

Subject card

Subject name and code	Recultivation and Renaturalization of Water - laboratory classes, PG_00201456						
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	0.0	0.0	15.0	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	Acquiring the ability to select appropriate restoration and rehabilitation techniques to suit individual morphometric and catchment characteristics of water bodies.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[GWOZWL3-U03] The student has the ability observe and describe the changes taking place in water management and predict further directions of its development as well as conduct a critical analysis of case studies of problems of water management and protection of water resources in terms of impact on ecological, social and economic systems; natural valorization and assessment of quality of the environment.	Student acquires the ability to observe and describe changes occurring in water management and predicts further directions of its development. He/she is able to carry out a critical analysis of the environmental data obtained and, on the basis of this data, plan restoration and technical renaturalization methods adapting them to the individual characteristics of the water body in order to protect water resources.	[SU2] presentation/project/paper/report
	[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.	[SK1] oral statement/conversation/discussion
	[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.	[SW2] presentation/project/paper/report [SW5] implementation of a problem task
Subject contents	- Concept of modern water restoration according to Nature-Based Solutions and Circular Economy.- Basic principles for the design of restoration and renaturalization measures - implementation steps, risks.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	project presentation	51.0%	100.0%
Recommended reading	Basic literature	<p>- Dunalska J.A. 2019. Rekultywacja jezior teoria i praktyka. Wyd. PAN, Warszawa.</p> <p>- Kajak Z. 2001. Hydrobiologia limnologia. Ekosystemy wód śródlądowych. Wyd. PWN</p> <p>- Biedroń I., Brzuska P., Dondajewska-Pielka R., Furdyna A., Góldyn R., Grygoruk M., Grześkowiak A., Horska-Schwarz S., Jusik S., Klósek K., Krzywiński W., Ligęza J., Łapuszek M., Okrański K., Pawlaczyk P., Przesmycki M., Popek Z., Szalkiewicz E., Suska K., Żak J. 2020. Renaturyzacja wód. Podręcznik dobrych praktyk renaturyzacji wód powierzchniowych. Kraków. PDF.</p> <p>- Klapper H. 2003. Technologies for lake restoration. J. Limnol., 62(1): 73-90.</p>	
	Supplementary literature	- Dunalska J. 2014. Zagrożenia związane z rekultywacją jezior. Mat. Konf. Problemy rekultywacji jezior ze szczególnym uwzględnieniem Jeziora Suskiego, 15-16 maja, Bałoszyce.	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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