

COURSE DESCRIPTION CARD – SPECIMEN

Faculty of Civil Engineering and Environmental Sciences									
Field of study							Degree level and programme type		
Specialization/ diploma path							Study profile	Academic profile	
Course name	Water treatment systems for industrial purposes						Course code	IS-FCEE-00260S	
							Course type	Erasmus	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	Summer
	15				30			No. of ECTS credits	4
Entry requirements	Basic knowledge information of chemistry, technology of water and facilities for water treatment is greatly appreciated.								
Course objectives	The course provides an introduction to the design of water treatment systems. The class will focus on teaching through practical examples. The main objectives for the course are: principles of designing water treatment systems for industrial purposes, 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 water treatment plant. Preparation of the technological diagram of water treatment plant.								
Teaching methods	The class will discuss issues related to the design of water treatment systems. Each meeting will include an introductory lecture and practical issues related to the design of water treatment plant.								
Assessment method	ERASMUS students are expected to design, and complete a final project by the end of the semester.								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
L01	knows selected processes and facilities that provide advanced knowledge of water treatment systems							IS2_W01	
L02	has knowledge about the construction, functioning and operation of modern facilities and equipment in water treatment technology							IS2_W02	
L03	be able to use their knowledge to design and critically analyze a water treatment system							IS2_U02	
L04	is able to make a technical and economic assessment of the proposed solutions for the applied water treatment systems							IS2_U07	
L05	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 analyze, critically evaluate and use in his/her professional work the knowledge and information on water treatment systems for industrial purposes	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,P	
L02	assessment of work on a project and discussion	L,P	
L03	assessment of work on a project	P	
L04	assessment of work on a project	P	
L05	assessment of work on a project	P	
L06	assessment of work on a project	P	
Student workload (in hours)		No. of hours	
Calculation	Participation in lectures	15	
	Participation in computer classes	2 x 15	
	Preparation for the workshop	15	
	Participation in consultations related to a project	2	
	Implementation of project tasks (including preparation of a final project)	20	
	TOTAL:	82	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		47	2
Student workload – practical activities		35	2
Basic references	Water Treatment Plant Design, McGraw-Hill Handbooks, AWWA and AS of CE, 2004. Water Treatment, Walid Elshorbagy, Rezaul K. Chowdhury, DOI: 10.5772/2883, 2013. Industrial Water Treatment Process Technology, Parimal Pal, Butterworth-Heinemann, 2017.		
Supplementary references	Principles of Water Treatment, Kerry J. Howe at al., John Wiley & Sons, 2012. Water Treatment Fundamentals - A Study Guide: Water Quality Association, 2004.		
Organisational unit conducting the course	Department of Technology in Environmental Engineering	Date of issuing the programme	
Author of the programme	Jacek Leszczyński PhD Eng.	January 12.2022	

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