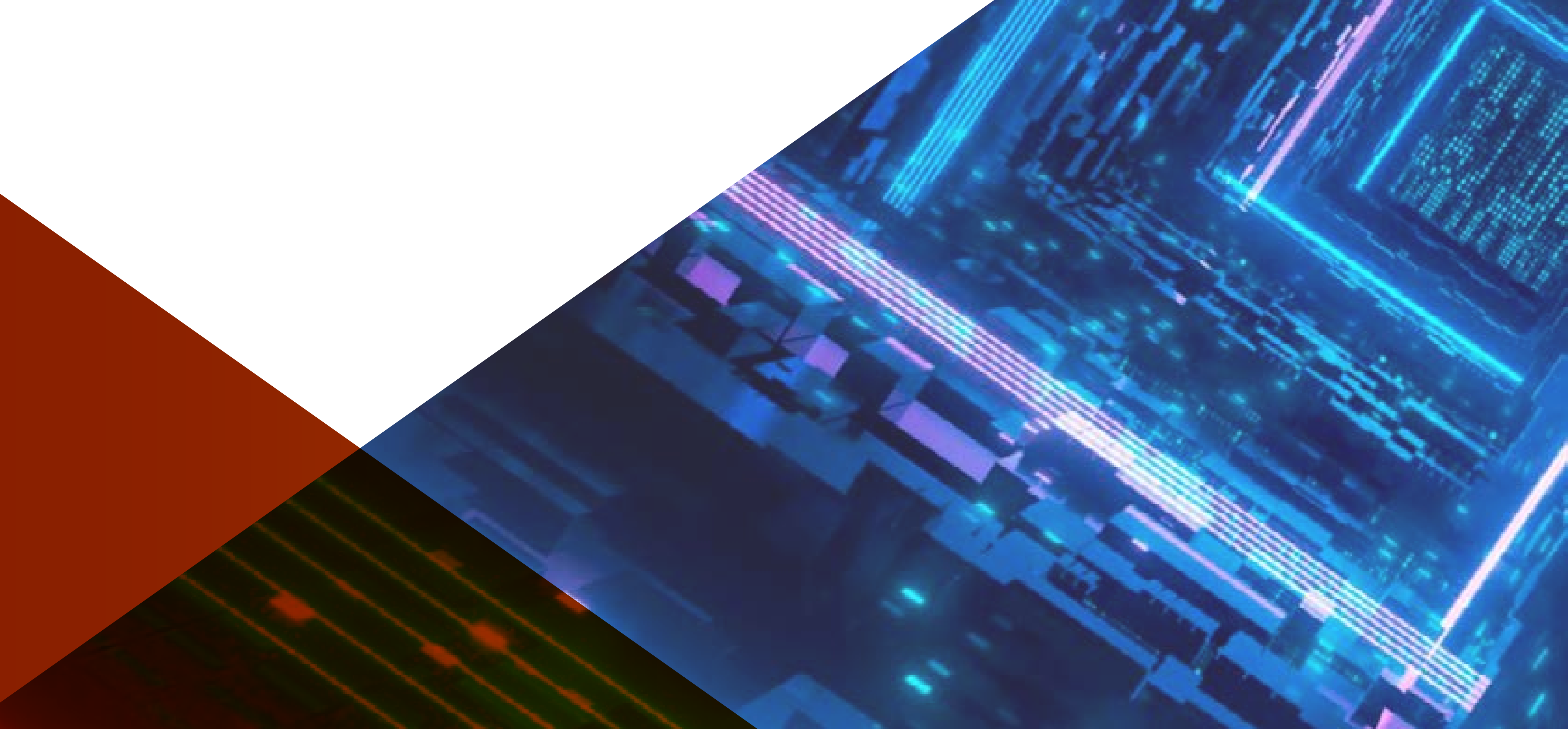
- Determine the technological characteristics of offshore wind energy compared to onshore technology
- Examine current constraints and limitations, as well as the main opportunities available

Integrate Engineering with Economics and Sustainability, preparing you to lead and contribute to a constantly evolving energy sector"

05

Software Licenses Included

TECH is a leading reference in the academic world for combining the latest technology with teaching methodologies to enhance the teaching-learning process. To achieve this, it has established a network of alliances that allows it to access the most advanced software tools used in the professional world.



Upon enrolling, you will receive, completely free of charge, academic credentials for the following professional software applications"

TECH has established a network of professional alliances with the leading providers of software applied to various professional fields. These alliances allow TECH to access hundreds of software applications and licenses, making them available to its students.

The academic software licenses will allow students to use the most advanced applications in their professional field, so they can become familiar with them and master their use without incurring additional costs. TECH will manage the contracting process so that students can use these applications unlimitedly during their studies in the Master's Degree in Wind Energy, and they will have access to them completely free of charge.

TECH will provide free access to the following software applications:

Ansys

Ansys is engineering simulation software that models physical phenomena such as fluids, structures, and electromagnetism. With a commercial value of **26,400 euros**, it is offered free of charge during the university program at TECH, providing access to cutting-edge technology for industrial design.

This platform excels in its ability to integrate multiphysics analysis into a single environment. It combines scientific precision with automation through APIs, streamlining the iteration of complex prototypes in industries such as aerospace or energy.

Key Features:

- **Integrated multiphysics simulation:** analyze structures, fluids, electromagnetism, and thermals in a single environment
- **Workbench:** a unified platform to manage simulations, automate processes, and customize workflows with Python
- **Discovery:** prototype in real-time with simulations accelerated by GPU
- **Automation:** create macros and scripts with APIs in Python, C++, and JavaScript
- **High Performance:** solvers optimized for CPU/GPU and cloud scalability on demand

In conclusion, **Ansys** is the ultimate tool to transform ideas into technical solutions, offering power, flexibility, and an unparalleled simulation ecosystem.

Google Career Launchpad

Google Career Launchpad is a solution for developing digital skills in technology and data analysis. With an estimated value of **5,000 dollars**, it is included **for free** in TECH's university program, providing access to interactive labs and certifications recognized in the industry.

This platform combines technical training with practical cases, using technologies such as BigQuery and Google AI. It offers simulated environments to work with real data, along with a network of experts for personalized guidance.

Key Features:

- **Specialized Courses:** Updated content in cloud computing, machine learning, and data analysis
- **Live Labs:** Hands-on practice with real Google Cloud tools, no additional configuration required
- **Integrated Certifications:** Preparation for official exams with international validity
- **Professional Mentoring:** Sessions with Google experts and technology partners
- **Collaborative Projects:** Challenges based on real-world problems from leading companies

In conclusion, **Google Career Launchpad** connects users with the latest market technologies, facilitating their entry into fields such as artificial intelligence and data science with industry-backed credentials.

06
Study Methodology

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

This disruptive 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 leaving aside more conventional methodologies.

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

The student: the priority of all TECH programs

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

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

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

The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. 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 allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

“TECH'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. 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, 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 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 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 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 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 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.

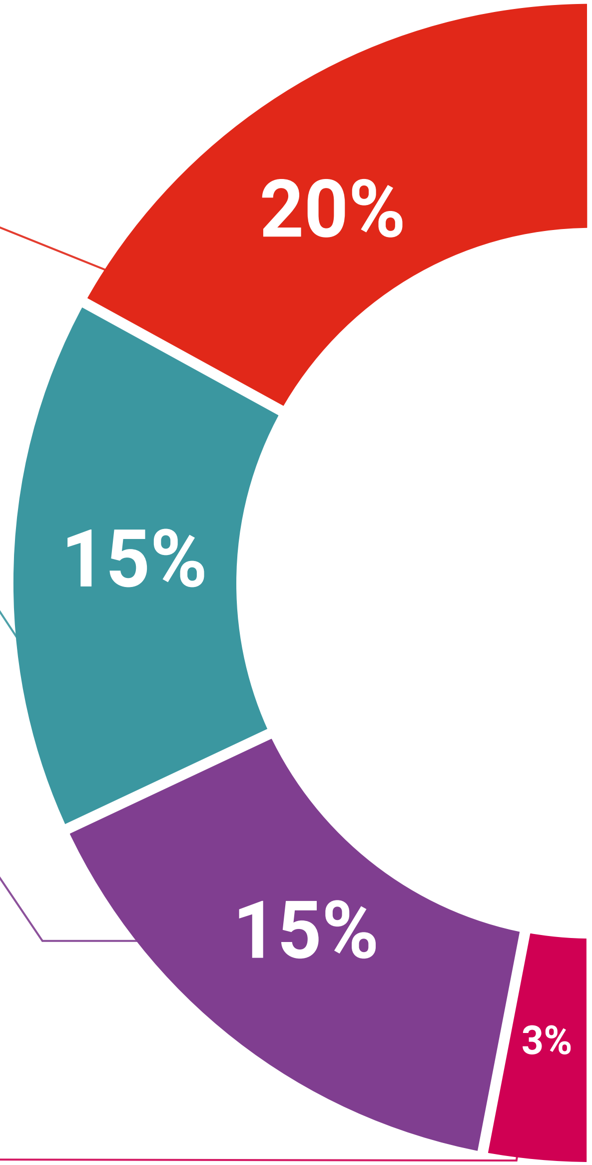
Interactive Summaries

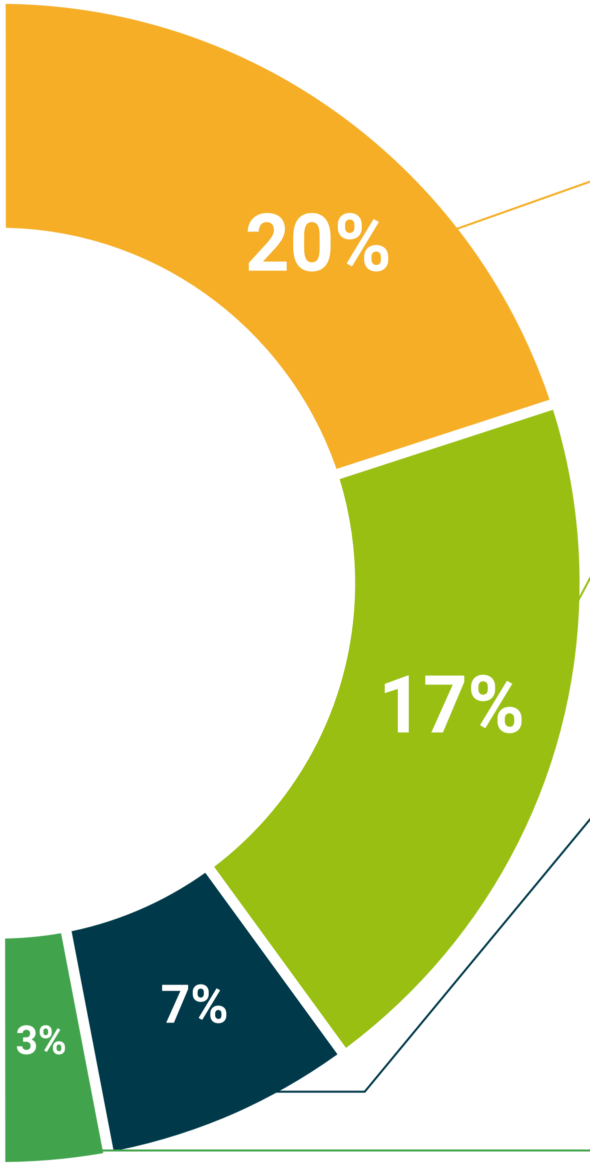
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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.





Case Studies

Students will complete a selection of the best case studies in the field. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Testing & Retesting

We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.

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 for future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.

07 Teaching Staff

The faculty of this Master's Degree is composed of a team of highly qualified experts, with extensive experience in the energy industry and a strong track record in the development of Wind Energy Projects globally. In fact, they come from diverse fields such as Engineering, Economics, and Sustainability, offering an interdisciplinary perspective that will enrich the learning process. Additionally, they will not only provide theoretical knowledge but also share real-world cases and lessons learned from their careers, enabling graduates to apply concepts in real-world contexts.

The practical approach of the instructors will ensure the acquisition of relevant and up-to-date skills, preparing you to confidently and competently face the challenges of the energy sector"

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

Teachers

Mr. Solórzano Martínez, Kaleb Yael

- Construction Supervisor at the Federal Electricity Commission (CFE)
- Major Repair Maintenance Technician
- Associate Researcher at the Mexican Center for Innovation in Wind Energy (CEMIE-Eólico)
- Master of Science in Wind Energy from the University of Istmo
- Bachelor of Electronic Engineering from the National Technological Institute of Mexico

Ms. López Urroz, Paola

- Wind Resource Analyst at Capital Energy
- Participation in the European AIRE Project (Advanced Study of the Atmospheric Flow Integrating Real Climate Conditions)
- Master's Degree in Meteorology and Geophysics from the Complutense University of Madrid
- Bachelor's Degree in Physics from the Complutense University of Madrid

Mr. Gea de la Torre, Francisco Javier

- Engineering Director at EOSOL
- Head of the Engineering Team in Spain at EOSOL
- Civil Supervisor of Wind Farm, in the Community of Aragon, at EOSOL
- Coordinator of the Civil Engineering Department and Project Manager at EOSOL
- Civil Engineer for Electrical Substations, Photovoltaic Plants, and Wind Farms at EOSOL
- Master in Business Administration (MBA) from the University of Barcelona
- Master's Degree in Civil Engineering from the University of Santander
- Graduate in Civil Engineering, specializing in Civil Construction, from the University of Jaén
- Bachelor's Degree in Civil Engineering from the University of Santander

Mr. Martínez Fanals, Rubén

- Chief Financial Officer at REAL Infrastructure Capital Partners, United States
- Product Marketing Manager at Alstom Renewable Power
- Sales Engineer at Gamesa Eólica
- Account Manager at ThyssenKrupp Rothe Erde
- Executive Program in Algorithmic Trading (EPAT) by Quantinsti
- Certification in Advanced Financial Modelling by Full Stack Modeller
- Certification in Essential Financial Modelling by Gridlines
- Master's Degree in Renewable Energies by the University of Zaragoza
- Degree in Chemical Engineering from the University of Zaragoza
- Diploma in Business Administration and Management from Columbus IBS

Mr. López Ramos, Alejandro

- Site Construction Director at Ferrovial Construcción
- Construction Leader at Anabática Renovables
- Project Director at SEAL
- Project Director at Arteche
- Country Manager Mexico at Ventus Energía
- Director of Engineering and Construction at Acciona Energía
- Site Coordinator (Site Manager) at Enel Green Power
- Quality, Environment, and Occupational Safety Coordinator at Abengoa
- Specialization in Construction from the University of Veracruz
- Bachelor's Degree in Civil Engineering from the University of Veracruz

Mr. De Oliveira, Roberth

- Fleet Performance Engineer at GE Vernova
- EMEA Fleet Support Specialist at GE Vernova
- Automation Project Engineer at ENC Energy
- Operations Support Engineer for Venezuela, Trinidad and Tobago at Schlumberger Drilling & Measurements
- Field Engineer (MWD and LWD) at Schlumberger Drilling & Measurements
- Degree in Electronic Engineering and Telecommunications from Dr. Rafael Belloso Chacín University

Mr. Rettori Canali, Ignacio Esteban

- Product Safety Engineer at GE Vernova
- Sustainability Consultant at ALG-INDRA
- Product Safety Engineer at Alten
- HSE Data Analyst at MARS
- Logistics Shift Manager at Repsol YPF
- Environmental Analyst at Repsol YPF
- Environmental Specialist at the National Ministry of Environment
- Specialist in Energy Economics at the Polytechnic University of Catalonia
- Specialist in Renewable Energies and Electric Mobility, Polytechnic University of Catalonia
- Specialist in Energy Management from the National Technological University
- Specialist in Project Management, Liberty Foundation
- Specialist in Safety and Environment from the Catholic University of Argentina
- Degree in Environmental Engineering from the National University of Litoral

Mr. Flores Sandoval, Edwin Marcelo
- Electromechanical Engineer
- Project Engineer at Multipronin Ingeniería y Proyectos
- Senior Technologist in Administration from the Rumiñahui Higher Technological Institute
- Master's Degree in Renewable Energy from the International University of Ecuador
- Master's Degree in Business Administration with a specialization in Strategic Project Management from the University of the Americas
- Master's Degree in Digital Law with a specialization in Legal Innovation and the Digital Environment from the University of the Hemispheres

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

08

Certificate

This Master’s Degree in Wind Energy guarantees students, in addition to the most rigorous and up-to-date education, access to a diploma for the 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 diploma for the **Master's Degree in Wind Energy** 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 private qualification from **TECH Global University** is a European continuing education and professional development program that guarantees the acquisition of competencies in its area of expertise, providing significant curricular value to the student who successfully completes the program.

TECH is a member of the **American Society for Engineering Education (ASEE)**, a society composed of leading international figures in engineering. This distinction strengthens its leadership in academic and technological development in engineering.

Accreditation/Membership

Title: **Master's Degree in Wind Energy**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**


tech Global University

Mr./Ms. ________________, with identification document ____________
has successfully passed and obtained the title of:

Master's Degree in Wind Energy

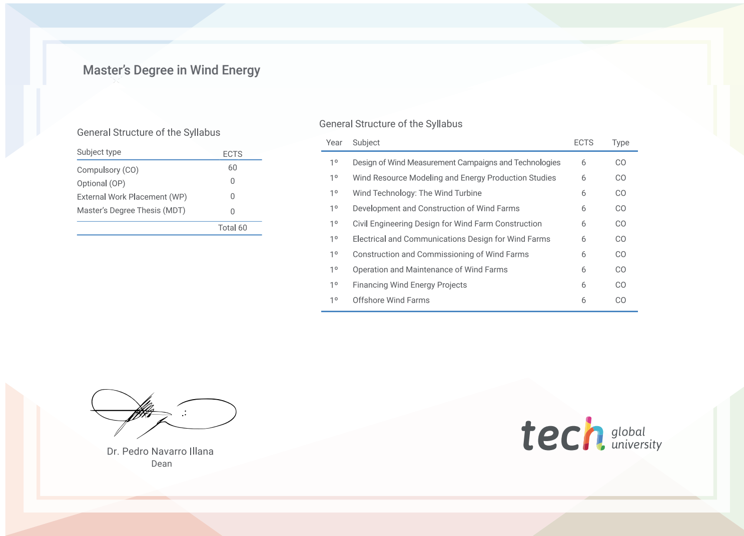
This is a private qualification of 2,700 hours of duration equivalent to 90 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Dean

Unique TECH Code: AFWORD23S techtitute.com/certificates


Master's Degree in Wind Energy

General Structure of the Syllabus

Subject type	ECTS
Compulsory (CO)	60
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 60

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Design of Wind Measurement Campaigns and Technologies	6	CO
1º	Wind Resource Modeling and Energy Production Studies	6	CO
1º	Wind Technology: The Wind Turbine	6	CO
1º	Development and Construction of Wind Farms	6	CO
1º	Civil Engineering Design for Wind Farm Construction	6	CO
1º	Electrical and Communications Design for Wind Farms	6	CO
1º	Construction and Commissioning of Wind Farms	6	CO
1º	Operation and Maintenance of Wind Farms	6	CO
1º	Financing Wind Energy Projects	6	CO
1º	Offshore Wind Farms	6	CO

Dr. Pedro Navarro Illana
Dean

tech global university

*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.

tech global university

Master's Degree
Wind Energy

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Accreditation: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Master’s Degree
Wind Energy

Accreditation/Membership

ASEE American Society for Engineering Education

tech global university