# Informatics in Robotics

**Course code**: INF2IWR  
**Course type**: elective

<table>
<thead>
<tr>
<th>Forms and number of hours of tuition</th>
<th>L</th>
<th>C</th>
<th>LC</th>
<th>P</th>
<th>SW</th>
<th>FW</th>
<th>S</th>
<th>No. of ECTS credits</th>
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<td></td>
<td>15</td>
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<td>30</td>
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<td>3</td>
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**Semester**: 2, 3  
**No. of ECTS credits**: 3

**Entry requirements**:  
Lectures: To familiarize students with the basics of robotics. Developing a broad perspective on problems related to the work of robots in real conditions.

Practical classes: Implementation of navigation algorithms on real mobile constructions based on Mindstorms NXT educational robots. Designing the behavior of mobile systems.

**Course objectives**:  


**Course content**:  
Lectures: 
- Programming mobile robots to perform navigation tasks: avoiding obstacles, location, mapping, SLAM. Intelligent Robots.

Practical classes: 

**Teaching methods**: Informative lecture, lecture problem, programming.

**Assessment method**: Lecture - tests. Practical classes - work during the classes, reports from the classes.

**Symbol of learning outcome**: Lecture - tests. Practical classes - work during the classes, reports from the classes.

**Reference to the learning outcomes for the field of study**:  
- LO1: understands the tasks of kinematics in robotics and can solve simple kinematics tasks  
- INF2_W05
- LO2: understands and implements mobile navigation algorithms  
- INF2_W03, INF2_U04
- LO3: designs and implements two robot communications  
- INF2_U04, INF2_K01
- LO4: tests the accuracy and effectiveness of mobile systems in various conditions.  
- INF2_U11, INF2_K01

**Methods of assessing the learning outcomes**:  
- Test  
- Test, reports  
- Reports  
- Reports

**Type of tuition during which the outcome is assessed**:  
- Lecture  
- Lecture, Project  
- Project  
- Project

**Student workload (in hours)**:  
1 - Participation in lectures - 15x1h  
2 - Participation in practical classes - 15x2h  
3 - Preparation to the lecture  
4 - Implementation of project tasks (including preparation of presentations)  
5 - Participation in teachers hours  

**TOTAL**: 75

**Evaluation of student workload**:  
**Student workload - activities that require direct teacher participation**:  
50 (1+2+3)  
No. of ECTS credits: 2.0

**Student workload - practical activities**:  
50 (2+4+5)  
No. of ECTS credits: 2.0

**Basic references**:  

**Supplementary references**:  

**Organisational unit conducting the course**: Department of Digital Media and Computer Graphics

**Author of the programme**: dr inż. Teodora Dimitrova-Grekow  
**Date of issuing the programme**: May 22, 2020

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