University of Gdańsk

Subject card

Subject name and code	Recultivation and Renaturalization of Water - lecture, PG_00201457		
Field of study	Water Management and Protection of Water Resources		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Subject group related to practical vocational preparation
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	1.0
Learning profile	practical	Assessment form	credit
Conducting unit	Centrum Monitoringu i Ochrony Wód -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Julita Dunalska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	0.0	0.0	15

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	15	1.0	9.0	25

Subject objectives

To become familiar with the problems of restoration and restoration of water bodies; to prepare for decision-making in order to reduce the inflow of pollutants to surface waters; to acquire the ability to select appropriate restoration and restoration techniques for individual morphometric and catchment characteristics of water bodies.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GWOZWL3-U06] The student has the ability assess the impact of planned investments on value and quality of water resources and propose options for solutions to protect and restore water resources, recognize their weaknesses and strengths as well as opportunities and threats.	Understands the opportunities and risks of implementing the proposed conservation and restoration measures.	[SU4] test/exam - oral or written
[GWOZWL3-K06] The student has the ability an informed and reliable assessment of the impact of humans on the aquatic environment.	In planning activities, demonstrates an attitude of informed and reliable assessment of the impact of human activities on the aquatic environment.	[SK4] test/exam - oral or written
[GWOZWL3-W02] The student knows and understands the importance of advanced knowledge in the sciences allowing to understand the processes and phenomena occurring in the hydrosphere, as well as knowledge of the social sciences and of the Earth's geographic environment - as a a system of interrelated and interacting components.	Has knowledge of the principles of restoration and restoration of water bodies allowing an understanding of the processes and phenomena occurring in the hydrosphere - as a system of interrelated and interacting components.	[SW4] test/exam - oral or written
[GWOZWL3-W05] The student has advanced knowledge and understanding of assumptions of the ecosystem approach to management of the environment and human activities in the environment as well as the development directions in the field of applied solutions and scientific research for the protection and restoration of water resources in selected divisions of the national economy.	Is familiar with developments in methods to protect and restore water resources.	[SW4] test/exam - oral or written

Subject contents

- Causes and effects of hydrosphere water degradation as an effect of climate change, anthropopression and agricultural intensification.- Concept of eutrophication and internal loading.- Sources of surface water pollution (point, area, diffuse).- Methods and techniques of water restoration and renaturalization.- Characteristics of restoration methods: engineering and biological techniques.- Restoration methods for lakes (maintenance, technical and ancillary measures).- The role of Citizen Science in planning water restoration and renaturalization activities.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
test	51.0%	100.0%

Recommended reading	Basic literature	- Dunalska J.A. 2019. Rekultywacja jezior teoria i praktyka. Wyd. PAN, Warszawa. - Cooke G. D., E. B. Welch, S. A. Peterson, S. A. Nichols. 2005. Restoration and management of lakes and reservoirs. Third edition. Boca Raton: Taylor&Francis. - Kajak Z. 2001. Hydrobiologia limnologia. Ekosystemy wód śródlądowych. Wyd. PWN - Biedroń I., Brzuska P., Dondajewska-Pielka R., Furdyna A., Gołdyn R., Grygoruk M., Grześkowiak A., Horska-Schwarz S., Jusik S., Kłósek K., Krzymiński W., Ligęza J., Łapuszek M., Okrasiński K., Pawlaczyk P., Przesmycki M., Popek Z., Szałkiewicza E., Suska K., Żak J. 2020. Renaturyzacja wód. Podręcznik dobrych praktyk renaturyzacji wód powierzchniowych. Kraków. PDF. - Dunalska J.A. 2019. Rekultywacja jezior teoria i praktyka. Wyd. PAN, Warszawa. - Cooke G. D., E. B. Welch, S. A. Peterson, S. A. Nichols. 2005. Restoration and management of lakes and reservoirs. Third edition. Boca Raton: Taylor&Francis. - Kajak Z. 2001. Hydrobiologia limnologia. Ekosystemy wód śródlądowych. Wyd. PWN
	Supplementary literature	- Abell J. 2018. Ecofish - shallow lakes restoration review - final shallow lakes: A literature review. Waikato Regional Council Technical Report, 13. - Dunalska J. 2014. Zagrożenia związane z rekultywacją jezior. Mat. Konf. Problemy rekultywacji jezior ze szczególnym uwzględnieniem Jeziora Suskiego, 15-16 maja, Bałoszyce. - Hamilton D.P, Dada A. 2016. Lake management: A restoration perspective. In: Advances in New Zealand Freshwater Science. Jellyman PG, Davie TLA, Pearson CP, Harding JS (Eds.). New Zealand Freshwater Sciences Society and New Zealand Hydrological Society Publishers, 531-552.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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