COURSE DESCRIPTION CARD – SPECIMEN

<table>
<tr><td colspan="10">Faculty of Civil Engineering and Environmental Sciences</td></tr>
<tr><td>Field of study</td><td colspan="6"></td><td colspan="2">Degree level and programme type</td><td></td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="6"></td><td colspan="2">Study profile</td><td>academic profile</td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">Application of BIM software in the design of ventilation system</td><td colspan="2">Course code</td><td>IS-FCEE-00225W</td></tr>
<tr><td colspan="2">Course type</td><td>Erasmus</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 colspan="2">Semester</td><td>Winter</td></tr>
<tr><td>15</td><td></td><td></td><td></td><td>30</td><td></td><td></td><td colspan="2">No. of ECTS credits</td><td>6</td></tr>
<tr><td>Entry requirements</td><td colspan="9">Basic knowledge in the ventilation systems</td></tr>
<tr><td>Course objectives</td><td colspan="9">To acquaint students with BIM software for designing a ventilation system. To acquaint students with the principles of designing ventilation and air conditioning systems.</td></tr>
<tr><td>Course content</td><td colspan="9"><u>Lecture:</u> Principles of designing ventilation and air conditioning systems in buildings. Standards and technical conditions in the design of mechanical ventilation and air conditioning systems. BIM software for designing ventilation and air conditioning installations.
<u>Specialization workshop:</u> distribution of mechanical ventilation systems in buildings with the use of 3D techniques; automation of dimensioning of ventilation systems in buildings with BIM software</td></tr>
<tr><td>Teaching methods</td><td colspan="9">multimedia presentation (lectures), design of a heating system (project)</td></tr>
<tr><td>Assessment method</td><td colspan="9">Exam, evaluation of the student's design</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">The graduate knows and understands in depth the construction, principles of operation of modern devices found in ventilation and air conditioning systems.</td><td colspan="2">IS2_W03</td></tr>
<tr><td>LO2</td><td colspan="7">The graduate knows and understands in depth the selected issues necessary to understand ventilation and air conditioning processes occurring in environmental engineering.</td><td colspan="2">IS2_W05</td></tr>
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LO3	The graduate knows and understands in depth the latest development trends and technologies occurring in environmental engineering, especially in ventilation systems.	IS2_W06
LO4	The graduate is able to use his knowledge for critical analysis, synthesis, creative interpretation and presentation of issues in the field of environmental engineering, especially in ventilation systems	IS2_U02
LO5	The graduate is ready to analyse the content obtained from various sources and to critically evaluate and the possibility of their use in professional work.	IS2_K01
LO6		
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed
LO1	Exam, defense of the prepared project	L, SW
LO2	Exam, defense of the prepared project	L, SW
LO3	Exam, defense of the prepared project	L, SW
LO4	defense of the prepared project	SW
LO5	defense of the prepared project	SW
LO6		
Student workload (in hours)		No. of hours
Calculation	lecture attendance	15
	participation in classes	30
	preparation for classes	30
	working on projects	35
	implementation of project tasks	20
	consultation meetings with students	15
	TOTAL:	145
Quantitative indicators		HOURS / No. of ECTS credits
Student workload – activities that require direct teacher participation		45 / 1,8
Student workload – practical activities		125 / 5
Basic references	1. Haines, Roger W., and Michael E. Myers. HVAC Systems Design Handbook. 5th ed. New York: McGraw-Hill, 2010. 2. Vedavarz, Ali Kumar, Sunil Hussain, Muhammed Iqbal. (2007). HVAC - The Handbook of Heating, Ventilation and Air Conditioning for Design and Implementation. Industrial Press.	
Supplementary references	1. Legg, Roger. Air Conditioning System Design. Oxford: Elsevier Science & Technology, 2017. Web. 2. ASHRAE. Air Conditioning System Design Manual. Elsevier Science & Technology, 2007. Web. 3. Krawczyk D.A. (Ed.) Buildings 2020+.Architecture, Constructions and Installations.	

	4. Publishing House of BUT, Białystok 2019.	
Organisational unit conducting the course	**Department of HVAC Engineering**	**Date of issuing the programme**
Author of the programme	**dr inż. Anna Justyna Werner-Juszczuk**	**03.02.2022**

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