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">Environmental Engineering</td><td>Degree level and programme type</td><td colspan="2"></td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="6">International School of Engineering</td><td>Study profile</td><td colspan="2"></td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">Noise and vibrations protection</td><td>Course code</td><td colspan="2">19284213H/IS1S51041</td></tr>
<tr><td>Course type</td><td colspan="2">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 colspan="2">VI</td></tr>
<tr><td>-</td><td>-</td><td>-</td><td>-</td><td>1</td><td>-</td><td>-</td><td>No. of ECTS credits</td><td colspan="2">1</td></tr>
<tr><td>Entry requirements</td><td colspan="9">Mathematics, Physics</td></tr>
<tr><td>Course objectives</td><td colspan="9">Understanding related to sound propagation. Influence of acoustic systems and building materials on room acoustics. Measurements and calculations of basic acoustic quantities characterizing the environment and rooms. Assessment of the building in terms of acoustic insulation of building partitions.</td></tr>
<tr><td>Course content</td><td colspan="9">Basic concepts of physics including phenomena related to the formation and propagation of acoustic waves. Acoustic field, reverberation time. Room acoustics. Regulations on noise protection in housing and public utility buildings. Sound-absorbing materials and structures. Acoustic insulation of building partitions.</td></tr>
<tr><td>Teaching methods</td><td colspan="9">presentation, description of issues, discussion, work with a sound analyzer</td></tr>
<tr><td>Assessment method</td><td colspan="9">Written form / possibly oral form after prior arrangement /</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">understands the basic physical phenomena in the field of building acoustics, vibrations and vibrations</td><td colspan="2">K_W02</td></tr>
<tr><td>LO2</td><td colspan="7">has elementary knowledge of environmental engineering regarding protection against noise and vibration</td><td colspan="2">K_W03</td></tr>
<tr><td>LO3</td><td colspan="7">knows elementary knowledge, standards, guidelines and principles of designing objects in the field of building acoustics</td><td colspan="2">K_W016</td></tr>
<tr><td>LO4</td><td colspan="7">can work individually and in a team</td><td colspan="2">K_U03</td></tr>
<tr><td>LO5</td><td colspan="7">is able to prepare and present the results of tasks related to the determination of acoustic resistance of building partitions, the</td><td colspan="2">K_U04</td></tr>
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	reverberation time of the room and methods of improving the above values	
LO6	is able to measure the basic values of the sound intensity level, as well as vibrations and vibrations with the use of available measuring devices	**K_U11**
LO7	applies health and safety rules	**K_U12**
LO8	knows the need to constantly improve their qualifications	**K_K01**
Symbol of learning outcome	**Methods of assessing the learning outcomes**	**Type of tuition during which the outcome is assessed**
LO1	execution of the exercise and reports	SW
LO2	review test	SW
LO3	review test	SW
LO4	doing the exercise	SW
LO5	exercise and report	SW
LO6	exercise and report	SW
LO7	work in class	SW
LO8	work in class	SW
Student workload (in hours)		**No. of hours**
Calculation	Participation in a specialist studio	**16**
	Preparation of studio reports and / or homework	**8**
	participation in student-teacher sessions related to the specialist studio	**5**
	Preparation for exercises	**8**
	TOTAL:	**37**

Quantitative indicators	**HOURS**	**No. of ECTS credits**
Student workload – activities that require direct teacher participation	**21**	**0,8**
Student workload – practical activities	**37**	**1,5**

Basic references	1. Malcolm J. Crocker at al., Engineering Acoustics: Noise and Vibration Control, John Wiley and Sons, 2020.
Supplementary references	1. István L. Vér and Leo L. Beranek, Noise and vibration control engineering: principles and applications , Hoboken : John Wiley and Sons, 2006. 2. William J. Palm III, Mechanical vibration, Hoboken : John Wiley and Sons, 2007.
Organisational unit conducting the course	**Department of District Heating, Heating and Ventilation** — **Date of issuing the programme**
Author of the programme	**Ph.D Piotr Rynkowski** — **09.05.2022**

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