



Course Description:

Module: Power-to-X – Business Development

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

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

Course theme

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

The offshore wind industry plays a huge role in the development of the Power-to-X industry but not only as a supplier of renewable energy but also in the development of new “offshore wind to hydrogen concepts”. The aim of the course is to develop an understanding of future technological wind power solutions and thereby contribute to the further innovation and implementation of relevant PtX solutions in a business context.

Aim & module specific learning outcomes:

The key learning of this module is to enable the students to analyze the energy market with specific focus on wind energy and PtX in order to develop a business model for a specific firm represented by an actual case taking the value chain into consideration.

The students will be able to:

1. Understand the basics of PtX technology (electrolyzer, carbon capture)
2. Understand the complexity of the market dynamics and the value chains within the wind-PtX industry.
3. Evaluate the framework conditions, i.e., legal framework, safety etc. for establishing PtX solutions
4. From an economic perspective understand the funding possibilities and revenue streams
5. Develop an understanding of the competency and resource requirements necessary for firms competing in the market.
6. Apply a framework for analysis, development and implementation within Power-to-X – Business Canvas Development from theory.
7. Develop a decisional brief on market entry based on the Business Model Canvas
8. Stimulate the students' abilities to analyze a complex problem and present it in a clear, precise, and logical manner.

Content

This module offers a framework for analysis, development and implementation of Power-to-X – Business Development. The main topics focus on:

1. Challenges with new technologies - from a business perspective
 - a. Electrolyzing technologies, Capture Capture, challenge in system integration and infrastructure
 - b. Synergies and symbiose (eg. excess of heat and oxygen)
2. Market complexity
 - a. Explorative understanding of the global economic and financial energy trends (oil/gas, VE vs. PtX fuels)
 - b. Market analysis
 - c. Explorative Value Chain creation
3. Framework conditions
 - a. Legal conditions, such as the regulatory environment for green hydrogen and PtX products, processes and policies.
 - b. Regulation at EU and national levels
4. Financial dimension
 - a. Funding & investments
 - b. Prices of hydrogen in the future
 - c. Financial business case behind “X”
5. Organizational
 - a. Internal resources & competencies
 - b. The concept of sustainable competitive advantages
6. The concept of the Business Model Canvas
 - a. The idea and concept of a business model
 - b. Selecting Nine building blocks as the business model
7. Management Decision model
 - a. From a decisional perspective - integration of arguments into practical decision making and preparation of management decisions.

Teaching methods

- Innovative teaching methods: We strive for real-life 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

Students will be able to:

- Autonomously read on new theories and methods
- Apply new theories and methods to practical challenges
- Evaluate upon application of theory and methods
- Manage complex situations in offshore wind energy & PtX industry
- Identify risks and challenges by analyzing data gathered and use them for decision making.
- Integrate business knowledge, analytical skills and management techniques for planning and controlling
- Evaluate consequences of solutions
- Show leadership capacity and teamwork skills
- Communicate challenges and solutions to relevant stakeholders

Business case description:

A concrete case provided by a company representative, where participants will describe the business environment for PtX products, analyze potential business opportunities in a defined market, suggest strategies for market entrance including alternatives, provide exact action plan and evaluate advantage and potential pitfalls.

Academical subject director: Flemming Østergaard, Business Academy Southwest
Academic lecturer: Palle Mørkøre, Associated Professor and General Staff Officer (Psc(j), MBA & Executive MBA).
Co-lecturer: Lisbeth Brøde Jepsen, FORCE Technology, Ph.D. Business Development Manager Power-to-X

Literature:

Osterwalder, Alexander, and Yves Pigneur. *Business model generation: a handbook for visionaries, game changers, and challengers*. Vol. 1. John Wiley & Sons, 2010

Teece, David, and Gary Pisano. *The dynamic capabilities of firms*. Springer Berlin Heidelberg, 2003.

Robert M. Grant. *Contemporary strategy analysis*. 8th edition. John Wiley & Sons, 2010.

The Innovation Value Chain, HBR Review 2007, Morten T. Hansen and Julian Birkinshaw