GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Sustainability of Engineering, PG_00066997		
Field of study	Smart Renewable Energy Engineering		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	Optional subject group Humanistic-social subject group
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	English
Semester of study	2	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Entrepreneurship -> Faculty of Management and Economics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Barbara Geniusz-Stepnowska	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	15.0	0.0	0.0	0.0	30

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	4.0	41.0	75

Subject objectives

The course aims to develop knowledge and practical understanding of the energy transition within the framework of sustainable development, with a focus on the offshore wind sector. It highlights the importance of innovation, new business models, and a redefined approach to leadership as key enablers of competitive advantage in an environment shaped by complexity, accelerated change, and environmental transformation.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_K71] is able to explain the need to apply knowledge from humanistic, social, economic or legal sciences in order to function in a social environment	Is able to apply knowledge to the analysis of problems related to sustainable development, taking into account social, economic and legal aspects	[SK5] Assessment of ability to solve problems that arise in practice
[K7_W71] has general knowledge in humanistic, social, economic or legal sciences, including their fundamentals and applications	Demonstrates general knowledge in social and economic sciences in the context of the energy transition, including the foundations of sustainable development, new economic models, and stakeholder cooperation mechanisms.	[SW2] Assessment of knowledge contained in presentation
[K7_U71] is able to apply knowledge from humanistic, social, economic or legal sciences in order to solve problems	Can explain and justify the need to implement sustainable development in enterprises, with particular emphasis on responsible and ethical impact on society.	[SU2] Assessment of ability to analyse information
[K7_U05] can produce concise, clear technical reports, documenting analytical findings and presenting them in report format	Is able to develop a clear and concise presentation summarising the analysis of a complex problem related to the energy transition Offshore providing recommendations on sustainable models, cross-sector collaboration, and innovation.	[SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task

<table>
<tr><td>Subject contents</td><td colspan="3">Course Scope and Content
The energy transition is one of the most significant challengesand opportunitiesof the 21st century. This course explores how sustainable development translates into concrete actionsfrom strategy to implementationwith a particular focus on the rapidly growing offshore wind sector. As a key pillar of the green economy, offshore wind is already generating new jobs and shaping the future of sustainable industries. Participants will gain the knowledge, skills, and tools to design responsible and innovative solutions for sustainable development in both business and society.

1. Global challenges and organizational transformation The course begins with an analysis of megatrends, the climate crisis, and the urgent need to accelerate the energy transition. It examines the development of renewable energyespecially offshore windin the context of geopolitical and economic shifts, the implementation of the UN Sustainable Development Goals (SDGs), and their impact on business strategies and the broader economic environment.
2. New business models A critical overview and analysis of linear, circular, and regenerative economic systems. The course introduces new approaches to business and management that respond to the challenges of climate change and the energy transition. Participants will understand how companies can operate responsibly by creating long-term value that is not only financial but also environmental and social.
3. Organizations as living systems A systems-thinking approach to how organizations function in the era of energy transition. The course addresses the building of diverse, inclusive, and cross-cultural teamsan essential component of large-scale infrastructure projects, especially in the offshore and renewable energy sectors.
4. New leadership A redefinition of the leaders role in the context of complexity, change, and green transformation. Topics include collaboration with diverse stakeholder groups and building trust and engagement across cross-sectoral environments.
5. Designing strategies for sustainable innovation Application of tools such as Design Thinking, Business Model Canvas, and Jobs to Be Done to create practical solutions to real-world challenges in sustainability and energy transition.

The course is delivered in a modular format, combining thematic content blocks with hands-on assignments. Working in teams, participants will tackle a real-world business or societal problem related to sustainability and develop a project-based solution. At the end of the course, each participant will create a personal roadmap and action strategy for engagement in the energy transition and sustainable development, while each team will present its project during a final pitching session.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td colspan="3"></td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Presentation and pitching</td><td>60.0%</td><td>50.0%</td></tr>
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<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Transforming our world: the 2030 Agenda for Sustainable Development

https://sdgs.un.org/2030agenda</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">Principles of Green Economy and Regenerative Development

https://www.greengrowthknowledge.org/

Giles Hutchins, Laura Storm, Regenerative Leadership, 2019

Meinar, di, Mr Cesare Building an Offshore Wind Farm: Operational Guide 2024

Offshore Wind Market Report: 2024 Edition</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">How are global geopolitical trends impacting sustainability?

Create a circular or regenerative business model proposal using the Business Model Canvas.</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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