POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Industrial controllers

Course

Field of study	Year/Semester
Mechanical engineering	4/7
Area of study (specialization)	Profile of study
	practical
Level of study	Course offered in
First-cycle studies	polish
Form of study	Requirements
full-time	elective

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
15	15	
Tutorials	Projects/seminars	

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

dr inż. D. Sędziak

e-mail: dariusz.sedziak@put.poznan.pl

tel. 61 665 22 55

Wydział Inżynierii Mechanicznej

ul. Piotrowo 3, 60-965 Poznań

tel.: 061 665 23 62

Responsible for the course/lecturer:

Prerequisites

The student learned the basics of electronics, basics of automation, elements of mechatronics, drives and sensors, automation and supervision of machines. He learned the basics of PLC programming, the implementation of basic logic functions. He first learned about sensors and drives.

Course objective

Acquaintance with the construction, operation, design and programming of industrial device controllers

Course-related learning outcomes

Knowledge

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Extended knowledge about the construction of PLC controllers and knowledge of the principles of connecting I / O elements to these controllers. Knowledge of languages, programming methods and configuration of PLC controllers and drives of production equipment and systems.

Skills

The student will learn the basics of designing control systems for industrial devices. Will be able to choose a driver for an industrial device. It will program advanced functions in PLC controllers

Social competences

The student understands the need for lifelong learning; can inspire and organize the learning process of others. Is aware of the role of automation in modern economy and its importance for society and the environment. Is able to set priorities for the implementation of a specific task.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Credit based on a written exam consisting of 3-4 general questions in the subject (<50% - ndst, 50-60%: dst 60-70% -dst +, 70-80: db, 80-90: db +, > 90% - very good)

Laboratory: Assessment based on oral or written answers from the content of the exercise and the assessment of passing reports on each exercise. Passing from the laboratory is done after meeting both criteria.

Programme content

Discussion of the functions of word operations, data conversion, comparisons, etc. Program division, functions and procedures on the PLC platform, examples of use. Drive control with PLCs. Configuration of drives on selected hardware platforms. Examples of programs. Basics of visualization of automated devices. Security and redundancy.

Teaching methods

Lecture: multimedia presentation illustrated with examples

Laboratory: Topics implemented in groups in teaching positions

Bibliography

Basic

1.   Kwaśniewski J., Sterowniki PLC w praktyce inżynierskiej, Wydawnictwo BTC, Legionowo 2008.

2.   Flaga S., Programowanie sterowników PLC w języku drabinkowym, Wydawnictwo BTC, Legionowo 2010.

3. Pierwsze kroki z Simatic S7-1200, Wydawnictwo Siemens, 2014

Additional

1. Terminal HMI serii NQ – Instrukcja obsługi, Omron

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2. Materiały dodatkwe, udostępniane przez producentów sprzętu

Breakdown of average student's workload

	Hours	ECTS
Total workload	45	2
Classes requiring direct contact with the teacher	30	
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	15	

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[1] delete or add other activities as appropriate