1. **Course title:** ELECTRONICS, MECHATRONICS, ROBOTICS

2. **Course code:** 16.1

3. **Validity of course description:** 2012/2013

4. **Level of studies:** BA, BSc programme / MA, MSc programme / 1st cycle / 2nd cycle of higher education

5. **Mode of studies:** intramural studies / extramural studies

6. **Field of study:** INDUSTRIAL INFORMATION TECHNOLOGY (FACULTY SYMBOL) RM

7. **Profile of studies:** regular academic

8. **Programme:** -

9. **Semester:** VI, VII

10. **Faculty teaching the course:** Department of Management and Information Technology

11. **Course instructor:** professor Jerzy Barglik

12. **Course classification:** common courses

13. **Course status:** compulsory / elective

14. **Language of instruction:** English

15. **Pre-requisite qualifications:** Mathematics, Physics, Basic of programming, Information Technology

16. **Course objectives:** learning of students with basic problems of electrical engineering, electronics, small electrical drives, basic of kinematics, control systems, programming and construction for systems

17. **Description of learning outcomes:**

<table>
<thead>
<tr>
<th>Nr</th>
<th>Learning outcomes description</th>
<th>Method of assessment</th>
<th>Teaching methods</th>
<th>Learning outcomes reference code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Student is familiar with basic terms of industrial electronics and metrology</td>
<td>test (in writing)</td>
<td>lecture</td>
<td>KIA_W05</td>
</tr>
<tr>
<td>2.</td>
<td>Student is familiar with knowledge of classification and construction of mechatronic systems</td>
<td>test (in writing)</td>
<td>lecture</td>
<td>KIA_W14 KIA_W07</td>
</tr>
<tr>
<td>3.</td>
<td>Student is familiar with problems of construction and programming of microcontrollers</td>
<td>test (in writing)</td>
<td>lecture</td>
<td>KIA_W05</td>
</tr>
<tr>
<td>4.</td>
<td>Student has knowledge on basics of kinematics and programming of industrial robots</td>
<td>test (in writing)</td>
<td>lecture</td>
<td>KIA_W01 KIA_W02</td>
</tr>
<tr>
<td>5.</td>
<td>Student is able to built simple combination and sequencer systems and a system for analog signal transformation</td>
<td>report</td>
<td>laboratory</td>
<td>KIA_U11</td>
</tr>
<tr>
<td>6.</td>
<td>Student is able to choose sensors and actuators with characteristics suitable for selected technical problems</td>
<td>report</td>
<td>laboratory</td>
<td>KIA_U15</td>
</tr>
<tr>
<td>7.</td>
<td>Student is able to solve a simple steering task for mobile robot and arm of the robot</td>
<td>report</td>
<td>laboratory</td>
<td>KIA_U16</td>
</tr>
<tr>
<td>8.</td>
<td>Student is able to elaborate simple software for a system with selected architecture</td>
<td>report</td>
<td>laboratory</td>
<td>KIA_U16</td>
</tr>
</tbody>
</table>

18. **Teaching modes and hours**

Lecture / BA / MA Seminar / Class / Project / Laboratory

Lecture: Sem 6 - 30 h., Sem 7 - 30 h. Laboratory: Sem 6 - 60 h., Sem 7 - 30 h
19. Syllabus description:

Lectures:

Laboratory

20. Exam  

21. Primary sources:
22. Secondary sources:
1. Schmid D.: Mechatronika. Wyd."rea"
2. Gawrysiak M. Mechatronika i projektowanie mechatroniczne. Wyd. Pol. Białostockiej, Białystok (dostępne w internecie)

23. Total workload required to achieve learning outcomes

<table>
<thead>
<tr>
<th>Lp.</th>
<th>Teaching mode</th>
<th>Contact hours / Student workload hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lecture</td>
<td>60/14</td>
</tr>
<tr>
<td>2</td>
<td>Classes</td>
<td>/</td>
</tr>
<tr>
<td>3</td>
<td>Laboratory</td>
<td>90/30</td>
</tr>
<tr>
<td>4</td>
<td>Project</td>
<td>/</td>
</tr>
<tr>
<td>5</td>
<td>BA/ MA Seminar</td>
<td>/</td>
</tr>
<tr>
<td>6</td>
<td>Other Consultations Pass</td>
<td>30/0 6/10</td>
</tr>
<tr>
<td></td>
<td>Total number of hours</td>
<td>186/54</td>
</tr>
</tbody>
</table>

24. Total hours: 240

25. Number of ECTS credits: 8

26. Number of ECTS credits allocated for contact hours: 6

27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects): 4

26. Comments:-

Approved:

.................................................. ..................................................
(date, Instructor's signature) (date, the Director of the Faculty Unit signature)