

DESCRIPTION OF THE COURSES

- Course code: ELR2363
- Course title: Intelligent installations
- 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	0	1	0	0
<i>Number of hours/semester*</i>	10	0	10	0	0
<i>Form of the course completion</i>	Test		Completion of laboratory exercises		
<i>ECTS credits</i>	1		1		
<i>Total Student's Workload</i>	30		30		

- Level of the course (basic/advanced): basic
- Prerequisites: Electrical devices
- Name, first name and degree of the lecturer/supervisor:
Antoni Klajn, PhD
- Names, first names and degrees of the team's members:
Waldemar Dołęga PhD
Kazimierz Herlender PhD
Mirosław Kobusiński MSc
Małgorzata Bielówka MSc
Surówka Ireneusz MSc
- Year: 3..... Semester: 6.....
- Type of the course (obligatory/optional): obligatory
- Aims of the course (effects of the course):
Know-how of operation principles of intelligent electrical installation, as well as its advantages in comparison with the traditional one. Knowledge about the most popular systems of intelligent installations in buildings.
- Form of the teaching (traditional/e-learning): traditional
- Course description:
Traditional and intelligent electrical installation – basic concepts and differences. Intelligent building. Installations with analogue control. Installations with digital control – overview of up-to-date solutions. Installations in KNX/EIB system: characterisation of devices, topology, logical structure, commissioning, changes in programming and operation of bus devices. Tool program ETS – program structure, project development and communication between the program and installation. LCN system – topology and characterisation of bus devices. Tool program LCN-PRO – program structure, programming of bus devices and logical structure of the system. Putting the system in operation.
- Lecture:

<i>Particular lectures contents</i>	<i>Number of hours</i>
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1. Developmental tendencies in electrical installations. Idea of intelligent installation and intelligent building. Intelligent installations with the analogous (relais) control. System SI.	2
2. Intelligent installations with the digital control – an overview and characterisation of up-to-date solutions. Bus system. Installation in the KNX/EIB system – historical development and present state in context of the intelligent building concept. The KONNEX Association.	2
3. Characterisation of the bus and system devices, topology of the KNX/EIB system. Logical structure of the KNX/EIB system. Communication objects, group addresses.	2
4. Establishing of the project and project design in the ETS program. Communication between the program and bus devices. Putting the installation into operation.	2
5. LCN system – topology and characterisation of the bus devices. The tool program LCN-PRO. Project design and putting into operation of the installation in the LCN system. Basic information about other systems of intelligent installations.	2

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents:

<i>Kontent of the laboratory exercises</i>	<i>Liczba godzin</i>
1. Introductory and organization lecture.	2
2. Designing of the installation topology in the KNX/EIB system – exercise with the tool program ETS.	2
3. Designing of the address groups and group addresses – exercise with the tool program ETS.	2
4. Putting the installation into operation and changes in the used installation – exercise in the KNX/EIB stand.	2
5. Programming and putting into operation of the installation in the LCN system – exercise in the LCN stand.	2

- Project – the contents:
- Basic literature:
 1. Markiewicz H.: Instalacje elektryczne. WNT, Warszawa 2006.
 2. Klajn A., Bielówka M.: Instalacja elektryczna w systemie KNX/EIB. Podręcznik INPE –dodatek dla prenumeratorów miesięcznika INPE, COSiW SEP, 2006.
 3. Petykiewicz P.: Nowoczesna instalacja elektryczna w inteligentnym budynku. COSiW SEP, Warszawa, 2001.
- Additional literature:
 1. PN-EN 50090, Domowe i budynkowe systemy elektroniczne (Home and Buildings Electronic Systems HBES) (chosen parts of the standard).
- Conditions of the course acceptance/creditation: Completion of the test and laboratory practice.

* - depending on a system of studies