# COURSE DESCRIPTION CARD - SYLLABUS

Course name
Internship 2 [S1AiR2P>Prakt2]

## Course

Field of study
Automatic Control and Robotics

Year/Semester
2/4

Area of study (specialization)
–

Profile of study
practical

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

## Number of hours

Lecture
0

Laboratory classes
0

Other
75

Tutorials
0

Projects/seminars
0

## Number of credit points

3,00

## Coordinators

dr inż. Robert Bączyk
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## Lecturers

## Prerequisites

A student starting this subject should have basic knowledge, skills and social competences resulting from the implementation of the study program for the field of Automatic Control and Robotics in the group of basic and major subjects. In addition, the apprentice should already know and apply the health and safety rules valid in the company.

## Course objective

The aim of the internship is to familiarize students with the industrial automation systems (types of controllers and industrial buses) installed in the plant and to begin professional education in the profession of automation.

## Course-related learning outcomes

Knowledge:
1. Is aware of the current state and the latest development trends in the field of automation and robotics.
2. Has basic knowledge necessary to understand the non-technical determinants of engineering activities and the process of automation and robotization in industry and households; knows the basic principles of occupational health and safety applicable in industry.

3. Has basic knowledge of management, including quality management and running a business.
4. Knows and understands the basic concepts and principles of the protection of industrial property and copyright; can use the resources of patent information.
5. Knows and understands the general principles of creating and developing forms of individual entrepreneurship, using knowledge of automation and robotics.

Skills:
1. Can apply the principles of occupational health and safety.
2. Can read and understand technical design documentation and simple technological diagrams of automation and robotics systems.
3. Can identify and formulate the specification of simple engineering tasks in the field of automation and robotics.

Social competences:
1. Is aware of the importance and understands the non-technical aspects and effects of engineering activities, including its impact on the environment and the related responsibility for decisions made, is ready to care for the achievements and traditions of the profession.
2. Is aware of responsibility for their own work and readiness to submit to the rules of teamwork and responsibility for jointly performed tasks; is able to lead a small team, set goals and set priorities leading to the implementation of a task; is ready to perform professional roles responsibly.
3. Is ready to define priorities in order to accomplish the task set by himself or others.
4. Is aware of the need for a professional approach to technical issues, scrupulous familiarization with the documentation and environmental conditions in which devices and their components may operate, is ready to comply with the principles of professional ethics and require others to do so, respect the diversity of views and cultures.
5. Is willing to think and act in an entrepreneurial manner.

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

An internship report and questionnaire describing the achieved learning outcomes certified by the internship tutor.

## Programme content

Implementation of an individual internship program.

## Course topics

Getting to know and starting practical exercises at dedicated training stations equipped with PLC controllers and accompanying elements (sensors and actuators). Getting acquainted with the detailed technical documentation of the workstations and the health and safety rules applicable there.
Implementation of an individual internship program.
Preparing a report on the course of the internship.

## Teaching methods

Teaching methods should be adapted to the individual internship program.

## Bibliography

Basic:
1. Poradnik mechatronika, praca zbiorowa, Wydawnictwo Rea 2020.
2. Bismor Dariusz, Programowanie systemów sterowania: narzędzia i metody, wyd.1, Warszawa, Wydawnictwo Naukowe PWN, 2017.
3. Szelerski Marek, Automatyka przemysłowa w praktyce: projektowanie, modernizacja i naprawa, wyd.1, Krosno, Wydawnictwo KaBe, 2016.
4. Markiewicz Henryk, Instalacje elektryczne, wyd.9, Warszawa, Wydawnictwo Naukowe PWN, 2018.
5. Macko Marek, Rysunek techniczny maszynowy dla automatyków i mechatroników, wyd.1, Warszawa, Wydawnictwo Naukowe PWN S.A. 2023

Additional:
1. Gibilisco Stan, Schematy elektroniczne i elektryczne: przewodnik dla początkujących, wyd.4, Gliwice, Helion, 2021.
2. Biały Witold Podstawy maszynoznawstwa, wyd. 2, Warszawa, Wydawnictwo Naukowe PWN, 2017.
3. Tuchliński Ryszard , Ślusarstwo ogólne, wyd.2, Krosno, Wydawnictwo KaBe, 2022.
4. Regulamin studiów pierwszego i drugiego stopnia uchwalony przez Senat Akademicki Politechniki Poznańskiej, Uchwała Nr 42/2020-2024 z dnia 31 maja 2021r.
5. Regulaminie studenckich praktyk zawodowych w Politechnice Poznańskiej, Zarządzenie Nr 11 Rektora PP z dnia 29 marca 2023 r.
6. Obwieszczenie Ministra Gospodarki, Pracy i Polityki Społecznej z dnia 28 sierpnia 2003 r. w sprawie ogłoszenia jednolitego tekstu rozporządzenia Ministra Pracy i Polityki Socjalnej w sprawie ogólnych przepisów bezpieczeństwa i higieny pracy. Dz.U. 2003 nr 169 poz. 1650.

## Breakdown of average student's workload

| | Hours | ECTS |
|---|---|---|
| Total workload | 75 | 3,00 |
| Classes requiring direct contact with the teacher | 75 | 3,00 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 0 | 0,00 |