



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Electrical and electronic systems in industry and vehicles

### Course

Field of study

Electrical Engineering

Area of study (specialization)

Electrical and Computer Systems in Industry and Vehicles

Level of study

Second-cycle studies

Form of study

part-time

Year/Semester

2/4

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

### Number of hours

Lecture

10

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

### Number of credit points

1

### Lecturers

Responsible for the course/lecturer:

dr inż. Jerzy Frackowiak

jerzy.frackowiak@put.poznan.pl

tel. 616652693

Wydział Automatyki, Robotyki i Elektrotechniki

ul. Piotrowo 3A, 60-965 Poznań

Responsible for the course/lecturer:

### Prerequisites

Has knowledge of measuring and control systems, knows the basic information about PLC controllers and microcontrollers

### Course objective

Współpraca sterowników PLC z mikrokontrolerami, wybrane przerwania sterownika PLC i mikrokontrolera porównania programów napisanych w językach LAD i C

### Course-related learning outcomes

Knowledge

Cooperation of PLC controllers with microcontrollers (including intelligent measuring transducers), selected interruptions of the PLC and microcontroller



### Skills

the use of acquired knowledge needed for cooperation between PLCs and microcontrollers, the ability to think independently and be creative

### Social competences

willingness to work in a team and taking responsibility for jointly performed tasks.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final test 45 minutes

### Programme content

PLC programmable controllers - serial transmission port, free port transmission, selected interruptions of the PLC and microcontroller,

comparison of the control program written in the LAD language for the PLC controller and in the C language for the microcontroller,

selection of sensors and measuring transducers

### Teaching methods

Multimedia lecture illustrated with examples on a blackboard

### Bibliography

#### Basic

Kamiński K.: Programowanie w Step 7 Microwin, GRYF, Warszawa 2006.

Dokumentacja sterownika S7-1200 firmy Siemens.

Dokumentacja mikrokontrolera rodziny PIC 18

#### Additional

Bubnicki Z.: Teoria i algorytmy sterowania, Wydawnictwo Naukowe PWN, Warszawa 2002.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	23	1,0
Classes requiring direct contact with the teacher	13	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	10	1,0

<sup>1</sup> delete or add other activities as appropriate