

COURSE DESCRIPTION CARD – SPECIMEN

Faculty of Civil Engineering and Environmental Sciences									
Field of study	Environmental Engineering							Degree level and programme type	Master's degree
Specialization/ diploma path	International School of Engineering							Study profile	academic profile
Course name	Advanced Industrial water treatment							Course code	19284256H
								Course type	obligatory
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter
	16				32			No. of ECTS credits	4
Entry requirements	Basic knowledge of chemistry, technology of water treatment								
Course objectives	The course provides an introduction to the design of advanced Industrial water treatment. The class will focus on teaching through practical examples. The main objectives for the course are: principles of designing water treatment systems, selection of water treatment system, mechanisms of technological processes taking place during water treatment, selection of a system depending on the purpose of water, ability to calculate and select devices.								
Course content	Principles of designing industrial water treatment plant. Preparation of the technological diagram of water treatment plant.								
Teaching methods	The class will discuss issues related to the design of industrial water treatment systems. Each meeting will include an introductory lecture and practical issues related to the design of industrial water treatment plant.								
Assessment method	students are expected to complete dedicated project tasks by the end of the semester.								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	knows selected processes and facilities that provide advanced knowledge of industrial water treatment systems							IS2_W01	
LO2	has knowledge about the construction, functioning and operation of modern facilities and equipment in water treatment technology							IS2_W02	
LO3	be able to use their knowledge to design and critically analyse a industrial water treatment system							IS2_U02	
LO4	is able to make a technical and economic assessment of the proposed solutions for the applied water treatment systems							IS2_U07	
LO5	is able to correctly select data in order to design a system and select devices for water treatment technology							IS2_U08	

L06	the graduate is ready to analyse, critically evaluate and use in his/her professional work the knowledge and information on industrial water treatment systems	IS2_K02	
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
L01	assessment of work on a project and discussion	L,SW	
L02	assessment of work on a project and discussion	L,SW	
L03	assessment of work on a project	SW	
L04	assessment of work on a project	SW	
L05	assessment of work on a project	SW	
L06	assessment of work on a project	SW	
Student workload (in hours)		No. of hours	
Calculation	Participation in lectures	16	
	Participation in computer classes	2 x 16	
	Preparation for the workshop	16	
	Participation in consultations related to a project	6	
	Implementation of project tasks (including preparation of a final project)	20	
	TOTAL:	90	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		45	2
Student workload – practical activities		45	2
Basic references	Water Treatment Plant Design (McGraw-Hill Handbooks) AWWA and AS of CE - 2004 Water Treatment, RezaulKabir Chowdhury, WalidElshorbagy, TechOpen WatPro, Version 3, Users' Manual, October, Hydromantis, Inc. 2009		
Supplementary references	Water Treatment Fundamentals - A Study Guide : Water Quality Association; 2004 Madan L Arora. Water treatment principles and design. New York, Wiley J., 1985.		
Organisational unit conducting the course	Department of Technology in Environmental Engineering	Date of issuing the programme	
Author of the programme	Jacek Leszczyński PhD Eng.	2023.09.29	

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work,
S – seminar