COURSE DESCRIPTION CARD – SPECIMEN

<table>
<tr><td colspan="10">Faculty of Mechanical Engineering</td></tr>
<tr><td>Field of study</td><td colspan="6"></td><td colspan="2">Degree level and programme type</td><td>Bachelor's degree/Master's degree/Doctoral degree</td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="6"></td><td colspan="2">Study profile</td><td></td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">Biophysics</td><td colspan="2">Course code</td><td>IS-FME-00145W</td></tr>
<tr><td colspan="2">Course type</td><td></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>winter</td></tr>
<tr><td>30</td><td></td><td></td><td></td><td></td><td></td><td></td><td>No. of ECTS credits</td><td>3</td></tr>
<tr><td>Entry requirements</td><td colspan="9">-</td></tr>
<tr><td>Course objectives</td><td colspan="9">Objectives of the course are to study selected biological and biomedical phenomena using physical principles with appropriate elementary mathematics. Student will understand the importance of continuous learning and combining knowledge from different fields of knowledge. Student will be able to formulate new problems related to life sciences and search for their solution</td></tr>
<tr><td>Course content</td><td colspan="9">Bioenergetics, biomechanics, muscle and connetive tissue physics, diffusion and directed transport, thermodynamics, fluid and air flow, stability, cellular-molecular biophysics, physical methods in biology and medicine, complexity and nonlinear system.</td></tr>
<tr><td>Teaching methods</td><td colspan="9">Lecture</td></tr>
<tr><td>Assessment method</td><td colspan="9">lecture – oral exam</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 describes the processes and phenomena occurring in nature in relation to living matter</td><td colspan="2">IBK_W01</td></tr>
<tr><td>LO2</td><td colspan="7">discusses the importance of biophysics among other sciences</td><td colspan="2">IBK_W02</td></tr>
<tr><td>LO3</td><td colspan="7">searches for and obtains information from many sources</td><td colspan="2">IBK_U01, IBK_U04</td></tr>
<tr><td>LO4</td><td colspan="7">is aware of the continuous development of of biophysics</td><td colspan="2">IBK_K01</td></tr>
<tr><td>LO5</td><td colspan="7"></td><td colspan="2"></td></tr>
<tr><td>LO6</td><td colspan="7"></td><td colspan="2"></td></tr>
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Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed
LO1	tests, qualifying lecture	**L**
LO2	tests, qualifying lecture	**L**
LO3	tests, qualifying lecture	**L**
LO4	tests, qualifying lecture	**L**
LO5		
LO6		

Student workload (in hours)		No. of hours
Calculation	**lecture attendance**	**30**
	preparation for and participation in exams/tests	**15**
	TOTAL:	**45**

Quantitative indicators	HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation	**30**	**2**
Student workload – practical activities	**15**	**1**

Basic references	**1**. Jue, Thomas. Biomedical applications of biophysics. Humana Press, 2010. 2. Pinchuk, Leonid Semenovich, et al. Tribology and biophysics of artificial joints. Elsevier Science Ltd, 2005. 3. Dillon, Patrick F. Biophysics: a physiological approach. Cambridge University Press, 2012.
Supplementary references	4. Kappen, Bert. "Introduction to biophysics." (2008), www.snn.ru.nl/~bertk/biofysica/handouts.pdf 5. Chatwal, Dr. Gurdeep R., Biophysics, Himalaya Publishing House, 2007
Organisational unit conducting the course	**Department Biocybernetics and Biomedical Engineering** — **Date of issuing the programme**
Author of the programme	**Edward Oczeretko** — **19.03.2021**

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

Please notice!
Depending on number of students enrolled for the subject hours of tuition are as follows (for each 30 hours given in course description card):
1 – 2 students - 5 hours of tuition hours;
3 – 4 students - 8 hours of tuition;
5 – 6 students - 11 hours of tuition;
7 – 8 students - 15 hours of tuition;
9 and more students - hours of tuition given by a teacher as regular classes.