



Subject card

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|---|---|--|--|------------|------------|---|-----|
| Subject name and code | Safety of Electrical Power Engineering System, PG_00003478 | | | | | | |
| Field of study | Electrical Engineering | | | | | | |
| Date of commencement of studies | October 2024 | Academic year of realisation of subject | | | | 2025/2026 | |
| Education level | second-cycle studies | Subject group | | | | Specialty subject group 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 | 2 | Language of instruction | | | | Polish | |
| Semester of study | 3 | ECTS credits | | | | 1.0 | |
| Learning profile | general academic profile | Assessment form | | | | assessment | |
| 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. Ryszard Zajczyk | | | | |
| | Teachers | | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10 |
| | 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 | 10 | 2.0 | | 13.0 | 25 | |
| Subject objectives | To provide students with the problems of security of the power system. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | | Method of verification | |
| | [K7_W05] has detailed knowledge of the regulatory processes in the electricity system electricity safety and electricity safety automation | | Student recognizes the basic issues as regards safety of the power system, explains basic processes occurring in the power system during emergency states as well as interprets occurrences and processes occurring in the power system. | | | [SW3] Assessment of knowledge contained in written work and projects | |
| | [K7_W03] has an extended and deepened knowledge of the field related to electrical power systems and electrical equipment | | Student recognizes the basic issues as regards safety of the power system, explains basic processes occurring in the power system during emergency states as well as interprets occurrences and processes occurring in the power system. | | | [SW2] Assessment of knowledge contained in presentation | |
| | [K7_U10] is able to calculate short-circuit currents, select substation equipment including power system automation protection automatics | | Student recognizes the basic issues as regards safety of the power system, explains basic processes occurring in the power system during emergency states as well as interprets occurrences and processes occurring in the power system. | | | [SU1] Assessment of task fulfilment | |
| Subject contents | The security of the Power system in time horizons. The existent structures of generating and transmitting electric energy, international connections, organisational and financial connections, emergency automation and restitution procedures and their influence on power security. Methodology of forecasts/ prognoses demands for electric energy. The scope and results of privatization of electrical power engineering sector. The influence of market economy and international commitments. The impact of dispersed/ distributed generation on the power system. The importance of security automation and system automation in the process of stability loss, subsystems and islands? defence arrangements and restitution of the power system. Computer simulations of the system breakdowns. | | | | | | |
| Prerequisites and co-requisites | Knowledge of electrical Power engineering, Power systems, automation of security operations and control. | | | | | | |

| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
|--|---|--|-------------------------------|
| | | Midterm colloquium | 60.0% |
| Recommended reading | Basic literature | 1. Machowski J., Bernas S.: Stany nieustalone i stabilność systemu elektroenergetycznego. Warszawa WNT 1989. | |
| | Supplementary literature | 1. Kundur P.: Power System Stability and Control. McGraw-Hill, Inc. 1994. | |
| | eResources addresses | Adresy na platformie eNauczanie: | |
| Example issues/ example questions/ tasks being completed | Examples of questions and issues to develop served during the lectures. | | |
| Work placement | Not applicable | | |

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