PROJECT PLAN

Ocean Engineering Summer School 2023

August - September 2023

TU Delft Delft University of Technology

DE OUDE BIBLIOTHEEK ACADEMY

INTRODUCTION

The Nippon Foundation
Many people around the world are unable to realise their full potential because of disability, disease, poverty or the place or circumstance of their birth. The Nippon Foundation believes in a society where all of humanity is given the chance to participate and play an active role in creating a future with a more peaceful and prosperous global society.

The Nippon Foundation aims at solving problems and creating opportunities by being active in seven different fields of work. Enhancing and enriching communities and cultures, protecting the ocean, securing human life and fostering education in a global setting. It always strives to foster local human resources through education and training to ensure sustainability after the project ends.

Offshore engineering in Japan
Japan has the world's sixth-largest exclusive economic zone, with abundant seabed resources and wind power. This potential is largely unused. Japan wishes to utilise this potential as part of the nation's growth strategy. Therefore, Japan aims to increase the number of offshore engineers to 10.000 by 2030 to serve a 50 trillion yen market. Currently, only 2.200 offshore engineers work in this sector, because the offshore industry is not seen as an attractive field by students. To realise this increase in engineers, the Ocean Innovation Consortium was launched in 2016, cultivating human resources involved in offshore development. One of the vehicles to address this challenge is an offshore engineering summer school, educating and motivating students for a future career in the offshore industry.

Offshore Engineering Summer School
To empower Japan's offshore industry and grow the number of offshore engineers, the Nippon Foundation seeks to organise a summer school in the Netherlands, to provide top-notch education for the future offshore engineers of Japan. The aim of the summer school is twofold:

1. Provide a thorough understanding of the concepts of offshore engineering, specifically related to renewable energy sources.
2. Provide practical insights and experiences of offshore engineering work.

The overall goal is to empower the participants to become highly trained and skilled offshore engineers whom are able to exploit the offshore potential in Japan.

Nippon Foundation
1-2-2 Akasaka
Minato-ku Tokyo
107-8404
Japan

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ABOUT US

Delft University of Technology
At the Delft University of Technology *(DUT)*, we believe that global challenges can be solved by educating new generations of socially responsible engineers and expanding the frontiers of the engineering science.

DUT realises this by

- Performing world-class research – combining science, engineering and design in a socially responsible manner
- Developing and enhancing the expertise of tomorrow's engineering leaders and educate professional, high-level and responsible engineers throughout their careers.
- Developing and delivering technology-driven, innovative solutions to societal problems through collaborations with leading national and international partners whilst being firmly rooted in Delft
- Improving our collective effectiveness, performance and organisational resilience through the principles and practice of professionalism, collaboration and openness.

DUT provides education for over 20.000 students, originating from all continents. It is ranked the 54th best university, while the subjects civil and mechanical engineering are ranked 5th and 16th worldwide by QS.

DOB-Academy
At the DOB-Academy, we believe that the inevitable transition to renewable sources of energy can only be successfully achieved with properly trained and driven people. We believe that with the right tools, we can empower others to make this transition. We are confident that by creating clear and compelling courses, we can empower engineering excellence.

EMPOWERING - ENGINEERING - EXCELLENCE

DOB-Academy houses its own wind experts, whom are trained to create and give lectures. Our graphical department guarantees a visually compelling story, supported by video and animation designed and produced by our in-house studio. The knowledge that is not available in-house, is acquired by our well spread network in the North Sea area, creating the right environment to experience the world of offshore wind.

OUR PHILOSOPHY

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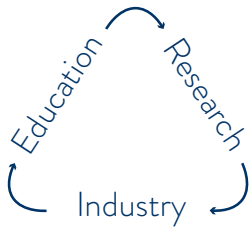
Consortium

We believe that a partnership between Delft University of Technology *(DUT)* and the DOB-Academy *(DOB)* offers the best of both worlds for an offshore engineering summer school. The DUT is a leading university of technology, being one of the top 10 in the world *(THE and QS)*, providing top-notch education to students. The DOB-Academy is a well-recognised institute for offshore education for professionals, collaborating with leading offshore industry partners. The partnership ensures that all sides from the knowledge triangle are incorporated in the programme.

Jointly combining DUT and DOB efforts results in a programme with a solid background in the theory and concepts of offshore engineering, while at the same time providing valuable practical insights from the industry. This motivates the participants to pursue a career in the offshore industry and empowers them to excel in their work. The collaboration fully exploits the power of the knowledge triangle, integrating education, research and industry.



DUT and DOB strongly believe that engineering excellence is achieved by:

1. Providing a comprehensive understanding of the theory and concepts
2. Organising case studies to apply the gained understanding to real-world industrial challenges
3. Realising discussions between participants, teachers, experts and other students to evaluate different perspectives and empower each other to excel

This combination prepares the participants for a prosperous and successful career in the offshore industry in the best way. Valuable friendships with other international students created during the summer school will also help make the summer period a very pleasurable experience. To stimulate these interactions, the Dutch 'Delft Offshore Technology' student association will organise various events throughout the summer course.

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Programme

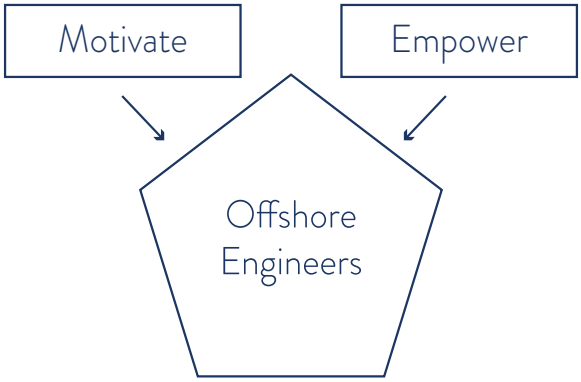
The programme is built of several closed lecture blocks, which all finish with an assignment or exam. This approach ensures that the students can focus on solely one subject at a time. All lecture blocks end at 16:00 latest, giving the students sufficient time to finish any assignment before leaving off for dinner. Besides the lectures, some excursions will be organized in the weekend. One of the highlights is the 'Offshore Experience', organized by STC Group. It uses the basis of the Sea Survival training for a valuable and entertaining afternoon.

Preparation

A sound preparation for the students is of the utmost importance for a successful and stress-free summer school. Therefore, an online 'Offshore Language Course' will be prepared for the students, to be finished before starting the Summer School. This course will ensure that the students' vocabulary comprises the most important words, terms and phrases used during the lectures, cases and company visits. Furthermore, the Summer School will start with a cultural introduction lesson, understanding the Dutch way of life and breaking the ice among the students.

Philosophy

The idea behind the programme is to motivate and empower future offshore engineers. The approach taken for motivating the participants is by offering them experiences, from real-world case studies to company visits. We strongly believe in the captivating power of the exciting industry, capable of intrinsically driving and motivating the participants. The approach taken to empower the participants is by combining cutting-edge theoretical knowledge and hands-on assignments, bringing the theory to life in highly interactive settings.



Structure

The structure of the programme is as follows:

UNDERSTAND - EXPERIENCE - EMPOWER

This structure is both used throughout the programme as well as in the individual courses. The idea behind this structure is to first provide the participants with the necessary understanding of the ideas, concepts and techniques used in offshore engineering. Secondly, based on this understanding, the world of offshore engineering is introduced and experienced, by company visits and case studies from the industry. This brings the theory to life and drives the participants to truly grasp the concepts and take ownership of the knowledge. Only then are the participants empowered to take on their own challenge and provide innovative insights and solutions for complex real-world problems.

Learning method

The learning methods considered are described in Li's Approaches to learning: Literature Review *(2012)*. The overall philosophy used in the summer school courses is a student-centred approach, with the general educational goal of critical and creative thinking and having knowledge about cognition and control of cognition *(metacognition)*. The used methods are described on the next page.


2018
UMMERSCHOOL
FFSHORE ENERGY

LEARNING METHOD	DESCRIPTION	APPLIES TO
Situated and embodied cognition model	The method acknowledges that perceptual experiences from multimodal representations *(visual, auditory and haptic channels)* are important for people to understand abstract concepts. In this method, the teachers observe and reflect on when and how the underlying concepts are extracted and applied by the students and provide scaffolding for the students to reflect upon the experiences in the learning activities, and to abstract their understanding.	All in-house lectures, provided by DUT or DOB-Academy
Cognitive apprenticeship model	In a cognitive apprenticeship model, the cognitive and learning processes are explicitly demonstrated by the teacher for the students to practise various cognitive, metacognitive and sociocultual skills. In this method, the following procedure is considered: (1) identify the processes of a task and explicitly demonstrate how the task can be accomplished; (2) ensure the abstract tasks are situated in authentic contexts; (3) diversify the contexts and articulate common underlying concepts to scaffold transfer	All external lectures, provided by industrial experts or academics
Effective collaborative learning	Collaborative learning can be defined as a learning environment in which students make contributions to solve problems together. Learners construct knowledge through interacting with others. Metacognitive activities for example, planning and monitoring the task progress and evaluating group plans, are indirectly also practiced. This method is only applied after other learning methods, since it requires sufficient prior knowledge about the subject.	All case studies


Vestas
WF1
Wind Flo

PROGRAMME

2

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	OPENING+ CULTURE LESSON	INTRO OFFSHORE WIND	COMPANY VISIT / ACITIVTY	OCEAN ENERGY	OCEAN ENERGY
	INTRO OFFSHORE WIND	INTRO OFFSHORE WIND	COMPANY VISIT / ACITIVTY	OCEAN ENERGY	OCEAN ENERGY
Week 2	WIND FARM DESIGN	WIND FARM DESIGN	COMPANY VISIT / ACITIVTY	BFOS	BFOS
	WIND FARM DESIGN	WIND FARM DESIGN	COMPANY VISIT / ACITIVTY	BFOS	BFOS
Week 3	WIND FARM DESIGN	WIND FARM DESIGN	COMPANY VISIT / ACITIVTY	NAOS	NAOS
	WIND FARM DESIGN	COMPANY VISIT / ACITIVTY	COMPANY VISIT / ACITIVTY	NAOS	NAOS
Week 4	WIND FARM DESIGN	WIND FARM DESIGN / HYDROGEN	COMPANY VISIT / ACITIVTY	PREPARATION TIME	SYMPOSIUM
	WIND FARM DESIGN	WIND FARM DESIGN / HYDROGEN	COMPANY VISIT / ACITIVTY	PREPARATION TIME	SYMPOSIUM

- DOB-Academy
- TU Delft
- Activity / Company visit

BFOS = Bottom Founded Offshore Structures

NAOS = Numerical Analysis of Offshore Structures

INTRODUCTION TO OFFSHORE WIND

Covered by DOB-Academy

Learning objectives

- Comprehending what wind is and how it can be used to generate electricity
- Understanding the effect of policy and societal needs in the development of offshore wind energy
- Calculating the energy yield of a wind turbine at an arbitrary location
- Understanding the principles and parameters in the design of an offshore wind turbine support structure
- Gaining insight into the life cycle of a typical wind farm including design, construction, installation, operation and maintenance

LECTURES

Learning objectives

- Basic Terminology
- History of Offshore Wind Energy
- Electricity Society & Policy
- Wind to Power
- Offshore Wind in Numbers
- Power Generation
- Offshore Power Networks
- Introduction to Support Structure Design
- Theory of the Monopile
- Design and Installation
- Operation and Maintenace
- Future Technogies

CASES

INTRODUCTION TO OFFSHORE WIND

2

CASE	DESCRIPTION
Rotor Competition	Designing and building your own rotor from paper in groups and testing the performance on a test skid
Energy Yield Calculation	Calculating the energy yield for different wind turbines at different sites. Learn to select the optimal turbine for a specific location
Power Generation	During this case an actual small scale generator is built and tested on power output levels. Understanding of the different aspects influencing this power output is obtained
Simplified Design of Monopile Support Structure	A simplified design of a monopile for a specific site is made. Understanding of the different influencing parameters on such a design is obtained
Installing a Miniature Offshore Wind Farm	Hands-on experience of building a small scale wind farm in groups

SUGGESTED COMPANY VISITS & ACTIVITIES

2

Shell *(former headquarters)*, The Hague
Shell is vertically integrated and is active in every area of the oil and gas industry, including exploration, production, refining, transport, distribution and marketing, petrochemicals, power generation, and trading. In December 2016, Shell won the auction for the 700 MW Borssele III & IV offshore wind farms at a price of 5.45 c/kWh, beating 6 other consortia.

Windpark Westermeerwind IJselmeer
An inspiring visit to the near shore wind farm Westermeerwind is linked to this course.
The participants will experience the wind farm up close by means of a sailing yacht.
This enables the participants to see the components discussed during the course in the real word in an offshore environment.

OFFSHORE WIND FARM DESIGN

Covered by DOB-Academy

Learning objectives

- Become an offshore wind farm design expert: get a complete overview of all aspects regarding the design and installation
- Learn how to cite, design & develop an offshore wind farm
- Gain insight into wind turbine and monopile dynamics
- Learn about wind turbine yield calculation and foundation design
- Learn how to make an installation and commissioning plan
- Get all the answers to your challenges in private sessions with experts

Programme

The lectures are broken down into 2-day blocks, each focussing on a different phase of the development. Each lecture block is linked to a comprehensive case study, activating the students to develop their own entire wind farm.
The guest lectures in the proposal may differ partly from the actual programme depending on availablity.

OWFD BLOCK 1 - LECTURES

Lectures:

- Offshore Wind Farm Case Study
- Data Collection
- Data Processing
- Site Selection
- Soil
- Wind to Power
- Key Considerations Wind Turbine Selection
- Wind Farm Layout
- Guest Lecture: Support Structure Design *(SIF)*
- Guest Lecture: Floating Wind Foundation Design *(Vryhof)*

OWFD BLOCK 1 - PROJECTS

2

PROJECT	DESCRIPTION
Site Investigation	Participants will need to choose their preferred location for the building of their offshore wind farm. The most important parameters to make such a choice shall be explained
Data Processing	Participants learn to collect the right type of data required for design and installation of an offshore wind farm and learn to process this data into usable information with provided tools
Wind Turbine Selection	Given the processed data participants will learn to choose a suitable type of wind turbine for the location
Wind Farm Layout	Participants will create their own optimal offshore wind farm layout taking into account, seabed levels and occupation, wake effects and electrical infrastructure

OWFD BLOCK 1 - CASES

CASES	DESCRIPTION
Tender Game	Understand the tender process for offshore wind by gaining knowledge about the different parties involved in a tender process and their objectives
In the Mud	Participants will get a feeling of how the fundament passes through different layers of seabed by getting an overview of seabed consistencies
Wake Effect	Participants will be learning about the wake effect which influences on the energy production of the wind farm

OWFD BLOCK 2 - LECTURES

Lectures:

- Wind Turbine Dynamics
- Load Calculations
- Fatigue
- Installing Logistics
- Offshore Power Networks
- Guest Lecture: Offshore Power Network Design *(Kinewell)*
- Guest Lecture: Possibilities Offshore Hydrogen *(Heerema)*

OWFD BLOCK 2 - PROJECTS

2

PROJECT	DESCRIPTION
Monopile Dynamics	Participants will understand the influence of the most important parameters in monopile design and learn how to calculate the preliminary dimensions of a monopile foundation
Load Calculations and Design Checks	The data gathered in block 1 will be used to perform actual load calculations for the wind turbine support structures
Fatigue Calculations	By using the fatigue tool, participants get a better grip on the topic and guide them through the calculation of the fatigue lifetime of their wind farm
Offshore Power Network Design	Participants will design their optimal offshore power network deciding on routing and voltage levels
Logistics and Installation Plan	Participants will choose the required vessels for their strategy and gain insight in the costs and operation time

OWFD BLOCK 2 - CASES

2

CASES	DESCRIPTION
Connect the Turbines	Participants will get an overview of the main components of an offshore electrical power network and gain insight into different layout topologies
Logistic Modelling	Participants will use the available data and their own selective calculations to make a founded choice for all the logistical options

Lectures:

- The Handover
- The Need for O&M
- Cost versus Income
- Guest Lecture: Ports *(Port of Rotterdam)*
- Generation of Hydrogen
- Guest Lecture: Impact of Hydrogen as Source of Energy *(DUT)*
- Storage and Transport of Hydrogen

OWFD BLOCK 3 - PROJECTS

2

PROJECT	DESCRIPTION
Operation and Maintenance	Participants will chose between different operational strategies based on the conditions surrounding the designed wind farm
LCOE Calculations	Participants will be able to assess how different economical parameters affect profitability of windfarms

OWFD BLOCK 3 - CASES

2

CASES	DESCRIPTION
Wind Farm Operator	Participants will experience the effects of different O&M strategies on their revenues and investments
The Race for Hydrogen	Participants will gain an understanding of the basic hydrogen principles and the infrastructure required and available

BLOCK 3 - PROJECTS

2

PROJECT	DESCRIPTION
Installation and Commissioning Plan	The installation and commissioning plan is finalised in this case study
Operation & Maintenance Plan	An optimal operation and maintenance strategy shall be computed given the different aspects in the wind farm
LCoE Calculation	A business case is built around the wind farm making sure that the design is both technically as well as economically feasible

SUGGESTED COMPANY VISITS & ACTIVITIES

2

SIF, Rotterdam

SIF is one of the largest steel tubular manufacturers for offshore foundations, empowering wind farms and oil & gas platforms. SIF is able to produce and coat monopiles with a diameter of 11 meters and maximum weights of 2000 tonnes. During the visit, the students will hear first-hand experiences of designing and constructing offshore foundations. SIF will discuss some of their previous projects and the students will discuss some of the challenges SIF is facing at the moment.

ENECO *(headquarters)*, Rotterdam

Eneco is a producer and suppliers of natural gas, electricity and heat in the Netherlands, serving more than 2 million business and residential customers. It also carries out energy trading and is involved in sustainable energy projects. The company was 100% owned by the local governments of the Netherlands. On 25 March 2020, Eneco Groep NV announced that the acquisition by a joint venture, jointly owned by the Japanese companies Mitsubishi Corporation *(80%)* and Chubu Electric Power *(20%)*, was completed.

Futureland, Rotterdam

Students get closer to Europe's most modern port. They will experience what it's like when everything is big, bigger or biggest! In FutureLand they will experience the development of the newest port area of Rotterdam with their own eyes. Maasvlakte 2 will not only show them the most modern container terminals and largest seagoing vessels in the world, they will also see the latest offshore developments.

Beach Game, 's-Gravenzande

The outdoor installation game is an inspiring team activity that combines science and technology for a sustainable energy project. The case empowers the participants to build a wind turbine from different perspectives and roles from the supply chain. This applies the gained understanding of the installation concepts into practice. The teams are required to invest in the essential materials and services to build the turbine. The activity is time and resource constrained, to simulate the real world environment.

BOTTOM FOUNDED OFFSHORE STRUCTURES

Covered by DUT

Learning objectives

The overall aim for this course is for participants to learn how to design a bottom founded offshore structure *(BFOS)*. This includes the structural analysis of existing structures and the ability to improve the design of these structures based on the structural analysis.

- Perform a design-cycle as a part of the BFOS design process
- Assemble the structural configuration of an offshore platform substructure
- Assess the permanent, variable and environmental loads on BFOS
- Analyse and evaluate the structural configuration of BFOS
- Evaluate the influence of life-cycle aspects on the design of BFOS, including fabrication, transport, installation, operations management & decommissioning
- Design the *(pile)* foundation for BFOS
- Analyse the structural dynamics of, and assess fatigue in, BFOS

Programme

The 2-day programme for the course on Bottom Founded Offshore Structures will alternate between lectures and workshops during which participants will design their own bottom founded offshore structure and perform its structural analysis in groups of 2.

LECTURES

BOTTOM FOUNDED OFFSHORE STRUCTURES

2

LECTURE	DESCRIPTION
Design Theory and Life-cycle Aspects	Classification, design process, ISO, reliability based design, fabrication and installation, operations management, decommissioning
Structural Configuration	Design steps, geometry, elevations and bracing configuration; rules of thumb
Permanent, Variable and Environmental Loads	Loads on BFOS, wave theory, Morison equation, stick model, weight & buoyancy
Offshore Foundations	Foundation theory, pile reactions, foundation design, bearing capacity
Quasi-statics of Towers and Jackets	Frame analysis, support reactions, shear & moment lines, cross-section method & joint equilibrium. Joint & member checks
Dynamics and Fatigue	Dynamic amplification factors *(DAF)*, frequency response and transfer functions, spectral analysis, cyclic loads, fatigue

PROJECTS

BOTTOM FOUNDED OFFSHORE STRUCTURES

2

PROJECT	DESCRIPTION
Substructure Configuration	Perform the preliminary jacket design and configuration based on given conditions, constraints and rules of thumb
Environmental Loads	Determine the environmental loads on your own structure using simplified methods
Foundation Design	Determine the required bearing capacity of the foundation and determine the required pile penetration
Frame Analysis and Design Checks	Perform the frame analysis for the structure

OCEAN ENERGY TECHNOLOGIES

Covered by DUT

Learning objectives

- asses the resource potential for wave and tidal energy
- get insights in the physical principles for ocean energy conversion
- understand the design considerations and technical challenges for current ocean energy technologies
- evaluate the environmental and economic aspects of ocean energy

Programme

Lectures

The lectures are given in two continuous sessions of two days. The course is focussed on the project assignment, hereby requiring the students to work together in groups.

LECTURES

OCEAN ENERGY TECHNOLOGIES

LECTURE	DESCRIPTION
Introduction	Comparison of potential resources, installed capacities, status of development, industry trends and Dutch ocean energy activities
Hydropower	Discussing available technology, hydro turbines, energy storage and applying energy calculations
Wave Energy	Evaluating wave energy technologies and physical principles: available technologies and physical principles, mooring and foundations, power take off and electrical conversions
Tidal energy	Discussing spring and ebb tide, energy content, overview of tidal barrage systems and tidal stream systems
Quasi-statics of Towers and Jackets Ocean Thermal EnergyConversion	Discussing fish friendliness of hydro turbines, wave/tidal/OTEC energy array
Financial and Economic Aspects of Ocean Energy	Performing cost of energy calculations, logistics and maintenance

PROJECTS

OCEAN ENERGY TECHNOLOGIES

PROJECT	DESCRIPTION
Case Study	Develop an offshore ocean energy system and evaluate its potential in groups

Linked Company Visits

Tocardo

Tocardo is a global leader in tidal energy solutions, based and founded in the Netherlands. They are driven to develop state-of-the-art business solutions that maximise the potential of the tidal energy production worldwide. They believe that this type of energy stands at the beginning of its development and its full potential, just like wind turbines 10 years ago. But unlike other alternative sources, this 'flow of energy', delivers a solid, reliable volume of green energy. Therefore it generates a competitive ROI for investors.

Redstack

REDstack's goal is to develop and commercialize the reverse electrodialysis *(RED)* technology. RED is a form of sustainable energy generation, where the fuel is fresh and salt water. Places were rivers empty into the sea are the most suitable locations for the application of RED due to the natural abundance of both feed waters. A fraction of the fresh water is combined with sea water in a membrane pile, or REDstack, to which the company also owes its name: REDstack. Salt and fresh water are mixed in a controlled manner by which electricity can be generated. The resulting brackish water mixture is then returned to the sea and the generated electricity is distributed through the grid.

NUMERICAL ANALYSIS OF OFFSHORE STRUCTURES

Covered by DUT

Learning objectives

- Students will be able to create, program and validate a numerical model to simulate the dynamic behavior of an offshore energy system in a simplified manner
- Students will be able to implement numerically the environmental loads from the action of waves, wind and current

Programme

The course is composed by a combination of theoretical and practical sessions. During the theoretical sessions, students will learn about different aspects of solving dynamical system numerically. The numerical models are based on the combination of common elements such as point mass, rigid body, rod, Euler-Bernoulli beam and soft contacts. During the practical sessions, students will be given a practical assignment of an offshore wind turbine. It is expected that students will work in small groups to implement the theory explained and create a suitable numerical model to the purpose of the assignment. Overall, the course will strengthen the student's understanding of dynamics, improve their programming skills and will give students a good understanding of the basics of the numerical aspects of related to solving dynamics system numerically.

LECTURES

NUMERICAL ANALYSIS OF OFFSHORE STRUCTURES

2

LECTURE	DESCRIPTION
Numerical Solution of Ordinary Differential Equations	- Explain the workings of ODE solvers: local & global errors, error control, (variable) time-stepping, orders - Apply the Taylor Series to / explain how it can be used to: approx. functions, discretize functions, approx. derivatives, approx. integrals
Structural Models and Lagrangian Mechanics	- Understanding the different structural elements - Construct the Lagrangian of nDOF systems - Use of the Euler-Lagrange approach to derive equations of motion
Finite Difference in 1-dimensional Continuous Elements	- Derive Finite Differences relations - Apply Finite Differences & Finite Elements to discretize linear PDEs - Explain the difference between small and large deformations
Offshore Environmental Loading	- Wind and current resource - Morrison equation - wave power spectral density and wave loading

DELFT UNIVERSITY OF TECHNOLOGY

The lectures and cases will be organised at the Delft University of Technology or the DOB-Academy, the old library of the university. The idea behind the facilities is to place the participants in a comfortable environment which empowers and motivates them to learn and apply knowledge in an individual or group setting. The participants will be exposed to the dynamics of the Dutch student life, supporting their personal development and enriching their cultural awareness.

Delft University of Technology

The facilities at the university promote an interactive learning environment, providing work places for groups and inspiring classrooms for teachers. The majority of the lectures at DUT will be given at the faculty of civil engineering *(CiTG)*. The facilities provided at CiTG are listed below:

- Canteen *(11:00 - 13:30)*
- Coffee corner *(09:00 - 15:00)*
- Work spaces *(08:00 - 18:00)*

Lecture Rooms

Modern, well-equipped teaching facilities are used at CiTG, providing comfortable seating in a small setting. Every lecture room is equipped with a projector and power sockets for laptops.

Work rooms

The work rooms at CiTG offer a productive work environment, many are equipped with a flat screen, white board and power sockets. The rooms are well ventilated for those intense hours of work before the deadline.

Canteen

The canteen at CiTG is operated by Cormet, a well-established caterer, offering nutritious and healthy food at reasonable prices. Outside the faculty, many food trucks offer delicious food from all regions from the world at competitive prices.

DOB ACADEMY

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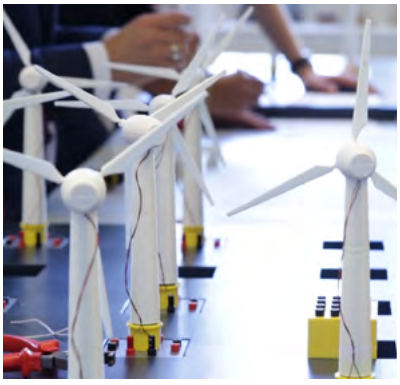

LAB

Theoretical knowledge is essential in gaining insight into any subject, but practical cases are of vital importance in achieving a complete comprehension of the latter. In our well-equipped lab, participants attain hands-on experience on their course topic and as a result, achieve a better understanding of the theory behind it.

STUDIO

Imagery is a powerful communication tool. Our goal is to use it to provide an illustrative and comprehensible visualisation to a complex subject. In our in-house studio, videos are designed and produced for a wide range of purposes in the offshore industry.
The studio also provide a visual summary of the event in a wrap-up video of the day.

KITCHEN

Our kitchen offers a variety of outstanding fresh lunches and bites with special focus on seasonal produce. Our awarded chef and professional kitchen crew are known for their caring hospitality and together they make sure our education is complemented with delicious and healthy meals.

EMPOWERING

ENGINEERING

EXCELLENCE

TEACHERS
DOB-ACADEMY

PhD J. van der Tempel

Jan is the co-founder and director of DOB-Academy. He is an expert on offshore wind support structures and innovations. He previously was head of the Offshore Engineering Department at TU Delft, and the inventor and founder of Ampelmann.

MSc. H. Goos

Hendrik has worked in the Marine and Offshore Industry in various roles since 1986. He is experienced in setting up educational programmes on offshore topics and is committed to meeting the needs of the offshore industry with this.

MSc. E. Stroo-Moredo

Elena has almost a decade of experience of teaching, research and course development in the field of Maritime Technology at both Delft University of Technology and Netherlands Maritime Technology. She is broadly interested from human behavior to learning styles and from design processes to salvage of vessels.
As a course coordinator at DOB-Academy, she is both part of our Didactical and our Sales team.

TEACHERS
DOB-ACADEMY

MSc. T. Kamphuis

Thijs is a teacher and researcher at DOB-Academy and holds an MSc in offshore engineering. Field of interest: offshore wind turbines, and graduated on vibration installation of monopiles and the slip joint connection.

MSc. R. Atkinson

Rob has a master's degree in Offshore Engineering, specialising in offshore wind structures. He currently works as a project engineer at DOT developing the next generation of wind turbines.

MSc. N. Steverink

Niels holds a MSc. in architecture and applies this knowledge of design and engineering at the DOB-Lab. In our Lab, he translates technical data into practical cases, serious games, and educational models using a wide range of techniques such as 3D printing, woodworking and laser cutting.

TEACHERS
DOB-ACADEMY

W. de Groot

As coordinator of our interactive lab, Wink develops and teaches practical cases and serious games that reinforce our courses. Being former part of our kitchen staff, he enjoys taking great care of participants practising their skills in our lab.

MSc. S. Roskam

Steffan holds a MSc in Design for Interaction from TU Delft and has a background in Electrical Engineering. He thereby has extensive education and experience with prototyping and model making.

MSc. F. Perassi

Federica holds a MSc in Sustainable Energy Technologies at the TU Delft.
She currently works as a project engineer in the structural mechanical department and on hydrogen related projects at DOT.

TEACHERS
DOB-ACADEMY

MSc. R. de la Garca Cuevas

Roberto is a mechanical engineer with a MSc in sustainable energy technology. He is currently the team lead of the Automation & Control Department at DOT. Together with the A&C team, he designs and develops the systems that control and drive the DOT machines.

MO S. Hateboer

Sjirk Hatenboer previously worked as Maritime Officer onboard project cargo vessels transporting various turbine parts. After gaining interest in the renewable energy sector he made the switch to become project engineer at Delft offshore turbine.

TEACHERS

DELFT UNIVERSITY OF TECHNOLOGY

Msc. J. Hoving

Jeroen Hoving has been working as a Researcher/Assistant Professor in the fields of Offshore Engineering, Arctic Technology and Wave Mechanics at the section of Offshore Engineering within the Department of Hydraulic Engineering.

PhD A. Jarquin Laguna

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