

POST-ACADEMIC COURSE

OFFSHORE WIND ENERGY

28 FEBRUARY 2023 – 27 JUNE 2023



GHENT
UNIVERSITY

Catch the wave of offshore wind & acquire a broad knowledge from a technological and multidisciplinary perspective.

Offshore wind energy has developed rapidly in Belgium & Europe. The industrial scaling is a fact and the production cost is evolving to a cost-competitive source in our energy mix. **Belgium is currently the 4th country worldwide in terms of installed capacity**, and the best is yet to come.

This course was conceived to offer **thorough expertise and operational knowledge of all phases of offshore wind energy.** Course attendees will acquire **a broad and up-to-date knowledge regarding technology, financing, safety, security, ecology & boundary conditions of offshore wind farms** over the entire lifespan.

The course is divided into **6 modules**: after **a qualitative description** in the first module, module 2 provides a **technological basis** for the wind power production and conversions “from wind to wire”. Module 3 focuses on **structural aspects**, in particular offshore foundations. The fourth module covers various aspects with respect to **electrical components (such as transformers), testing and validation, weather prediction and resource assessment**, etc. Module 5 deals with non-technological topics such as **financing, environmental impact and mitigation and legal framework**. The last module combines a prospecting beyond the horizon into **current and future R&D and innovation** in offshore wind and industry cases.

After completion, course participants will have a broad offshore knowledge, both from an international perspective as from the viewpoint of the strengths of the Belgian offshore wind industry and academia.

WHO SHOULD ATTEND?

This course is targeted towards people working in (or with the ambition to be working in) or researching the offshore wind, power or maritime sector.

A bachelor level (or equivalent through minimal 2 year relevant working experience) is obligatory. A master level in science, engineering, economics or law is recommended (or equivalent through minimal 2 year relevant working experience) and obligatory for module 3.

CERTIFICATE

To receive a certificate, one should attend at least modules 2-3-4-5 (attend the courses in person (60% attendance)) and succeed for the final exam.

Participants attending 1 or more modules can obtain a certificate of attendance.

SCIENTIFIC COORDINATION

Prof. Lieven Vandeveldde, Department of Electromechanical, Systems and Metal Engineering, Ghent University.

TEACHERS

An overview of all the teachers can be found on www.ugain.ugent.be/offshorewind

PROGRAMME

MODULE 1 BASIC CONCEPTS

This module provides the terminology, phases and processes of offshore wind energy, and allows the students to get acquainted with the correct terminology. After the qualitative description of the components, the project life cycle (from tendering to decommissioning) is outlined. The procedures and terminology in offshore wind installation are described. Lastly, the in-service terminology (during the Operations & Maintenance) is provided.

Concepts introduced in module 1 will be used in the other modules.

Dates
28 February, 7 & 14 March 2023

MODULE 2 FROM WIND TO WIRE: ELECTRICITY

This module describes the wind power production and conversions up to the grid connection and integration, i.e. "from wind to wire". Herein the components (turbine blades, generators, offshore grid, etc.) are discussed in detail.

Date
21 & 28 March, 18 & 25 April 2023

MODULE 3 OFFSHORE FOUNDATIONS

This module focuses on structural aspects and offshore foundations in particular, e.g. wave-structure interactions, geotechnical and material aspects, floating structures, etc.

Date
2, 9 & 16 May 2023

MODULE 4 ELECTRICAL COMPONENTS, MONITORING, PERFORMANCE, TESTING, WIND & WAKES

In this module, some electrical components such as transformers are discussed in more detail. Other topics include wind farm monitoring, testing and validation of components, weather prediction and resource assessment.

Date
23 & 30 May 2023

MODULE 5 LEGAL, ENVIRONMENTAL, FINANCIAL & SAFETY ASPECTS

The project development requires a wide range of activities preceding the installation, such as project financing, tendering and consenting, environmental impact assessment and mitigation strategies, etc.

Furthermore offshore wind energy is developed in a context of international and federal marine spatial planning, energy law (like the grid code) and the wholesale market mechanisms.

Date
6 & 13 June 2023

MODULE 6 INNOVATION AND FUTURE TRENDS

This module looks beyond the horizon of offshore wind, including (future) policy, technological solutions on the component level, industrial scaling, R&D and innovation at different companies and future grid coupling.

Date
20 & 27 June 2023

INFO AND REGISTRATION

WWW.UGAIN.UGENT.BE/OFFSHOREWIND

PRACTICAL INFORMATION

Fee

The fee includes the tuition fee, course notes, soft drinks, coffee and sandwiches.

Payment occurs after reception of the invoice.

All invoices are due in thirty days. All fees are exempt from VAT.

Module 1 Basic concepts	€ 905,-
Module 2 From wind to wire: electricity	€ 1.235,-
Module 3 Offshore foundations	€ 990,-
Module 4 Electrical components, monitoring, performance, testing, wind & wakes	€ 660,-
Module 5 Legal, environmental, financial & safety aspects	€ 660,-
Module 6 Innovation and future trends	€ 660,-
All modules	€ 4.600,-

Reduction

- When a participant of a company subscribes for the complete course, a reduction of 20% is given to all additional subscriptions from the same company, even on single modules. In that case, only one invoice is issued per company.
- Special prices for Ghent University staff
- Reductions can't be combined.

Cancellation policy

Our cancellation conditions can be consulted on www.ugain.ugent.be/cancellation

Training vouchers

Ghent University accepts payments by KMO-portefeuille (www.kmo-portefeuille.be; authorisation ID: DV.0103194).

Time and location

- The lessons are given from 14h till 21h, with a sandwich break and two coffee breaks.
- The lesson on 14 March & on 25 April ends at 19h15
- Location: **Ghent University, UGain classroom, building 60, Technologiepark Zwijnaarde.**
- Dates may change due to unforeseen reasons.

Language

English is used in all presentations, exercises and documentation, so ready knowledge of English is necessary.

Organisation

Ghent University

UGain (UGent Academie voor Ingenieurs)

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In collaboration with Industrial Research Fund (IOF) EnerGhentIC

INFO AND SUBSCRIPTION

WWW.UGAIN.UGENT.BE/OFFSHOREWIND

