DESCRIPTION OF THE COURSES

- Course code: ELR2305
- Course title: Intelligent installations
- Language of the lecturer: Polish

Course form	***Lecture***	***Classes***	***Laboratory***	***Project***	***Seminar***
*Number of hours/week**	*1*	*0*	*0*	*0*	*0*
*Number of hours/semester**	*15*	*0*	*0*	*0*	*0*
Form of the course completion	*Test*				
ECTS credits	*1*				
Total Student's Workload	*30*				

- Level of the course (basic/advanced): basic
- Prerequisites: Electrical devices 2
- Name, first name and degree of the lecturer/supervisor:
  Antoni Klajn dr inż.
- Names, first names and degrees of the team's members:
  Waldemar Dołęga dr inż.
  Kazimierz Herlender dr inż.
  Mirosław Kobusiński mgr inż.
  Małgorzata Bielówka mgr inż.
  Surówka Ireneusz mgr inż.
- 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:

Particular lectures contents	*Number of hours*
1. Developmental tendencies in electrical installations. Idea of ntelligent 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. Communication in the EIB system. The ISO/OSI standard. Telegram – structure, coding and self-inspection. Wiring of the installation.	*2*
5. Establishing of the project and project design in the ETS program. Communication between the program and bus devices. Putting into operation of devices.	*2*
6. LCN system – topology and characterisaton of the bus devices.	*2*
7. The tool program LCN-PRO. Project design and putting into operation of the installation in the LCN system.	*1*

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents:
- 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, Home and building electronic systems (HBES) (chosen parts of the standard).

- Conditions of the course acceptance/credition: completion of the test

***** - depending on a system of studies