

**AGH**AGH UNIVERSITY OF SCIENCE
AND TECHNOLOGY

Module name: **Bussiness planning in energy sector**

Academic year: **2019/2020** Code: **STCH-2-105-ET-s** ECTS credits: **5**

Faculty of: **Energy and Fuels**

Field of study: **Chemical Technology** Specialty: **Energy Transition-KIC**

Study level: **Second-cycle studies** Form and type of study: **Full-time studies**

Lecture language: **English** Profile of education: **Academic (A)** Semester: **1**

Course homepage: **<http://home.agh.edu.pl/~awyrwa/>**

Responsible teacher: **dr inż. Wyrwa Artur (awyrwa@agh.edu.pl)**

Module summary

The project is of research nature. Students propose projects subjects, define needs&challenges, make critical literature review and market research. Finally they propose business models.

Description of learning outcomes for module

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Connections with FLO	Method of learning outcomes verification (form of completion)
Social competence: is able to			
M_K001	Student can demonstrate her/his ability for thinking creatively by generating new ideas and solutions.	TCH2A_K02	Presentation, Project
Skills: he can			
M_U001	Student can make a preliminary economic analysis of his/her proposal for a business in the fuel - energy sector. Student can determine the value that business brings to clients. He/she is able to analyse the market for the product/service and the competition.	TCH2A_U07, TCH2A_U03	Project
M_U002	Student is able to write a business plan and to make an oral presentation in English for potential investors; can demonstrate his/her own contribution to the team work.	TCH2A_U06, TCH2A_U09	Presentation, Project
Knowledge: he knows and understands			
M_W001	Student is able to explain the steps of the development of a business plan. He/she can list and describe the business model components.	TCH2A_W05	Examination

Number of hours for each form of classes

Suma	Form of classes										
	Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Prace kontrolne i przejściowe	Lektorat
45	15	0	0	30	0	0	0	0	0	0	0

FLO matrix in relation to forms of classes

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Form of classes										
		Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Prace kontrolne i przejściowe	Lektorat
Social competence: is able to												
M_K001	Student can demonstrate her/his ability for thinking creatively by generating new ideas and solutions.	+	-	-	+	-	-	-	-	-	-	-
Skills: he can												
M_U001	Student can make a preliminary economic analysis of his/her proposal for a business in the fuel - energy sector. Student can determine the value that business brings to clients. He/she is able to analyse the market for the product/service and the competition.	+	-	-	+	-	-	-	-	-	-	-
M_U002	Student is able to write a business plan and to make an oral presentation in English for potential investors; can demonstrate his/her own contribution to the team work.	-	-	-	+	-	-	-	-	-	-	-
Knowledge: he knows and understands												
M_W001	Student is able to explain the steps of the development of a business plan. He/she can list and describe the business model components.	+	-	-	+	-	-	-	-	-	-	-

Student workload (ECTS credits balance)

Student activity form	Student workload
Udział w zajęciach dydaktycznych/praktyka	45 h
przygotowanie projektu, prezentacji, pracy pisemnej, sprawozdania	55 h
Realization of independently performed tasks	30 h
Summary student workload	130 h
Module ECTS credits	5 ECTS

Additional information

Module content

Lectures

The main objective of the course is to bring the entrepreneurship component to the students

by teaching them how to prepare a business plan for a project in the power sector. The course consists of introductory lectures and a project. During introductory lectures students will be acquainted with the most important issues in business planning i.e. vision,

description of the business, economic analysis and business plan preparation and presentation. Lectures will concern the following subjects:

1. Introduction to business planning. Scope and evaluation rules. The role of the business. Corporate social responsibility.
2. What is the business plan and what it is used for. Functions of the business plan. Discussion of the golden rules to keep in mind in writing a business plan.
3. Introduction to the business model. Determination of the value chain, vision and targets.
4. Description of the business. Competitive advantage. The product/service. Positioning in the value chain.
5. Market description. Market segmentation and targeting.
6. Determination of actors in a game – direct/indirect competitors and allies.
7. Economic analysis. Revenue and cost models. Cash flow calculation.
8. Presentation and analysis of the case studies.
9. Presentation of templates for preparation of the project of the business plan and financial calculations.

During lectures students will be involved in analysis of case studies and will be encouraged to interact with each other and with the lecturer.

Project classes

Students will prepare and defend a business plan. At first students will be asked to prepare a number of different ideas for their business. They will present them and after brainstorming presentation of ideas they will select one that they will work on in groups.

During preparation period, the students will be given consultations (on campus or, on demand by distance learning). The teaching material will be available at the Subject website. The course will be finalized by two meetings. During the meetings all students will present and defend the prepared business plans in front of the

committee consisting of invited professors and possibly industrial representatives. Project of business plan company from energy sector is evaluated in terms of technical economic ethical and is evaluated its influence on sustainable development in the energy sector. Experts are additionally, they will be asked to write a personal short paper on their experiences of the team work and giving own examples of their taking the responsibility and they prepare short report evaluating the project for economic technical and ethical. An expert report is then discussed in the classroom and on the basis of his plan business company is corrected. Students learn the methodology of assessment of business plan and they develop a skills correct assessment of the project.

Teaching methods and techniques:

Lectures: Treści prezentowane na wykładzie są przekazywane w formie prezentacji multimedialnej w połączeniu z klasycznym wykładem tablicowym wzbogaconymi o pokazy odnoszące się do prezentowanych zagadnień.

Project classes: Studenci wykonują zadany projekt samodzielnie, bez większej ingerencji prowadzącego. Ma to wykształcić poczucie odpowiedzialności za pracę w grupie oraz odpowiedzialności za podejmowane decyzje.

Warunki i sposób zaliczenia poszczególnych form zajęć, w tym zasady zaliczeń poprawkowych, a także warunki dopuszczenia do egzaminu:

The maximum number of unjustified absences from classes is 20% of all scheduled classes rounded up. In order to pass the classes it is necessary to obtain positive partial marks (at least 3.0).

Zasady udziału w poszczególnych zajęciach, ze wskazaniem, czy obecność studenta na zajęciach jest obowiązkowa:

Lectures:

- Attendance is mandatory: No

- Participation rules in classes: Studenci uczestniczą w zajęciach poznając kolejne treści nauczania zgodnie z sylabusem przedmiotu. Studenci winni na bieżąco zadawać pytania i wyjaśniać wątpliwości. Rejestracja audiowizualna wykładu wymaga zgody prowadzącego.

Project classes:

- Attendance is mandatory: Yes

- Participation rules in classes: Studenci wykonują prace praktyczne mające na celu uzyskanie kompetencji zakładanych przez sylabus. Ocenie podlega sposób wykonania projektu oraz efekt końcowy.

Method of calculating the final grade

Grading formula: $FG = w \cdot PMWF_{project} \cdot PMG_{project} + w \cdot PMWF_{pres} \cdot PMG_{pres}$

Where:

•FG-final grade

•PMWF_{project} - Project part weighting factor - 0,7

•PMG_{project} - Grade of achieved LOs relevant to Project

•PMWF_{pres} - presentation part weighting factor - 0,3

•PMG_{pres} - Grade of achieved LOs relevant to presentation

•W = 1 for first evaluation deadline and 1st retake and w =0.9 for 2nd retake.

Sposób i tryb wyrównywania zaległości powstałych wskutek nieobecności studenta na zajęciach:

Submitting overdue work and writing overdue colloquia, reports, papers.

Prerequisites and additional requirements

Fundamentals of economic calculations.

Recommended literature and teaching resources

1. NEEG, "Business Plan" Training Materials, Riga, 2003
2. M. S. Mulak, "Jak opracować business plan", Wydaw. M & A Communications Polska, 1995
3. A. Vafeas, "Building the business plan", Teaching materials for ALEF students, Technofi, 2007
4. Prepared teaching material, which will be available at the Subject website.

Scientific publications of module course instructors related to the topic of the module

Modeling the mid-term development of the energy system in Poland with the use of TIMES-PL model / Artur WYRWA, Marcin PLUTA, Janusz ZYŚK // W: ENERDAY : 8th conference on Energy economics and technology : energy policies and market design in Europe : 19th April 2013, Dresden : book of abstracts / Technische Universität Dresden. Faculty of Business and Economics. Chair of Energy Economics.

Establishing international links to foster the development of power engineering skills in Africa EPPEI and SELECT Masters' programmes, Artur Wyrwa, Louis Jestin, Titus Mathe, Thomas Nordgreen, 4th POWER-GEN AFRICA Conference, July 2016

Additional information

The overall assessment consist of two steps:

1. Assessment of fulfilling of module learning outcomes and OLOs.
2. Assessment and grading of the quality of students work.

EIT OLOs assessed in the industrial internship:

- Making value judgments and sustainability competencies (EIT OLO 1)
- Entrepreneurship skills and competencies (EIT OLO 2)
- Creativity skills and competencies (EIT OLO 3)
- Innovation skills and competencies (EIT OLO 4)
- Research skills and competencies (EIT OLO 5)
- Intellectual transforming skills and competencies (EIT OLO 6)
- Leadership skills and competencies (EIT OLO 7)

The Method of assessments indicated in point description of learning outcomes for modulen icludes assessment of learning outcomes and OLOs