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">Air conditioning and Ventilation systems 1</td><td colspan="2">Course code</td><td>FCEE-00108W</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>15</td><td>30</td><td></td><td></td><td></td><td colspan="2">No. of ECTS credits</td><td>5</td></tr>
<tr><td>Entry requirements</td><td colspan="9">Fluid mechanics, heat transfer, thermodynamics</td></tr>
<tr><td>Course objectives</td><td colspan="9">Advance knowledge about types of ventilation elements. Ability to calculate and select main elements. Knowledge about ventilation types, their advantages and disadvantages. Ability to create a mechanical ventilation system design for a small house.</td></tr>
<tr><td>Course content</td><td colspan="9">Lecture;
Heat gains. Types of ventilation. Schemas of ventilation systems. Advantages and disadvantages of selected HVAC systems. Main elements..
Project:
Heat gains. Types of ventilation. Schemas of ventilation systems. Advantages and disadvantages of selected HVAC systems. Main elements.</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">e.g.: lecture – exam; project – project completion, presentation and discussion</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">Student has an elementary knowledge of the materials used in ventilation and air-conditioning (dusts, units etc.)</td><td colspan="2"></td></tr>
<tr><td>LO2</td><td colspan="7">Student knows the rules of technical drawing necessary for reading and writing architectural data needed for system designs, as well a knows the rules for making a sanitary drawing using CAD</td><td colspan="2"></td></tr>
<tr><td>LO3</td><td colspan="7">Student knows standards, specific rules and law connected with calculations of cool load and ventilation air flow, system designs and selection of necessary elements of a system</td><td colspan="2"></td></tr>
<tr><td>LO4</td><td colspan="7">Student is able to obtain information from the literature, databases about different types installations etc. Student can compare</td><td colspan="2"></td></tr>
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	knowledge from different sources, interpret data, make conclusions, formulate and justify own opinions.	
LO5	Student is able to work individually and in a team during the laboratory course and can estimate the time needed for the study.	
LO6	Student can make the installation design, prepare the technical description and explain the scope of the project.	
Symbol of learning outcome	**Methods of assessing the learning outcomes**	**Type of tuition during which the outcome is assessed**
LO1	evaluating the student's reports, exam, design presentation	L, P
LO2	design form	P
LO3	design form and presentation, exam	P, L
LO4	exam, design form and presentation	L, P
LO5	evaluating the student's work	P
LO6	discussion of the student's design	P

Student workload (in hours)		discussion of the student's design	P
Calculation	lecture attendance	15	
	participation in classes,	30	
	preparation for classes,	30	
	working on projects	45	
	implementation of project tasks	20	
	TOTAL:	**140**	

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	Krawczyk D.A. (Ed.) Buildings 2020+.Architecture, Constructions and Installations. Publishing House of BUT, Białystok 2019. Refrigeration and air conditioning technology / William C. Whitman [et al.]. Delmar Publ. ; Andover : Cengage Learning, 2013.
Supplementary references	HANDBOOK OF AIR CONDITIONING AND REFRIGERATION Shan K. Wan, 2001, The McGraw-Hill Companies (PDF available at http://www.gmpua.com)
Organisational unit conducting the course	Heating, Ventilation, Air Conditioning Department — **Date of issuing the programme**
Author of the programme	Assoc. Prof. Dorota Anna Krawczyk, DSc, PhD, Eng. — **12.2019**

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

S – seminar