

Module Description

Module 4: Operational Safety and Risk Management

Hochschule Bremerhaven, Bremerhaven, Germany
& Business Academy Southwest, Esbjerg, Denmark

Module Type: Core Module	ECTS/weighting: 5 ECTS / 0.083 Full-time equivalent
Contact time: 30 hours	Self-Study: 120 hours
Frequency offered: Every 18 months	Offered in: Bremerhaven, Germany
Group size: max. 15 participants	

Course theme

The Offshore Wind-Industry is a new emerging and fast developing industry. Due to the dimension of the machinery (Windturbine) itself, and the also challenging conditions of the Offshore environment, the technicians working in such an environment are facing special risks that needs to be addressed properly to ensure that they come home safely without any harm.

From the regulatory perspective the offshore wind sector is widely seen as a grey area, and only some general guidelines, even diverse by country, are in place. So, it becomes highly important for each company working for this emerging industry and working across countries to make themselves comfortable with the requirements and to define the rules based on the principles of operational risk and safety management, to be legally compliant and to ensure workers health and safety. Due to the extraordinary financial impact of any delays caused by rule breaking and accidents, good health and safety becomes a major contributor for the success of each Offshore Wind project, during installation and service.

Aim & module specific learning outcomes

This module aims to enable the participants to access the occupational health & safety risks for the Offshore Industry, to apply the principles of health & safety based on the European regulatory framework, to enable to search for good practices across borders and industries, and to translate all of this into internal rules for the company.

This interactive lecture is split into two phases.

- The first phase addresses the operational risks for the workers going Offshore, based on a generic Offshore wind-farm located in the North sea 100nm from shore. The course provides methods and tools that could be applied to defined internal rules and guidelines based on the current legal framework.
- The second phase will focus on emergency preparedness. Due to the environmental conditions and the long distance to shore, any small accident could lead to a very severe accident in case the appropriated measures have not been implemented.

Module specific learning outcomes: Students will be able to..

- access the occupational health and safety risks for the offshore industry
- apply the principles of health & safety based on the European regulatory framework
- search for good practices across borders and industries
- translate new knowledge into internal rules for the company
- prepare for emergencies

Content

- Preparation Phase:
 - Legal issues – directive 2006/42 EC, directive 2009/104/EC; Directive 89/391/EEC, ISO 12100, ISO 31000
- Workshop 1 (2 days) –
 - Risk assessment to obtain occupational health and safety in offshore wind farms (working system, measures, introduction in case study, case work, presenting results)
 - Risk assessment to obtain business continuity in offshore wind farms (security events, tools and methods (e. g. HAZOP, ETA), case work, discussing results)
- Workshop 2 (2 days)
 - Emergency management in offshore wind farms (theory related to emergency and crisis, management, case work)

Teaching methods

- Innovative teaching methods: We strive for actual competencies needed in the industry. During class, actual consultancy tasks and problems will be presented and the MBA students will then apply theory in a real-time scenario and solve actual problems for the partner firms.
- Self-study: We expect the participants to hold a high degree of self-discipline and show up well prepared to class, being motivated to share their knowledge.
- Live cases: Business cases will be analysed to prepare the participants for future leadership requirements within wind energy.
- Workshops: Students will meet up physically two times during the module, to solve actual problems raised by partner firms.
- Forum, chat and messaging: All students can get in contact with their lecturer and fellow students to discuss, elaborate and clarify issues, ask questions and exchange views.

Examination:

To be able to pass the course, the participants must show understanding of the theory, be able to put the theory into a practical context and create good solutions for the study cases. The form of evaluation is presentation of a dedicated scenario, either for the operational risks, or for the emergency preparedness

General learning outcomes

The following general learning outcomes are covered by this module. Students will be able to..:

- Autonomously read on new theories and methods (LO1)
- Apply new theories and methods to practical challenges (LO2)
- Evaluate upon application of theory and methods (LO3)
- Manage complex situations in offshore wind energy business (LO4)

- Identify risks and challenges by analyzing data gathered and use them for decision making (LO5)
- Integrate business knowledge, analytical skills and management techniques for planning and controlling (LO6)
- Evaluate consequences of solutions (LO7)
- Communicate challenges and solutions to relevant stakeholders (LO9)

Academical subject director:

Prof. Dr. Wolfgang Lukas, University of Applied Sciences Bremerhaven

Lecturers:

Prof. Dr. Uwe Arens, University of Applied Sciences Bremerhaven

Dipl.-Ing. Dirk Schreiber, Siemens Gamesa Germany

Literature:

- DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast)
- DIRECTIVE 2009/104/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 September 2009 concerning the minimum safety and health requirements for the use of work equipment by workers at work (second individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)
- Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work
- ISO 31000:2018 Risk management — Guidelines
- ISO 12100:2010 Safety of machinery — General principles for design — Risk assessment and risk reduction
- IEC 31010:2019 Risk management — Risk assessment techniques