

POST-ACADEMIC COURSE

OFFSHORE WIND ENERGY

13 OCTOBER 2020 – 25 MAY 2021



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 5 modules: after a qualitative description in the first module, module 2 provides a technological basis in the offshore wind packages. Module 3 builds further on this module and provides an in-depth understanding of the dynamics of offshore wind energy. The fourth module covers non-technological topics such as financing, environmental impact and mitigation and legal framework. The last module combines a prospection beyond the horizon (into current and future 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

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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.

Date
13, 20 and 27 October 2020

MODULE 2 OFFSHORE WIND PACKAGES

This module describes the typical offshore wind packages: wind turbine generators, balance of plant, infield and export cables, offshore substation, offshore works and installation. The working principles of the components and basic design are described under normal or static operating conditions.

To finalize this module, monitoring strategies (SCADA & CMS) for offshore wind are presented.

Date
10, 17, 24 and 26 November, 1, 8 and 15 December 2020

MODULE 3 OFFSHORE WIND DYNAMICS

This technological module builds further on the concepts of module 2, taking into account environmental or load mechanisms that induce wear, tear and errors in a dynamic working regime. Extreme events are considered, just as long-term effects such as fatigue, tribology, corrosion, cable errors and impact on the grid side. The relation with the monitoring strategies and solutions is made, both from a design as well as from an O&M perspective.

To conclude this module, the links between these operational insights, testing and validation and lessons for future designs and O&M are made.

Module 3 is only accessible if module 2 has also been followed or if the student can demonstrate that he/she has sufficient foreknowledge (from education or work experience).

Date
5, 12, 19 and 26 January, 2 and 9 February 2021

MODULE 4 SAFETY, ENERGY MARKETS, POLICY, MARITIME LAW

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. The impact of meteorological predictions for offshore wind is outlined as well.

Date
23 February, 2, 9, 16, 23 and 30 March, 20 and 27 April 2021

MODULE 5 INNOVATION AND INDUSTRIAL CASES

This modules looks beyond the horizon of offshore wind, including technological solutions on the component level, industrial scaling and sector coupling. This module is concluded with industrial cases.

Module 5 can only be followed if modules 3 and 4 have also been followed.

Date
4, 11, 18 en 25 May 2021

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	€ 990,-
Module 2 Offshore wind packages	€ 1.095,-
Module 3 Offshore wind dynamics*	€ 1.780,-
Module 4 Safety, energy markets, policy, maritime law	€ 1.250,-
Module 5 Innovation and industrial cases**	€ 660,-
Modules 2-3-4	€ 3.515,-
Modules 2-3-4-5	€ 3.835,-
All modules	€ 4.335,-

* Module 3 is only accessible if module 2 has also been followed or if the student can demonstrate that he/she has sufficient foreknowledge (from education or work experience).

** Module 5 can only be followed if modules 3 and 4 have also been followed.

INFO AND SUBSCRIPTION

WWW.UGAIN.UGENT.BE/OFFSHOREWIND



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 doctoral students and 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 of modules 1 and 3 are given from 14h till 21h, with a sandwich break and two coffee breaks.
- The lessons of modules 2, 4 and 5 are given from 17h30 till 21h, with a sandwich break in the middle.
- All lessons are given on a Tuesday, except for the lesson of 26 November, which is scheduled on a Thursday.
- Location: **BlueBridge, Ostend Science Park, Wetenschapspark 1, 8400 Oostende.**
- Dates may change due to unforeseen reasons.

Language

English is used in all presentations, exercises and documentation.

Organisation

Ghent University
UGain (UGent Academie voor Ingenieurs)
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