Study program: Master in Mechatronics

Type and level of studies: Master studies (second level of studies)

Course unit: Industrial Communication Networks

Teacher in charge: Djukic R. Slobodan

Language of instruction: English

ECTS: 6

Prerequisites: None

Semester: Winter

Course unit objective
Course goal is to introduce to students set of communication networks and protocols used in industry. Students are introduced to practical issues related to the usage of industrial communication networks, such as basic properties, topologies and field of their use.

Learning outcomes of Course unit
Upon successful completion of the course, students are qualified to apply the acquired knowledge on industrial communication networks and protocols in real industrial applications.

Course unit contents

Theoretical classes
2. Low-level communication networks (properties and topology of AS-Interface networks)
3. Mid-level communication networks (properties and topology of RS485 and CAN networks, Profibus, Modbus, CanOpen and DeviceNet communication protocols)
4. High-level communication networks (properties and topology of Industrial Ethernet networks, ProfiNet and ModNet communication protocols)
5. Radio Identification (RFID) systems (active and passive RFID systems)
6. Wireless communication networks (properties and topology of IEEE 802.11, IEEE 802.15.4 and GSM networks)

Practical classes
Lab and computer sessions, case study

Literature

Number of active teaching hours
Lectures: 2  Practice:2  Other forms of classes: Mentoring system  Independent work: Case study

Teaching methods: consultations, independent work

Examination methods ( maximum 100 points)
Exam prerequisites  No. of points:  Final exam  No. of points:
Student’s activity during lectures 10  oral examination 40
Practical classes 10  written examination 0
Seminars/homework 20
Project 20

Grading system
<table>
<thead>
<tr>
<th>Grade</th>
<th>No. of points</th>
<th>Description</th>
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<tbody>
<tr>
<td>10</td>
<td>91-100</td>
<td>Excellent</td>
</tr>
<tr>
<td>9</td>
<td>81-90</td>
<td>Exceptionally good</td>
</tr>
<tr>
<td>8</td>
<td>71-80</td>
<td>Very good</td>
</tr>
<tr>
<td>7</td>
<td>61-70</td>
<td>Good</td>
</tr>
<tr>
<td>6</td>
<td>51-60</td>
<td>Passing</td>
</tr>
<tr>
<td>5</td>
<td>less than 50</td>
<td>Failing</td>
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