Module 8: Logistics and Supply Chain Management

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

Module Type: Core Module
Contact time: 30 hours
Frequency offered: Every 18 months
Group size: max. 15 participants

ECTS/weighting: 5 ECTS / 0.083 Full-time equivalent
Self-Study: 120 hours
Offered in: Hamburg, Germany

Course theme
Both for the installation and the maintenance of wind farms offshore logistic processes are very challenging and a critical successfactor. Due to long and expensive transportation to the offshore location and accordingly to any warehousing the planning requirements are very high.
Reliability and perfection of the process as well as managing complexity due to various suppliers lead to extremely high demands on the management of logistics.

Module specific learning outcomes
The students will be able to..

- understand and analyse the diverse requirements of offshore logistics
- cope with the associated complexity, even under different conditions
- recognise the connection between technical, process-related and economic aspects of offshore logistics
- derive, communicate and implement management decisions from this

Content
This course aims at providing a consistent background of how companies in the offshore wind energy sector plan, organize and execute their logistics and manage complex, manifold industry supply chains. Several logistics and supply chain risk management measures have to be considered and implemented especially for Offshore heavy lift operations and transport of project cargo. In parallel, new market developments with growing technical requirements are demanding innovative solutions and equipment for bottom-fixed & floating wind farms.

Based on industry examples this module will introduce participants to concepts, methods and tools to improve their capacity to manage relevant logistics activities from a successful early project development stage to the operations phase.

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 analyzed 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 a portfolio, which will consist of:

- Active involvement during physical workshops
- Oral and written presentation of assignments (including eventual updates)
- Reflection over the course and feedback

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)
- 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:
Lars Engelmann is an experienced lecturer within offshore wind and project management. His professional background from management positions at Siemens and Vattenfall have always been focused on successful multinational collaboration, particularly in logistics and supply chain management. He will be accompanied by Malte Paul, who is as senior project manager at Aker Offshore Wind responsible for the whole portfolio of project and logistics activities required to fulfill customers' needs regarding costs, time and quality of services.

Literature:

- Christopher, M. (2016) Logistics & Supply Chain Management, 5th Edition
- Anaya-Lara, O., Tande, J. O., Uhlen, K., & Merz, K. (2018). Offshore Wind Energy Technology, Chapter 7, 269ff
- Stålhane, M., Vefsnmo, H., Halvorsen-Weare, E. E., Hvattum, L. M., & Nonås, L. M. (2016). Vessel fleet optimization for maintenance operations at offshore wind farms under uncertainty, Energy Procedia 94, 2016, 357-366. Online: https://www.sciencedirect.com/science/article/pii/S1876610216308591
- Poulsen, T., Hasager, C. B., & Jensen, C. M. (2017). The role of logistics in practical levelized cost of energy reduction implementation and government sponsored cost reduction studies: Day and night in offshore wind operations and maintenance logistics. Energies, 10(4), 464. Online: https://www.mdpi.com/1996-1073/10/4/464
- Jäger-Roschko, M., Weigell, J., & Jahn, C. (2019, September). Modelling of spare parts storage strategies for offshore wind. In Proceedings of the Hamburg International Conference of Logistics (HICL) (pp. 83-108). epubli GmbH. Online: https://tore.tuhh.de/bitstream/11420/3769/1/J%C3%A4ger-Roschki_Weigell_Jahn-Modelling_of_Spare_Parts_Storage_Strategies_for_Offshore_Wind_hicl_2019.pdf

Supplementary

- Stentoft, J., Narasimhan, R., Wong, C. Y., Johnsen, T., Kannan Govindan, M. E., Mikkelsen, O. S., ... & Brinch, M. (2019). Reducing Cost of Energy in the Offshore Wind Energy Sector: A Supply Chain Innovation Perspective. Syddansk Universitetsforlag.
- Mützelburg, H., Dietze, A., Hof, M. (2019).: Offshore Innovation: Windenergie im internationalen Wettbewerb., Frankfurter Allgemeine Buch (in German language)
- Paterson, J., D'Amico, F., Thies, P. R., Kurt, R. E., & Harrison, G. (2018). Offshore wind installation vessels–A comparative assessment for UK offshore rounds 1 and 2. Ocean Engineering, 148, 637-649. Online: https://www.sciencedirect.com/science/article/pii/S0029801817304547
- Beinke, T., Alla, A. A., & Freitag, M. (2017). Resource sharing in the logistics of the offshore wind farm installation process based on a simulation study. International Journal of e-Navigation and Maritime Economy, 7, 42-54. Online: https://www.sciencedirect.com/science/article/pii/S2405535217300207
- Scholz-Reiter, B., Lütjen, M., Heger, J., & Schweizer, A. (2010, November). Planning and control of logistics for offshore wind farms. In Proceedings of the 12th WSEAS international conference on Mathematical and computational methods in science and engineering (pp. 242-247). World Scientific and Engineering Academy and Society (WSEAS).. Online: https://www.researchgate.net/publication/259889712_Planning_and_control_of_logistics_for_offshore_wind_farms