GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Circular Urban Economy, PG_00059937		
Field of study	Environmental Engineering		
Date of commencement of studies	February 2026	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	Optional subject group
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 Environmental Engineering Technology -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Krzysztof Czerwionka	
	Teachers		

Lesson types

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	5.0	20.0	55

Subject objectives

Detailed overview of issues related to the sustainable municipal waste management and effective implementation of the circular economy idea in cities

Learning outcomes

Course outcome	Subject outcome	Method of verification
K7_U11	The student is able to assess the impact of waste collection systems on other aspects of environmental impact, including in terms of the circular economy	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject
K7_U12	The student is able to assess the correct functioning of selective waste collection systems	[SU5] Assessment of ability to present the results of task [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
[K7_W11] has knowledge to analyze, evaluate and optimize processes, objects and systems of environmental engineering and knows the principles of rational energy management and resources	The student has the knowledge to select waste management solutions based on the analysis of waste parameters, taking into account the legal aspect	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge

Subject contents

Course content – lecture
Lecture: Comparison of waste management models. Selected issues related to municipal waste management in communes. Presentation of legal and economic aspects of the waste management in Poland (including segregation system). Management of individual fractions of municipal waste (such as biowaste, household hazardous waste, residual waste). Technical excursions (site visits) are an element that supports the cognitive process.

Exercises: Characterisation of municipal waste - analysis of waste composition and morphology. Analysis of the water extract made from municipal waste. Methane digestion of selected municipal waste

Prerequisites and co-requisites

participation in classes on the subject "Waste and sewage sludge management" in engineering studies (first degree)

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Passing the exercises</td><td>60.0%</td><td>40.0%</td></tr>
<tr><td>Passing test</td><td>60.0%</td><td>60.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1) Wojciech Hryb, Karolina Ceglarz: Odpady komunalne w aspekcie gospodarki o obiegu zamkniętym. Wydawnictwo Politechniki Śląskiej, Gliwice 2021.

2) Kajetan d'Obyrn, Ewa Szalińska: Odpady komunalne : zbiórka, recykling, unieszkodliwianie odpadów komunalnych i komunalnopodobnych : podręcznik dla studentów wyższych szkół technicznych. Wydawnictwo Politechniki Krakowskiej, Kraków 2005.

3) Agnieszka Generowicz: Ocena możliwości realizacji gospodarki cyrkulacyjnej w systemach gospodarki odpadami komunalnymi - wybrane zagadnienia. Wydawnictwo Politechniki Krakowskiej, Kraków 2021.

4) Justyna Pyssa: Odpady przemysłowe i niebezpieczne w gospodarce obiegu zamkniętego. Wydawnictwo AGH, Kraków 2019.</td></tr>
<tr><td>Supplementary literature</td><td>1) ustawa z dnia 14 grudnia 2012 r. o odpadach [Dz. U. z 2022 r. poz. 699, 1250,1726, 2127, 2722]

2) ustawa z dnia 13 września 1996 r. o utrzymaniu czystości i porządku w gminach [Dz. U. z 2022 r. poz. 2519]</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Present the full characteristics of the selected fraction of municipal waste along with possible ways of its management consistent with the idea of a circular economy.</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="2">Not applicable</td></tr>
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