



Technological University of the Shannon

Simulation & Fault Analysis

LEVEL: ADVANCED

This module covers electrical power systems, including substations, switchgear, protection, and grounding. Topics include circuit breakers, relay types, overvoltage protection, and grounding methods. Learners will design and evaluate substation equipment, protection systems, and transmission line configurations.

Smart Grid Control Systems

LEVEL: ADVANCED

This module explores advanced PLCs, programming, safety systems, and distributed control. Topics include PLC configuration, IEC 61131-3 languages, fieldbus networks, SCADA, and Industry 4.0 technologies. Learners will design control solutions and analyze data systems for modern power grids.

Energy Integration & Storage

LEVEL: ADVANCED

This module explores challenges and solutions for integrating renewables into the grid. Topics include grid architectures, generator operations, demand-side management, energy storage, and frequency response. Learners will assess storage technologies and strategies to enhance renewable integration.

Electrical Power Systems

LEVEL: ADVANCED

This module covers Modern High-Voltage Power Systems, focusing on planning, operation, and control. Topics include decentralised control, FACTS controllers, reactive power compensation, HVDC systems, and substation automation. Learners will analyze and design power systems using digital simulation tools.



GDAŃSK UNIVERSITY
OF TECHNOLOGY

Gdańsk University of Technology

Offshore Technology and Structural Design

LEVEL: BEGINNER

This course trains engineers, marine professionals, and students in offshore structure design, covering materials, strength analysis, and risk management through multimedia and hands-on activities.

Digital Skills for Wind Energy Systems

LEVEL: INTERMEDIATE

This postgraduate programme equips students with expertise in digital technologies for wind energy. Over two semesters, it covers system engineering, computational design, offshore technology, AI, data analytics, cybersecurity, and AR/VR. With a focus on sustainability, it prepares graduates to optimize wind energy systems and drive innovation.

Project Management for Wind Energy

LEVEL: ADVANCED

This course covers from planning to operation. Students learn risk management, regulations, and sustainability through case studies and hands-on work with Microsoft Project, gaining skills to ensure project viability and efficiency.

Know more about
our LLL modules here!



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DIGI WIND

Digital Masters of Wind
and Energy Systems

Find us at
C3-C112

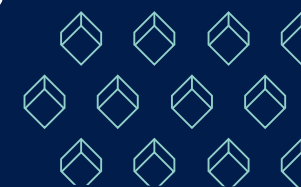
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Lifelong Learning Modules



Introduction to LLL Modules

Overview

DigiWind offers a variety of self-standing Lifelong Learning modules designed to help individuals upskill and reskill quickly in key areas such as Data Analytics, High Performance Computing (HPC), and Artificial Intelligence (AI). Ranging from 2 to 10 ECTS, these modules are ideal for professionals, students, and groups seeking to deepen their knowledge and enhance their capabilities in specific, innovative topics related to Wind Energy.

Our LLL modules are flexible and accessible, allowing participants to choose between short courses, workshops, and MOOCs (Massive Open Online Courses) provided by DigiWind and external partners. These learning opportunities are crafted to meet the needs of those looking to gain expertise in a targeted area without the commitment of long-term academic programmes.

Prerequisites

Entry requirements for our LLL modules are typically more accessible than those of traditional Master's or M.Sc. programmes, ensuring a wider audience can benefit from these learning opportunities.

Upon completing an LLL module, participants will receive a certificate of completion or may be awarded several micro-credits, further supporting their professional and academic development.





Technical University of Denmark

Data Science Essentials for Wind Energy Systems

LEVEL: ADVANCED

This five-day course includes data management, visualization, machine learning, and AI with Python. Participants will gain practical skills through lectures, exercises, and a capstone project, while guest speakers share industry insights. The course prepares participants to apply data science to decision-making and innovation in wind energy.

Wind Energy Essentials

LEVEL: INTERMEDIATE

This 10-hour online course offers a practical introduction to wind energy for industrial professionals. It includes 27 concise modules (15-20 minutes each) with quizzes, covering key topics from DTU Wind and Energy Systems. Ideal for those transitioning into the wind energy sector, it provides essential industry knowledge.

Digital Tools for Wind Resource Assessment

LEVEL: INTERMEDIATE

This course teaches using digital tools for wind resource estimation, combining them with wind flow models for global assessments. Participants will learn to process GIS data, parametrize WAsP models, and validate wind resource maps. By the end, you'll be able to conduct preliminary wind resource assessments.

Wind Turbine Blade Testing

LEVEL: INTERMEDIATE

This course covers blade testing basics, including static and fatigue tests, using DTU's tools for design and simulation. It explores test standards, equipment, sensors, and measurement systems. By the end, you'll be able to design tests, evaluate equipment, and understand testing technologies.

Version Control with Git

LEVEL: BEGINNER

Description: Git is an essential tool for anyone who creates, edits, or reviews documents (e.g., code, reports, etc.) and needs to work efficiently and collaboratively. This one-day course teaches you Git's core features, from tracking changes to collaborating with others using GitHub or GitLab. Designed for engineers, developers, designers, and project managers, the course will help you streamline workflows and ensure the integrity of your work.



Delft University of Technology

Offshore Wind Farm Technology Design Installation and Operation

LEVEL: ADVANCED

This course offers a multidisciplinary overview of offshore wind energy, covering design, operation, and maintenance. Through a case study, participants explore aerodynamics, grid integration, support structures, and logistics. Taught by experts, it equips professionals to optimize wind farms and navigate industry challenges.

Aeroacoustics: Design, Analysis and Verification

LEVEL: ADVANCED

This programme focuses on noise reduction for mechanical systems like aircraft, wind turbines, and drones. It covers experimental and computational techniques for acoustic performance, with practical applications in noise evaluation, prediction, and reduction. Participants will learn to design aerodynamic components that comply with noise regulations while maintaining efficiency.

Smart grids

LEVEL: MIXED

This programme covers the transformation of electrical grids to integrate renewable energy, optimize power flow, and ensure stability. Participants will learn smart grid design, modelling, and analysis, focusing on renewable integration, grid disturbances, and cybersecurity. It prepares graduates for careers in renewable energy, policy, and consultancy.

Sustainable Energy: Design A Renewable Future

LEVEL: BEGINNER

This course teaches how to achieve 100% renewable energy using wind, solar, and biomass. Participants will assess energy demand, integrate renewable sources, and reduce consumption in transport, industry, and buildings. It's an introduction to the TU Delft Master's in Sustainable Energy Technology, ideal for science and engineering students.

Rotor and Wake Aerodynamics

LEVEL: ADVANCED

This course covers rotor aerodynamics, focusing on Horizontal Axis Wind Turbines (HAWT) and applications in helicopters and propellers. Participants will learn momentum theory, airfoil aerodynamics, aeroacoustics, and wake dynamics, gaining skills in rotor model design and flow analysis using MATLAB, C, or Python. Ideal for professionals in wind energy, aerospace, and rotorcraft industries.

Floating offshore wind technology

LEVEL: ADVANCED

This course covers the engineering challenges of floating wind turbines, including aerodynamics, hydrodynamics, and structural engineering. Designed for professionals, it explores modelling techniques, technology principles, and offshore wind turbine control. Participants will learn installation, operation, and maintenance procedures, and engage in quizzes and discussions.



Whiffle

LES for wind energy

LEVEL: ADVANCED

This course offers 9 Jupyter notebook-based LLMs on boundary layer meteorology, LES, and wind turbine analytics. Participants will learn LES simulations to assess wind farm performance, covering pre-processing, modelling, and post-processing. It meets EC micro-credential requirements for turbine and wind farm assessments.