



Field Learning Outcomes for Environmental Engineering – first-cycle programme

Learning outcomes for the field of: Environmental Engineering	field of study: ENVIRONMENTAL ENGINEERING level: first-cycle programme education profile: general academic	Learning outcomes reference symbols for engineering sciences
On successful completion of the programme, the graduate		

KNOWLEDGE		
IŚ_W01	has knowledge of mathematics, physics, chemistry and other scientific areas useful for solving simple tasks related to environmental engineering	T1A_W01; T1A_W02
IŚ_W02	knows the principles of descriptive geometry and technical drawing concerning the creation and interpretation of construction, installations/working and surveying drawings, and their preparation using computer programmes	T1A_W02, T1A_W07
IŚ_W03	knows the elementary parts of a building, understands their function and objectives, has the knowledge of underground infrastructure	T1A_W02
IŚ_W04	has knowledge of surveying and photogrammetry in the area of environmental engineering	T1A_W02, T1A_W07
IŚ_W05	knows the computer programmes employed in the calculations and design of environmental engineering structures	T1A_W07; T1A_W05
IŚ_W06	knows the materials most widely used in environmental engineering structures and systems	T1A_W03, T1A_W04, T1A_W05, T1A_W07
IŚ_W07	has knowledge of the basic chemical and biological processes occurring in the environment and used in technological processes	T1A_W01, T1A_W03, T1A_W08
IŚ_W08	has knowledge of thermodynamics and heat transfer	T1A_W03, T1A_W04
IŚ_W09	has well-structured knowledge of design, execution, operation and maintenance of water supply, sewage and waste disposal, air	T1A_W03, T1A_W04, T1A_W05,



	protection and power generation systems	T1A_W06, T1A_W07
IŚ_W10	has well-structured knowledge of design, execution, operation and maintenance of sanitary, gas and HVAC systems	T1A_W04, T1A_W05, T1A_W06, T1A_W07
IŚ_W11	knows the basic engineering problems of water management	T1A_W03, T1A_W04, T1A_W05
IŚ_W12	has basic knowledge of fluid mechanics, hydraulics, hydrology and water engineering	T1A_W03, T1A_W04, T1A_W07
IŚ_W13	has basic knowledge of hydrogeology, geotechnics and soil mechanics	T1A_W03, T1A_W04, T1A_W07
IŚ_W14	has basic knowledge of mechanics and the strength of materials	T1A_W02, T1A_W06
IŚ_W15	has basic knowledge of the life cycle of equipment, objects and technical systems	T1A_W06
IŚ_W16	has knowledge of the cause and effect relations among the phenomena occurring in the environment and anthroposphere	T1A_W03, T1A_W05, T1A_W07, T1A_W08
IŚ_W17	has knowledge of the function of information, the selection of information sources, as well as the elements of multimedia technology	T1A_W02
IŚ_W18	has knowledge of engineering economics, price estimation, management and legal aspects in engineering and environmental protection	T1A_W02, T1A_W07, T1A_W08
IŚ_W19	has basic knowledge of management, including quality management and running of a business	T1A_W08, T1A_W09, T1A_W11
IŚ_W20	has basic knowledge of intellectual property protection and patent law	T1A_W10
IŚ_W21	knows the basic principles of creating individual entrepreneurship in environmental engineering	T1A_W11
SKILLS		
IŚ_U01	can apply mathematical methods and use physical and chemical processes to solve problems in environmental engineering	T1A_U08, T1A_U09
IŚ_U02	can obtain information from databases, literature and other sources, can integrate the	T1A_U01, T1A_U05,



	pieces of information, interpret them, draw conclusions and justify opinions both in Polish and English	T1A_U07
IŚ_U03	can work individually and as a group, can create and implement a schedule of work within a given task	T1A_U02, T1A_U08
IŚ_U04	can devise technical documentation concerning implementation of a given engineering task	T1A_U03, T1A_U08, T1A_U09
IŚ_U05	can prepare and present a short presentation on a given engineering task	T1A_U03, T1A_U04
IŚ_U06	has mastered the skill of communication and reading comprehension in a foreign language, including the elements of technical language in the area of environmental engineering	T1A_U01, T1A_U02, T1A_U03, T1A_U04, T1A_U05, T1A_U06
IŚ_U07	is able to educate himself in order to increase occupational competence	T1A_U05
IŚ_U08	can conduct a simple experiment enabling the quality assessment of water, sewage and waste, can interpret the results and draw proper conclusions	T1A_U08, T1A_U09, T1A_U15
IŚ_U09	can interpret and present the cause and effect relationships between environmental phenomena and human activity	T1A_U01, T1A_U04, T1A_U10
IŚ_U10	can read construction, installations/working and surveying drawings, can prepare graphic documentation with the assistance of selected computer programmes, can interpret and draw conclusions	T1A_U02, T1A_U03, T1A_U05, T1A_U07, T1A_U15
IŚ_U11	can use maps and do basic surveys	T1A_U07, T1A_U02
IŚ_U12	can use properly chosen methods and equipment enabling solving a given engineering task	T1A_U08, T1A_U09, T1A_U15
IŚ_U13	can preliminarily estimate the cost of designed engineering solutions	T1A_U07, T1A_U10, T1A_U12
IŚ_U14	can assess and prepare a specification of loads influencing environmental engineering structures	T1A_U03, T1A_U07, T1A_U08
IŚ_U15	can do a proper selection of materials used for construction of environmental engineering buildings	T1A_U07, T1A_U10, T1A_U14,



		T1A_U15
IŚ_U16	can design and assess the technical condition of chosen elements of water supply, waste and sewage disposal systems and can properly plan operation and maintenance (MRO) activities	T1A_U03, T1A_U05, T1A_U07, T1A_U08, T1A_U09, T1A_U10, T1A_U11, T1A_U13, T1A_U14, T1A_U15, T1A_U16
IŚ_U17	can conduct calculations concerning the pollution concentration levels and create a simulation of their spreading in the environment	T1A_U07, T1A_U08, T1A_U09
IŚ_U18	can use basic methods and processes applied to waste neutralization	T1A_U03, T1A_U10, T1A_U12, T1A_U14, T1A_U15
IŚ_U19	can design specific elements of sanitary, HVAC and gas systems	T1A_U03, T1A_U05, T1A_U07, T1A_U08, T1A_U09, T1A_U10, T1A_U11, T1A_U13, T1A_U14, T1A_U15, T1A_U16
IŚ_U20	can solve selected tasks in the area of thermodynamics and heat transfer	T1A_U07, T1A_U09, T1A_U15
IŚ_U21	can design specific hydraulic structures	T1A_U07, T1A_U08, T1A_U14, T1A_U16
IŚ_U22	can select a proper hydraulic system and do basic calculations	T1A_U07, T1A_U09, T1A_U15
IŚ_U23	can estimate the value of land and possibility of its optimal usage	T1A_U09, T1A_U14
IŚ_U24	can design specific elements of geotechnical	T1A_U08,



	structures	T1A_U14, T1A_U16
IŚ_U25	while formulating and solving engineering tasks can notice their non-technical aspects, including the environmental ones	T1A_U09, T1A_U10
IŚ_U26	applies work and safety regulations and is prepared to work in an industrial environment	T1A_U11
IŚ_U27	can assess the usefulness of routine methods and tools used for solving simple engineering tasks typical of environmental engineering	T1A_U15
SOCIAL SKILLS		
IŚ_K01	can work individually and work as part of a team on a given task	T1A_K03
IŚ_K02	is responsible for reliability of the results of the assignments and their interpretation	T1A_K02, T1A_K05
IŚ_K03	is aware of the necessity to increase their occupational and personal competence, complements and broadens their knowledge on their own in the area of modern processes and technologies in environmental engineering	T1A_K01, T1A_K02, T1A_K04
IŚ_K04	feels the need to take care of their own health and physical condition	T1A_K04
IŚ_K05	has responsibility for their own work and also is ready to work as part of a team and be responsible for team work	T1A_K03, T1A_K04
IŚ_K06	understands the need to spread the knowledge on environmental engineering to the society, can think and act in an entrepreneurial way	T1A_K06, T1A_K07
IŚ_K07	formulates conclusions and describes the results of their own work, is communicative in media presentations	T1A_K07
IŚ_K08	acts according to a professional code of conduct	T1A_K05
IŚ_K09	understands the significance of technical advances and the necessity to implement new technological solutions in environmental engineering, understands non- technical aspects of engineering activity	T1A_K02