COURSE DESCRIPTION CARD

<table>
<tr><td colspan="10">Faculty of Civil Engineering and Environmental Sciences</td></tr>
<tr><td>Field of study</td><td colspan="6">Environmental Engineering</td><td colspan="2">Degree level and programme type</td><td>Bachelor's degree</td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="6">International School of Engineering</td><td colspan="2">Study profile</td><td>academic profile</td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">Materials science</td><td colspan="2">Course code</td><td>19284219H</td></tr>
<tr><td colspan="2">Course type</td><td>obligatory</td></tr>
<tr><td rowspan="2">Forms and number of hours of tuition</td><td>L</td><td>C</td><td>LC</td><td>P</td><td>SW</td><td>FW</td><td>S</td><td>Semester</td><td>V</td></tr>
<tr><td>32</td><td></td><td></td><td></td><td>32</td><td></td><td></td><td>No. of ECTS credits</td><td>4</td></tr>
<tr><td>Entry requirements</td><td colspan="9">Physics, Mechanics and Material Strength</td></tr>
<tr><td>Course objectives</td><td colspan="9">The obtained knowledge is necessary for the proper design of sanitary installations and networks, as well as for the execution and supervision of all installation and technological works, and preparation for scientific research.</td></tr>
<tr><td>Course content</td><td colspan="9">Lecture: types of sanitary installations and networks, materials used for their construction, methods of connecting pipes, metals and metal alloys and plastics used in environmental engineering
Specialist workshop: Practical knowledge of applied materials
for the construction of sanitary networks and installations, making pipe connections, making elements of selected sanitary installations.</td></tr>
<tr><td>Teaching methods</td><td colspan="9">lecture, specialist workshop</td></tr>
<tr><td>Assessment method</td><td colspan="9">lecture - written test; specialist workshop - evaluation of reports
from the exercises performed, written test</td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="7">Learning outcomes</td><td colspan="2">Reference to the learning outcomes for the field of study</td></tr>
<tr><td>LO1</td><td colspan="7">at an advanced level - structure, principles of functioning and utilisation of networks and installations for sanitation, heating, ventilation, air-conditioning and fire prevention as well as materials utilised in them</td><td colspan="2">EN_IS1_W05</td></tr>
<tr><td>LO2</td><td colspan="7">at an advanced level - principles of designing technologies and systems in environmental engineering as well as operating and utilizing facilities</td><td colspan="2">EN_IS1_W09</td></tr>
<tr><td>LO3</td><td colspan="7">appropriately select sources and information regarding innovative solutions in environmental engineering; make a critical analysis, synthesis and assessment of them</td><td colspan="2">EN_IS1_U04</td></tr>
<tr><td>LO4</td><td colspan="7">design, according to initial guidelines, suitable and viable water-sanitation, air protection or waste systems using</td><td colspan="2">EN_IS1_U10</td></tr>
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	appropriately selected technologies, methods, tools and materials	
LO5	act in a creative and entrepreneurial manner, cooperate in a team accepting different roles within that team	EN_IS1_U16
LO6	apply knowledge to shape social, professional and ethical awareness and to take responsibility for their own actions	EN_IS1_K02
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed
LO1	written test	L
LO2	written test, evaluation of the exercises performed	L, SW
LO3	written test, evaluation of the exercises performed	L, SW
LO4	written test, evaluation of the exercises performed	L, SW
LO5	written test, evaluation of the exercises performed	L, SW
LO6	written test, evaluation of the exercises performed	L, SW
Student workload (in hours)		No. of hours
Calculation	participation in lectures	32
	participation in a specialist workshop	32
	preparation of reports on practical tasks performed in a specialist workshop	10
	participation in consultations	5
	preparation for written lecture credit	16
	preparation for a written test for a specialist workshop	10
	TOTAL:	105

Quantitative indicators	HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation	69	2.8
Student workload – practical activities	57	2.3

Basic references	The Visual Dictionary of House & Do It Yourself Advanced Plumbing Technology 2	
Supplementary references	Plumbing Encyclopaedia Paperback – Illustrated, Nov. 10 2008	
Organisational unit conducting the course	Department of Water Supply and Sewerage	Date of issuing the programme
Author of the programme	Dariusz Wawrentowicz, phd	9.05.2022

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