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
## Supervision of production systems

## Course

| | |
|---|---|
| Field of study | Year/Semester |
| Management and Production Engineering | 3 / 6 |
| 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
3

## Lecturers

Responsible for the course/lecturer:

dr inż. Dariusz Sędziak

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Wydział Inżynierii Mechanicznej

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

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

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## Course objective

To acquaint students with 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-related learning outcomes

### Knowledge

The 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 able to actively engage in solving the problems posed, independently develop and expand their competences

The student is aware of the role of automation in modern economy and its importance for society and the environment

## 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: Credit based on the assessment of the final task carried out by the subgroup containing the content discussed in the subject.

## Programme content

Model of IT systems in an enterprise. Data transfer in industrial and internet networks. Data sources in the automation system (sensors, controllers, drives, etc.). Introduction to techniques for visualizing the control process based on specialized software and HMI panels. Overview of how to create and manage user windows, define and use variables. Recommendations and errors in building the visualization. Learning about user interface objects. Working with alarms and events. Historical data collection systems and their analysis.

## 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.

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## 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

2.  Siemens S7-1200 Pierwsze kroki, Siemens

## Breakdown of average student's workload

|  | Hours | ECTS |
|---|---|---|
| Total workload | 75 | 3 |
| Classes requiring direct contact with the teacher | 40 | 1,5 |
| Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1] | 35 | 1,5 |

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[1] delete or add other activities as appropriate