



## Subject card

Subject name and code	Offshore Wind Farm Planning, PG_00066989						
Field of study	Smart Renewable Energy Engineering						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	second-cycle studies		Subject group		Specialty subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		English		
Semester of study	3		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology -> Wydział Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Paweł Flaszyński				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	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		16.0	50
Subject objectives	The overall focus is that students acquire some fundamental knowledge about the technology used in offshore wind energy and that they learn how an offshore wind farm is planned.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K05] complies with legal regulations and standards related to renewable energy, including wind power, ensuring that energy installations and projects operate in accordance with current legislation		The student is familiar with the key factors that must be taken into account when planning an offshore wind farm.		[SK5] Assessment of ability to solve problems that arise in practice		
	[K7_U04] possesses remote diagnostic skills and the ability to address technical issues in energy systems using remote diagnostic tools		The student is familiar with the key factors that must be taken into account when planning an offshore wind farm.		[SU4] Assessment of ability to use methods and tools		
	[K7_W06] is acquainted with global, European, and national energy policies and regulations regarding renewable energy and has basic knowledge of project management in the context of energy engineering		The student can choose a suitable wind turbine for a specific location and estimate an annnual energy production based on a wind atlas.		[SW3] Assessment of knowledge contained in written work and projects		
	[K7_W05] understands the principles of sustainable development and safety in the context of energy systems, including the role of electrification, and can assess the environmental impact of renewable energy systems, particularly wind power installations		The student can choose a suitable wind turbine for a specific location and estimate an annnual energy production based on a wind atlas.		[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	1. Wind resource assessment for planning purposes 2. Capacity factors of the wind farms 3. Offshore wind and Society 4. Environmental impact assessment 5. End of life for wind farms, decommissioning and circularity 6. Simulations of various wind farm layouts, wake interactions, wind farm wake and blockage effect. Optimization of the wind farm layout and control. 7. Analysis of the maps available in government databases for wind farm planning with the use of Geographic Information System (GIS)		
Prerequisites and co-requisites	Fundamentals of Wind Energy Engineering, Fluid Dynamics and Aeroelasticity, Measurements and monitoring		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratory	60.0%	50.0%
	Lecture	60.0%	50.0%
Recommended reading	Basic literature	Wind Turbines: Theory and Practice, Colin Anderson, Cambridge University Press, 2020	
	Supplementary literature	Literature will be provided during the course	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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