<table>
<thead>
<tr>
<th>Field of study</th>
<th>Mechatronics</th>
<th>Degree level and programme type</th>
<th>second-cycle (MSc, Eng) full-time studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialization/ diploma path</td>
<td>Common course</td>
<td>Study profile</td>
<td>academic</td>
</tr>
<tr>
<td>Course name</td>
<td>Advanced CAx systems</td>
<td>Course code</td>
<td>IS-FME-00186S</td>
</tr>
<tr>
<td>Forms and number of hours of tuition</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Entry requirements</td>
<td>-</td>
<td>No. of ECTS credits</td>
<td>4</td>
</tr>
<tr>
<td>Course objectives</td>
<td>The course objectives are: discussion of parametric CAx systems, getting students acquainted with the possibilities of CAx systems and automation of design work in CAx systems, as well as students' command of advanced tools for modelling parts of mechatronic devices in CAx software.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching methods</td>
<td>Information and problem lecture; Project classes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment method</td>
<td>Lecture: two tests; Project: evaluation of: students' projects, their ongoing work progress, participation in discussions and students' activity during classes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symbol of learning outcome</td>
<td>Learning outcomes Students who successfully complete the course:</td>
<td>Reference to the learning outcomes for the field of study</td>
<td></td>
</tr>
<tr>
<td>LO1</td>
<td>know CAx system structures</td>
<td>MK2_W02</td>
<td></td>
</tr>
<tr>
<td>LO2</td>
<td>know the principles of creating and develop intelligent and flexible CAD models</td>
<td>MK2_W02, MK2_U06</td>
<td></td>
</tr>
<tr>
<td>LO3</td>
<td>know and apply tools used for automation of work related to the design of mechatronic device parts</td>
<td>MK2_W02, MK2_U06</td>
<td></td>
</tr>
<tr>
<td>LO4</td>
<td>use tools for parametrisation of solid models</td>
<td>MK2_U06</td>
<td></td>
</tr>
<tr>
<td>LO5</td>
<td>can create assemblies, using the top-to-bottom method and applying intelligent components in assemblies</td>
<td>MK2_U06</td>
<td></td>
</tr>
<tr>
<td>LO6</td>
<td>can design elements in the context of their manufacturing</td>
<td>MK2_U06, MK2_U10, MK2_U11</td>
<td></td>
</tr>
<tr>
<td>LO7</td>
<td>generate models, taking into account control conditions (strength criterion, rigidity)</td>
<td>MK2_U06</td>
<td></td>
</tr>
<tr>
<td>Symbol of learning outcome</td>
<td>Methods of assessing the learning outcomes</td>
<td>Type of tuition during which the outcome is assessed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Bialystok University of Technology, Faculty of Mechanical Engineering

Załącznik nr 2 do Zarządzenia Nr 915 z 2019 r. Rektora PB

Bialystok University of Technology, Faculty of Mechanical Engineering
| **LO1** | Lecture: two tests; | L |
| **LO2** | Lecture: two tests; Project: evaluation of: students' projects, their ongoing work progress, participation in discussions and students' activity during classes; | L, P |
| **LO3** | Lecture: two tests; Project: evaluation of: students' projects, their ongoing work progress, participation in discussions and students' activity during classes; | L, P |
| **LO4** | Project: evaluation of: students' projects, their ongoing work progress, participation in discussions and students' activity during classes; | P |
| **LO5** | Project: evaluation of: students' projects, their ongoing work progress, participation in discussions and students' activity during classes; | P |
| **LO6** | Project: evaluation of: students' projects, their ongoing work progress, participation in discussions and students' activity during classes; | P |
| **LO7** | Project: evaluation of: students' projects, their ongoing work progress, participation in discussions and students' activity during classes; | P |

**Student workload (in hours)**

<table>
<thead>
<tr>
<th>Calculation</th>
<th>No. of hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in lectures</td>
<td>30</td>
</tr>
<tr>
<td>Participation in project classes</td>
<td>30</td>
</tr>
<tr>
<td>Preparation for passing the lecture</td>
<td>19</td>
</tr>
<tr>
<td>Preparation for project assignments</td>
<td>24</td>
</tr>
<tr>
<td>Completion of project assignments (including preparation of presentations)</td>
<td>10</td>
</tr>
<tr>
<td>Preparation for passing project assignments</td>
<td>7</td>
</tr>
<tr>
<td>Participation in consultations</td>
<td>5</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>125</strong></td>
</tr>
</tbody>
</table>

**Quantitative indicators**

<table>
<thead>
<tr>
<th>Student workload – activities that require direct teacher participation</th>
<th>HOURS</th>
<th>No. of ECTS credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student workload – practical activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Tarnowski W.: Podstawy projektowania technicznego, WNT, Warszawa, 1997;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Trade journals (Design News Polska, Projektowanie i Konstrukcje inżynierskie)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Organisational unit conducting the course**

Department of Mechanics and Applied Computer Science

**Author of the programme**

Pawel Dzienis, PhD, MSc, Eng

**Date of issuing the programme**

24.04.2019

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