



Subject card

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|---|---|--|---|-------------------------------------|--|------------|-----|
| Subject name and code | Intelligent Building, PG_00038419 | | | | | | |
| Field of study | Electrical Engineering | | | | | | |
| Date of commencement of studies | October 2020 | | Academic year of realisation of subject | | 2022/2023 | | |
| Education level | first-cycle studies | | Subject group | | Obligatory subject group in the field of study Subject group related to scientific research in the field of study | | |
| Mode of study | Part-time studies | | Mode of delivery | | at the university | | |
| Year of study | 3 | | Language of instruction | | Polish | | |
| Semester of study | 6 | | ECTS credits | | 3.0 | | |
| Learning profile | general academic profile | | Assessment form | | exam | | |
| Conducting unit | Department of Electrical Power Engineering -> Faculty of Electrical and Control Engineering | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | prof. dr hab. inż. Stanisław Czapp | | | | |
| | Teachers | | dr inż. Krzysztof Dobrzyński prof. dr hab. inż. Stanisław Czapp | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 20.0 | 0.0 | 10.0 | 0.0 | 0.0 | 30 |
| | E-learning hours included: 0.0 | | | | | | |
| Learning activity and number of study hours | Learning activity | Participation in didactic classes included in study plan | | Participation in consultation hours | | Self-study | SUM |
| | Number of study hours | 30 | | 5.0 | | 40.0 | 75 |
| Subject objectives | The achievement of knowledge and skills in the design and commissioning of intelligent electrical installations | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | K6_K02 | | Operates the expert ETS software. Performs the project of electrical installation and starts this installation in laboratory condition. | | [SK2] Assessment of progress of work [SK1] Assessment of group work skills | | |
| | K6_U07 | | Operates the expert ETS software. Performs the project of electrical installation and starts this installation in laboratory condition. | | [SU4] Assessment of ability to use methods and tools | | |
| | K6_W11 | | Student interprets topology of KNX system. Student describes the principles of design of electrical installations with KNX system. Selects devices for KNX system and describes their operation | | [SW3] Assessment of knowledge contained in written work and projects | | |
| Subject contents | Definition of intelligent building. Types of control systems in buildings: KNX/EIB, LonWorks, LCN. European Installation Bus KNX/EIB system. The idea of the system, system elements, Sensors and actuators, graphical symbols. Topology. Devices, lines, areas. Physical address, group address. Communication in the KNX/EIB system. Data transmission, telegrams, flags, methods of the access to the bus. ETS software. Design and diagnostics. Design and performance of the KNX/EIB installation. Cables and devices. Overcurrent protection, protection against electric shock, protection against overvoltage. LABORATORY Introduction of ETS software, input data preparation. Principles project performance and starting the system. Electrical lighting switch on and switch off control. Advanced control of lighting (lighting illuminance control, time control). Windows shutter control. Temperature control. Automatic control of illuminance with presence sensor. Integration of systems for advanced topology. Visualization of the installation. Remote monitoring of the installation. | | | | | | |
| Prerequisites and co-requisites | No requirements | | | | | | |

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| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Written exam | 50.0% | 50.0% |
| | Practical exercise | 50.0% | 50.0% |
| Recommended reading | Basic literature | 1. Petykiewicz P.: Nowoczesna instalacja elektryczna w inteligentnym budynku. COSiW SEP 2001. 2. Mikulik J.: Europejska Magistrala Instalacyjna EIB: rozproszony system sterowania bezpieczeństwem i komfortem. Stowarzyszenie Elektryków Polskich. Centralny Ośrodek Szkolenia i Wydawnictw, Warszawa 2008 | |
| | Supplementary literature | 1. Manual of devices of KNX/EIB system. | |
| | eResources addresses | Adresy na platformie eNauczanie: Budynek inteligentny [ET][Niestacjonarne][2022/23] - Moodle ID: 19824 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=19824 | |
| Example issues/ example questions/ tasks being completed | On a laboratory stand, performance the installation for lighting control (using KNX system) | | |
| Work placement | Not applicable | | |