

**Subject card**

<b>Subject name and code</b>	Water and Wastewater Treatment Technologies - laboratory classes, PG_00201279						
<b>Field of study</b>	Aquaculture – Business And Technology						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2026/2027		
<b>Education level</b>	Bachelor's studies	<b>Subject group</b>			Obligatory subject group in the field of study Subject group related to practical vocational preparation		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	1	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	2	<b>ECTS credits</b>			2.0		
<b>Learning profile</b>	practical	<b>Assessment form</b>			credit		
<b>Conducting unit</b>							
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr Natalia Gruba				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	0.0	0.0	30.0	0.0	0.0	30
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	30		2.0		18.0	50
<b>Subject objectives</b>	Familiarizing students with technologies for purifying water and post-production waste in aquaculture Introduce students to selected devices used to purify water and post-production waste in aquaculture						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[AKWAL3-U02] can make observations and perform simple physical / biological / chemical measurements that are typical in socio-economic activity based on natural sciences	can carry out observations and perform simple chemical measurements typical of processes used in water purification technology and life science-based post-production waste; (Contents program: B)	[SU2] presentation/project/paper/report [SU6] demonstration of practical skills
	[AKWAL3-U06] can apply basic techniques and technological processes related to the use of elements of the environment for practical purposes	is able to apply basic techniques and technological processes related to the use of environmental elements for practical purposes; (Contents program: B)	[SU2] presentation/project/paper/report [SU6] demonstration of practical skills
	[AKWAL3-K02] is ready to take responsibility for the work of the team and its safety; knows how to make decisions and how to act in different situations	is ready to take responsibility for the team's work the use of techniques and tools for the purification of water and products post-production, for safety, knows how to make decisions and act in... various situations; (Program content: B)	[SK8] observation of student's independent or team work
	[AKWAL3_W02] has an advanced understanding of chemical, biological, physical processes and phenomena, identifies them, analyses their mechanisms in relation to the aquatic environment, and is aware of the connections between various natural disciplines	knows and understands chemical, biological and physical processes and phenomena used in water and post-production waste treatment technology, analyzes their course in relation to the aquatic environment and is aware connections between various natural science disciplines; (Program content: B)	[SW4] test/exam - oral or written
[AKWAL3_W06] has an advanced understanding of techniques, research methods and tools used in aquaculture	knows and discusses techniques, research methods and tools used in water and post-production waste treatment technology used in aquaculture (Program content: B)	[SW4] test/exam - oral or written	
Subject contents	B. Laboratory issues Physicochemical processes (filtration, adsorption, coagulation) Biological wastewater treatment Ozonation of sewage water Water treatment technologies using UV and H <sub>2</sub> O <sub>2</sub>		
Prerequisites and co-requisites	Basics of inorganic and organic chemistry		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	51.0%	50.0%
	performing a specific job practical and presentation of results in the form of a report (written)	51.0%	50.0%
Recommended reading	Basic literature	The lecture is original and based on numerous original publications, unpublished materials and own research	
	Supplementary literature	none	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Water treatment technologies using UV and H <sub>2</sub> O <sub>2</sub>		
Work placement	Not applicable		

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