COURSE DESCRIPTION CARD – SPECIMEN

<table>
<tr><td colspan="10">Faculty of Mechanical Engineering</td></tr>
<tr><td>Field of study</td><td colspan="6">Mechatronics</td><td colspan="2">Degree level and programme type</td><td>Bachelor</td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="6">general</td><td colspan="2">Study profile</td><td></td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">Introduction to robotics</td><td colspan="2">Course code</td><td>IS-FME-00218S</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>summer</td></tr>
<tr><td>30</td><td></td><td>30</td><td></td><td></td><td></td><td></td><td>No. of ECTS credits</td><td>5</td></tr>
<tr><td>Entry requirements</td><td colspan="9">Introduction to mechatronics, Engineering Mechanics</td></tr>
<tr><td>Course objectives</td><td colspan="9">Introduction to robotics basics components and rules of use. Acquisition of programming skills for industrial manipulators.</td></tr>
<tr><td>Course content</td><td colspan="9">Learning basic robotics concepts and essential robot components. Obtaining knowledge in the field of manipulator kinematics. Getting to know the individual components of the robot, their advantages and disadvantages and the principles of their selection. Getting to know the basic structures and commands used in programming industrial manipulators. Acquainting with different forms of robot mobility, advantages and disadvantages of individual solutions.</td></tr>
<tr><td>Teaching methods</td><td colspan="9">power-point presentations, discussion, other documents given by the teacher, programming of various types of industrial robots</td></tr>
<tr><td>Assessment method</td><td colspan="9">lecture – written exam; laboratory classes – laboratory reports</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 student is familiar with basic terms of robotics</td><td colspan="2"></td></tr>
<tr><td>LO2</td><td colspan="7">The student can determine D-H parameters necessary to solve tasks of the robot's or manipulator's kinematics</td><td colspan="2"></td></tr>
<tr><td>LO3</td><td colspan="7">The student knows the critical components of the robot program</td><td colspan="2"></td></tr>
<tr><td>LO4</td><td colspan="7">The student can program different types of industrial robots</td><td colspan="2"></td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="7">Methods of assessing the learning outcomes</td><td colspan="2">Type of tuition during which the outcome is assessed</td></tr>
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LO1	**written exam, activity during classes**	
LO2	**written exam, activity during classes**	
LO3	**laboratory reports, student activity on laboratory classes**	
LO4	**laboratory reports, student activity on laboratory classes**	
Student workload (in hours)		**No. of hours**
Calculation	**lecture attendance**	**30**
	participation in lecture, laboratory classes	**30**
	working on projects, reports, etc.	**15**
	participation in student-teacher sessions related to the classes /project	**15**
	implementation of project tasks and preparation for and participation in exams/tests	**30**
	TOTAL:	**120**

Quantitative indicators	**HOURS**	**No. of ECTS credits**
Student workload – activities that require direct teacher participation	**75**	**2,5**
Student workload – practical activities	**90**	**3**

Basic references	**1. Schaal S.: Robotics. MIT Press, 2006.** **2. Siciliano B., Khatib O.: Handbook of Robotics. Springer, 2008.** **3. Stadler W.: Analytical robotics and mechatronics. McGraw-Hill, Inc., 1995.**
Supplementary references	**1. Craig J.J.: Introduction to robotics: mechanics and control. Addison-Wesley, Third Edition, 2003.** **2. Murphy R.R.: Disaster robotics. The MIT Press, 2014.**

Organisational unit conducting the course	**Department of Applied Mechanics and Computer Science**	**Date of issuing the programme**
Author of the programme	**Justyna Tołstoj-Sienkiewicz, PhD**	**15.06.2020**

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.