COURSE DESCRIPTION CARD - SYLLABUS

Course name
Industrial process monitoring systems [S1ZiIP2>SNPP]

Course

Field of study
Management and Production Engineering

Year/Semester
3/6

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
15

Laboratory classes
15

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

Lecturers

Prerequisites

Basics of automation, basics of programming, basics of machine technology.

Course objective

To familiarize students with tools for programming PLC controllers and software for creating and configuring operator interfaces for station monitoring of machines, based on HMI panels.

Course-related learning outcomes

Knowledge:
student has a general knowledge of the automation and robotization of production processes, including the structure of numerical control and automatic regulation. Has knowledge of steering and control of manufacturing processes. Has a basic knowledge of the architecture of computer systems and computer-aided engineering work.

Skills:
Basic-level design of the HMI and machine monitoring and control interface.
Basic knowledge of information systems used in the enterprise.

Social competences:

The student is aware of the role of automation in modern economy and its importance for society and the environment
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Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Credit based on a written test consisting of 3-4 general questions in the subject (Assignment of grades to percentage ranges of results: <90-100> very good; <80-90) good plus; <70-80) good; <60-70) satisfactory plus; <50-60) satisfactory; <0-50) unsatisfactory)
Laboratory: Credit based on the assessment of the final task carried out by the subgroup containing the content discussed in the subject.

Programme content

Basics of tools and software for creating and configuring operator interfaces, for bench monitoring of machines and production lines, based on HMI panels and SCADA systems.

Course topics

Data sources in the automation system (sensors, controllers, drives, etc.). Introduction to PLC programming. Introduction to control process visualization techniques based on specialist software and HMI panels. Discussion of how to create and manage user windows, define and use variables. Recommendations and errors when building visualizations. Learning about user interface objects. Working with alarms and events.

Teaching methods

Lectures, supported by transparencies and multimedia presentations
Laboratory: Topics carried out simultaneously in groups on didactic positions and a mini evaluation project using the previously acquired knowledge.

Bibliography

Basic:
1. Kwaśniewski J., Sterowniki PLC w praktyce inżynierskiej, Wydawnictwo BTC, Legionowo 2008.
2. Kwiecień R., Komputerowe systemy auomatyki przemysłowej, Wydawnictwo Helion, Gliwice 2013.
3. Wonderware Intouch- Podręcznik użytkownika, Praca zbiorowa, Invensys systems

Additional:
1. Terminal HMI serii NQ - Instrukcja obsługi, Omron

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00