



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Economics of renewable energy projects [N1Eltech2>POE-EPOZE]

Course

Field of study

Electrical Engineering

Year/Semester

4/7

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

part-time

Requirements

elective

Number of hours

Lecture

10

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

10

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

The student possesses a basic understanding of specialized subjects in industrial and renewable energy. The student possesses a basic knowledge of economics and finance, understands the principles of investment planning, and is familiar with the basic concepts related to the energy and renewable energy markets. They can interpret simple financial data and understand the overall project life cycle.

Course objective

The aim of the course is to provide knowledge and skills related to the economic and business analysis of renewable energy projects, including the identification of costs and benefits, the assessment of investment profitability, risk analysis and the preparation of economic documentation of projects.

Course-related learning outcomes

Knowledge:

Knows the economic, social, and regulatory conditions for the development of renewable energy

projects. Understands the importance of the relationship between economics, society, and the energy sector. [ET1_W16, ET1_W18].

Skills:

Can conduct a stakeholder analysis and assess the impact of a renewable energy project on its surroundings. They can prepare a business plan and apply economic analysis tools in investment evaluation. [ET1_U03, ET1_U04, ET1_U16]

Social competences:

Is able to formulate conclusions and recommendations in the context of economic benefits and social responsibility of energy investments in accordance with the principles of sustainable development. [ET1_K04].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture:

- Formative assessment: discussions summarizing individual lectures, providing an opportunity to assess student understanding of the issues, assessment of activity,
- Summative assessment: written assessment of the course or a summative assessment based on partial grades.

Project:

- Assessment of project progress.

Programme content

1. The importance of renewable energy in energy transition and socio-economic development.
2. Principles and objectives of energy policy in the context of renewable energy projects.
3. The macro- and microeconomic environment of renewable energy projects.
4. The renewable energy project business plan as a tool for investment planning and management.
5. Economic analysis as a tool for decision evaluation: NPV, IRR, risk and sensitivity analysis.
6. Cost-benefit analysis and assessment of external costs and social effects.
7. The use of quantitative and qualitative methods in project evaluation.
8. The impact of renewable energy projects on the immediate and distant environment.

Course topics

The course covers the economic and financial aspects of renewable energy projects in the context of energy transition. It covers the basics of project economics, environmental analysis, stakeholder analysis, and tools for assessing economic viability. It teaches how to develop a renewable energy project business plan and assess its impact on the environment.

Project:

1. Stakeholder analysis for a selected renewable energy project.
2. Development of a simplified renewable energy project business plan with a SWOT analysis and risk assessment.
3. Using economic analysis as a decision-making tool (NPV, IRR, sensitivity analysis).
4. Assessment of the social and environmental impact of the investment.
5. Discussion and presentation of results.

Teaching methods

Conversational lecture, project, multimedia presentation

Bibliography

Basic:

1. Brigham E., 2005, Podstawy zarządzania finansami, PWE.
2. Bartkiewicz P., Szczepański M., 2016, Podstawy zarządzania finansami przedsiębiorstw, WPP.
3. Dębicka, Anna, Karolina Olejniczak, Bartosz Radomski, Dariusz Kurz, and Dawid Poddubiecki. 2024. "Renewable Energy Investments in Poland: Goals, Socio-Economic Benefits, and Development Directions" *Energies* 17, no. 10: 2374. <https://doi.org/10.3390/en171023744>.

Additional:

1. European Commission - Guide to Cost-Benefit Analysis of Investment Projects (CBA Guide).

Breakdown of average student's workload

	Hours	ECTS
Total workload	55	2,00
Classes requiring direct contact with the teacher	20	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	35	1,50