

GDAŃSK UNIVERSITY

Subject card

| Subject name and code | Basics of Robotics - laboratory, PG_00047592 | | | | | | | |
|--|---|--------------------------------|---|-----------------------|------------------------|--|---------|-----|
| Field of study | Automatic Control, Cybernetics and Robotics | | | | | | | |
| Date of commencement of studies | October 2023 | | Academic year of realisation of subject | | | 2025/2026 | | |
| Education level | first-cycle studies | | Subject group | | | Obligatory subject group in the field of study | | |
| | | | | | | Subject group related to scientific research in the field of study | | |
| Mode of study | Full-time studies | | Mode of delivery | | | at the university | | |
| Year of study | 3 | | Language of instruction | | | Polish | | |
| Semester of study | 5 | | ECTS credits | | | 1.0 | | |
| Learning profile | general academic profile | | Assessment form | | | assessment | | |
| Conducting unit | Department of Automatic Control -> Faculty of Electronics, Telecommunications and Informatics | | | | | | ics | |
| Name and surname | Subject supervisor | | dr inż. Piotr Fiertek | | | | | |
| of lecturer (lecturers) | Teachers | | dr inż. Piotr F | dr inż. Piotr Fiertek | | | | |
| Lesson types and methods | Lesson type | Lecture | Tutorial | Laboratory | Projec | t | Seminar | SUM |
| of instruction | Number of study hours | 0.0 | 0.0 | 15.0 | 0.0 | | 0.0 | 15 |
| | E-learning hours included: 0.0 | | | | | | | |
| Learning activity and number of study hours | Learning activity Participation ir classes includ plan | | | | Self-study SL | | SUM | |
| | Number of study hours | of study 15 | | 1.0 | | 9.0 | | 25 |
| Subject objectives | Students do exercises related to issues described during the lecture: programming of industrial robots from Kawasaki (FA06E, RS03N) and Mitsubishi (RV-12SDL), getting acquainted with image processing algorithms. | | | | | | | |
| Learning outcomes | Course out | Course outcome Subject outcome | | | Method of verification | | | |
| | [K6_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study [K6_U05] can plan and conduct experiments related to the field of study, including computer simulations and measurements; interpret obtained results and draw conclusions | | The student got acquainted with the simulation environments and robot programming techniques of Kawasaki and Mitsubishi. The student learned to program robots from Kawasaki and Mitsubishi. The student learned the basic techniques of image processing. The student familiarized himself with the methodology of calibration of industrial robots. The student got acquainted with the method of robot communication with external devices. The student is able to conduct research and experiment in a simulation environment. He draws conclusions from the obtained results, repeats experiments until an acceptable result is obtained. | | | [SU1] Assessment of task fulfilment [SU1] Assessment of task fulfilment | | |
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| 1. Learning of the simulation environment for Kawasaki robots - K-Roset. 2. Learning of the simulation environment for Mitsubishi robots - RT Toolbox2. 3. Implementation of a selected task in the field of image processing based on the Adaptive Vision Studio Lite program by Future Processing Sp. with o 4. Calibration of the robot at the station equipped with the Kawasaki RS03N robot. Drawing drawing by a robot. 5. Cooperation with the environment - at the station equipped with Kawasaki FA06E robot and the model of the conveyor line. The task of moving blocks. 6. Mitsubishi robot station - implementation of tasks related to moving the blocks. Prerequisites and corteria The Denavit-Hartenberg's notation. Assessment methods and criteria Subject passing criteria Practical exercises, all tasks must be completed at a minimum of 50% Recommended reading Basic literature 1. Fiertek P., Tatara M.: Podstawy Robotyki - Laboratorium. Skrypt Politechnik Gadanskiej; 2017. Supplementary literature 1. Morecki A, Knapczyk. J.: Podstawy Robotyki - Laboratorium. Skrypt Politechnik Watawnictwo Naukow-Techniczne. Warszawa: 1997. Supplementary literature 1. Morecki A, Knapczyk. J.: Podstawy robotyki, Tegria i elementry manpulatorixi i robotyw. Wydawnictwa Naukow-Techniczne. Warszawa: 1997. Supplementary literature 1. Morecki A, Knapczyk. J.: Podstawy robotyki, Tegria i elementry manpulatorixi i robotyw. Wydawnictwa Naukow-Techniczne. Warszawa: 1997. Supplementary literature 1. Morec | Subject contents | Laboratory exercises are a practical illustration of the issues presented in the lecture. | | | | | | |
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