University of Gdańsk

Subject card

Subject name and code	General Hydrology - laboratory classes, PG_00192583		
Field of study	Water Management and Protection of Water Resources		
Date of commencement of studies	October 2027	Academic year of realisation of subject	2027/2028
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	1	Language of instruction	Polish
Semester of study	1	ECTS credits	3.0
Learning profile	practical	Assessment form	credit
Conducting unit	Department of Hydrology -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Wojciech Maślanka	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	30.0	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	2.0	43.0	75

Subject objectives

- To familiarize the student with sources of hydrological information.
- Application of basic methods of processing data obtained from hydrometric measurements to describe the water cycle in nature and their interpretation.
- Methods and tools as well as performing basic hydrological measurements.
- Delimitation of hydrographic units (catchment, river basin).
- Spatial characteristics of water features within the boundaries of natural hydrographic units.
- Physical and chemical features of water objects.
- Preparation to interpret the content contained on hydrographic maps.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GWOZWL3-K05] take responsibility for the safety of his own work and that of others, dealing with emergencies, exercising caution in the laboratory and in the field, responsibility for entrusted equipment and apparatus.	The student is aware of the responsibility for the safety of his/ her own work and that of others and knows the rules of conduct in emergency situations. He takes care of the equipment and research equipment entrusted to him.	[SK6] demonstration of practical skills [SK8] observation of student's independent or team work
[GWOZWL3-U09] prepare in Polish a well documented study of the results in the scope of the studied issues.	The student is able to prepare in Polish a well documented study of the results in the scope of the studied issues.	[SU3] text preparation/written work
[GWOZWL3-U08] use basic mathematical and statistical methods to analyze data and describe phenomena and processes occurring in the environment, as well as methods of information technology to assess the risk of threats to the of the environment, especially the hydrosphere.	The student is able to apply the basic ones methods (mathematical, statistical, IT) used to analyze data and describe phenomena and processes occurring in hydrosphere and water management.	[SU2] presentation/project/paper/ report [SU5] implementation of a problem task
[GWOZWL3-U02] select and independently apply basic research techniques and tools, with adhering to established analytical procedures in the field of environmental research in water management, adequately to the considered research problem.	The student is able to find appropriate materials and data adequate to the considered research problem in the field of the aquatic environment and to select and independently apply basic techniques and research tools for hydrographic interpretation.	[SU2] presentation/project/paper/ report [SU5] implementation of a problem task
[GWOZWL3-U01] make basic observations of processes and phenomena occurring in the hydrosphere and carry out basic measurements of selected processes of water purification on a laboratory scale.	The student is able to carry out basic observations of processes and phenomena occurring in the aquatic environment based on source materials and interpret them appropriately.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU3] text preparation/written work [SU8] observation of student's independent or team work
[GWOZWL3-U16] demonstrate creativity in working independently and in team, taking on a variety of roles, including a leadership role.	The student is able to demonstrate creativity in independent and team work on a research tasks in the field of hydrological research, and is able to appropriately set priorities for the implementation of a problem task defined by himself or others.	[SU2] presentation/project/paper/ report [SU3] text preparation/written work [SU6] demonstration of practical skills
[GWOZWL3-W02] 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 system of interrelated and interacting components.	The student knows and understands the importance of knowledge in the field of exact sciences allowing for understanding of cause-and-effect processes and phenomena occurring in the hydrosphere and knowledge of water relations in a changing geographical environment.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW3] text preparation/written work
[GWOZWL3-K03] systematic further education and professional development, updating and expand his knowledge and skills, understands the limitations of his own knowledge in the context of civilization progress and recognizes authorities in the professional and scientific environment.	The student is ready to deepen his knowledge of hydrology and modern tools for measuring and interpreting collected hydrological data. He understands the limitations of his own knowledge and uses it authorities in the professional and scientific environment.	[SK1] oral statement/conversation/ discussion

Subject contents	• Hydrographic units and principles of their separation. • Hydrographic characteristics of the catchment area (morphometric and physical-geographic parameters of the catchment area, parameters of the water network, hydrographic structure of the catchment area). • Characteristics of river runoff (temporal variability of water levels and flows, runoff measures, size and structure of runoff, river water systems). • Water balance of the controlled catchment (balance elements, variability of water resources over time). • Selected elements of limnological characteristics (morphometry of lake bowls, thermals of lake water). • Groundwater (methods of mapping the groundwater table - hydroisobaths, hydroisohypses, relationship of groundwater with river waters). • Hydrographic map of Poland at a scale of 1:50.000 as a source of synthetic information about the water conditions of a given region (hydrographic map content and its interpretation).
Prerequisites and co-requisites	General knowledge of physical geography at secondary school level.

Assessment methods and criteria

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

Recommended reading

Basic literature

- Bajkiewicz-Grabowska E., 2011, General hydrology, PWN, Warsaw.
- Bajkiewicz-Grabowska E., Magnuszewski Z., 2009, Guide to exercises in general hydrology, PWN, Warsaw.
- Jokiel P., Marshelewski Wł., Pociask - Karteczka J. (ed.), 2017, Hydrology of Poland, academic textbook, Ed. PWN, Warsaw.
- Kosowska-Cezak U., Bajkiewicz-Grabowska E., 2009, Basics of hydrometeorology. PWN, Warsaw.
- Pociask-Karteczka J. (ed.), 2003, The catchment. Properties and processes, UJ IGiGP, Kraków.
- Dynowska I., Tlałka A., 1982, Hydrography, PWN, Warszawa-Poznań.

Supplementary literature

- Choiński A., 2008, Physical limnology of Poland, Ed. Science. Adam Mickiewicz University, Poznań. Central Office of Geodesy and Cartography [GUGK], 1985.
- Terrain Information System, Hydrographic Map of Poland, scale 1:50.000, Technical Guidelines K-3.4, 1997, GUGiK, Warsaw.
- Byczkowski A., 1999, Hydrology, vol. I and II, Publisher SGGW, Warsaw.
- Choiński A., Kaniecki A., 1996, The Great Encyclopedia of World Geography, vol. IV: Waters of the Earth, Wydawnictwo Kurpisz, Poznań.
- Parde M., 1957, Rivers, PWN, Warszawa.
- Dynowska I., 1971 Types of river regimes in Poland, Works of IG UJ, Kraków.
- Lange W. (ed.), 1993, Methods of physical-limnological research, Ed. UG, Gdańsk.

eResources addresses

Example issues/ example questions/ tasks being completed	• Based on a map at a scale of 1: 25,000, plot the watershed of the lake district river, including septic and bifurcating areas. Think and determine what role these areas play in the catchment? • Calculate the water flow in the river using the accounting method. • Based on the measurements of the vertical distribution of water temperature in the lake, make graphs of winter and summer stratification and the state of homothermy. Explain what determines the variability of temperature in lakes? • Plot and characterize the variability of groundwater levels over time.
Work placement	Field exercises