

DESCRIPTION OF THE COURSES

- Course code: ARR 3314
- Course title: INTERFACE OF INDUSTRIAL PROCESS CONTROL SYSTEMS
- Language of the lecturer: polish

| <i>Course form</i> | <i>Lecture</i> | <i>Classes</i> | <i>Laboratory</i> | <i>Project</i> | <i>Seminar</i> |
|--------------------------------------|-------------------|----------------|-------------------|----------------|----------------|
| <i>Number of hours/week*</i> | 1 | | 1 | | |
| <i>Number of hours/semester*</i> | 15 | | 15 | | |
| <i>Form of the course completion</i> | <i>colloquium</i> | | <i>pass</i> | | |
| <i>ECTS credits</i> | | | | | |
| <i>Total Student's Workload</i> | | | | | |

- Level of the course (~~basic~~/advanced):
- Prerequisites: Fundaments of electronic, electrical measurement
- Name, first name and degree of the lecturer/supervisor: Krzysztof PODLEJSKI, PhD
- Names, first names and degrees of the team's members: Grzegorz Kosobudzki PhD
- Year:..... Semester: III , 2stage
- Type of the course (~~obligatory~~/optional):
- Aims of the course (effects of the course): knowledge of using and programming Industrial process control measurement systems
- Form of the teaching (traditional/~~e-learning~~):
- Course description: Cognition modern industrial measurement systems. Structures and organization standards: I2C, Microwire, HART, current loop and so one will be presentation. During two-hour laboratory classes students execute programming of data acquisition board, realizing of example manufacturing process, application graphical environment in design measurement systems..
- Lecture:

| <i>Particular lectures contents</i> | <i>Number of hours</i> |
|--|------------------------|
| <i>1. Structure of dedicated microcontroller</i> | 2 |
| <i>2. Standardization at the digital interface using smart sensors</i> | 2 |
| <i>3. Standard I2C</i> | 2 |
| <i>4. Standard CAN</i> | 2 |
| <i>5. Standard LonWorks</i> | 2 |
| <i>6. Standard IEEE1451</i> | 2 |
| <i>7. Inter network communication</i> | 2 |

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents: Creating typical Measurement application in GPL, Measuring voltage and current, Transducer, Measuring temperature, Signal conditioning, Integration of measurement systems.
- Project – the contents:
- Basic literature:

1. Świsulski D.: Komputerowa Technika Pomiarowa – Agenda wydawnicza PAK, Warszawa 2005
2. Bogusz Jacek.: Lokalne interfejsy szeregowo w systemach cyfrowych – Wydawnictwo BTC, Warszawa 2004.
3. Lesiak P., Świsulski D.: Komputerowa Technika Pomiarowa w Przykładach – Agenda wydawnicza PAK, Warszawa 2002.
4. Baranowski R. Mikrokontrolery AVR Atmega w praktyce cyfrowych – Wydawnictwo BTC, Warszawa 2005.
5. Świsulski D.: Laboratorium z Systemów Pomiarowych – Wydawnictwo Politechniki Gdańskiej, 1998
6. Winiecki W., Nowak J., Stanik S.: Graficzne zintegrowane środowiska programowania do projektowania komputerowych systemów pomiarowo-kontrolnych. Wyd. Mikom, Warszawa 2001
7. Mielczarek W. Szeregowo interfejsy cyfrowe, Helion, Gliwice
8. Lesiak P.T. Inteligentna technika pomiarowa, Politechnika Radomska, 2001
- Additional literature:
 1. Sacha K. Sieci miejscowe PROFIBUS, MIKOM, Warszawa, 1998.
 2. Mielczarek W. Urządzenia pomiarowe i systemy kompatybilne ze standardem SCPI, wyd Helion, Gliwice 1999.
 3. <http://www.elektronet.gower.pl>
 4. <http://www.modbus.ida.org>
- <http://www.profibus.com>
- Conditions of the course acceptance/creditation:

* - depending on a system of studies