GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	DESING OF RENEWABLE ENERGY INSTALATIONS, PG_00064329		
Field of study	Chemical Technology		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2024/2025
Education level	second-cycle studies	Subject group	Optional 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	1	Language of instruction	Polish
Semester of study	1	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Corrosion and Electrochemistry -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Juliusz Orlikowski	
	Teachers	prof. dr hab. inż. Juliusz Orlikowski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	0.0	30.0	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	2.0	18.0	50

Subject objectives

The aim of the course is to obtain knowledge regarding the use of software for planning technological processes, CO2 emissions, primarily in the context of processes related to obtaining renewable energy: green hydrogen production, gas-water conversion reactors.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U03] designs innovative technological solutions for obtaining useful goods based on the state of the knowledge in accordance with the latest scientific literature	The student is able to use the software to calculate the required raw materials and energy expenditure for production (in a simulated process)	[SU4] Assessment of ability to use methods and tools
[K7_W02] selects appropriate apparatus and materials for the manufacture and processing of consumer goods	The student knows the methods of making a model of a technological installation	[SW1] Assessment of factual knowledge
[K7_K01] critically evaluates the content of cognitive and practical problems	The student is able to properly determine priorities for implementing specific tasks	[SK5] Assessment of ability to solve problems that arise in practice

Subject contents

The basic principles of programming in the AspenTech package will be presented in the context of developing the operation of the installation. The scope of knowledge includes the basic definition of technological streams, models of physicochemical processes and types of chemical reactions. In the process scope, the subject content includes defining chemical equipment (heat exchangers, pumps, compressors, separators, reactors). The principles of calculating CO2 emissions will be presented comprehensively.

Prerequisites and co-requisites

Basic knowledge of chemical engineering and chemical equipment

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Passing design classes	60.0%	100.0%

Recommended reading

Basic literature	Aspentech University knowledge base based on a license agreement for the Faculty of Chemistry of GUT (https://esupport.aspentech.com/apex/t_homepage)
Supplementary literature	is not needed

	eResources addresses	Uzupełniające Adresy na platformie eNauczanie: PROJEKTOWANIE INSTALACJI ENERGII ODNAWIALNEJ - Moodle ID: 45123 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=45123
Example issues/ example questions/ tasks being completed	Preparation of a renewable energy technology project in the form of a P&D diagram	
Work placement	Not applicable	

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