



## Subject card

|   |   |  |   |                                     |  |            |     |
|---|---|--|---|-------------------------------------|--|------------|-----|
| Subject name and code                       | Electrical Engineering, PG_00039883   |  |   |                                     |  |            |     |
| Field of study                              | Mechanical Engineering, Mechanical Engineering  |  |   |                                     |  |            |     |
| Date of commencement of studies             | October 2020  |  | Academic year of realisation of subject   |                                     | 2021/2022  |            |     |
| Education level                             | first-cycle studies   |  | Subject group   |                                     | Obligatory subject group in the field of study   |            |     |
| Mode of study                               | Full-time studies   |  | Mode of delivery  |                                     | at the university  |            |     |
| Year of study                               | 2   |  | Language of instruction   |                                     | Polish   |            |     |
| Semester of study                           | 4   |  | ECTS credits  |                                     | 2.0  |            |     |
| Learning profile                            | general academic profile  |  | Assessment form   |                                     | assessment   |            |     |
| Conducting unit                             | Department of Power Electronics and Electrical Machines -> Faculty of Electrical and Control Engineering  |  |   |                                     |  |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor  |  | dr inż. Filip Kutt  |                                     |  |            |     |
|   | Teachers  |  | dr inż. Krzysztof Iwan  |                                     |  |            |     |
| Lesson types and methods of instruction     | Lesson type   | Lecture  | Tutorial  | Laboratory                          | Project  | Seminar    | SUM |
|   | Number of study hours   | 15.0   | 0.0   | 15.0                                | 0.0  | 0.0        | 30  |
|   | E-learning hours included: 0.0  |  |   |                                     |  |            |     |
|   | Adresy na platformie eNauczanie:  |  |   |                                     |  |            |     |
| 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                                 |  | 15.0       | 50  |
| Subject objectives                          | The objective of the course is to familiarize students with the basic laws of electrical engineering and the basics of electrical and electromechanical energy conversion   |  |   |                                     |  |            |     |
| Learning outcomes                           | Course outcome  |  | Subject outcome   |                                     | Method of verification   |            |     |
|   | [K6_U05] is able to plant an experiment within the range of measuring the basic operating parameters of mechanical devices using a specialized equipment, interpret the results and reach the correct conclusions   |  | The student has the ability to read electrical diagrams. The student has the ability to interpret and correctly analyse the results of simulation and experimental research   |                                     | [SU2] Assessment of ability to analyse information<br>[SU4] Assessment of ability to use methods and tools |            |     |
|   | [K6_W10] possesses basic knowledge on electronics and electrical engineering  |  | The student knows and understands the basic concepts and laws of electrical and electromechanical energy conversion   |                                     | [SW1] Assessment of factual knowledge  |            |     |
| Subject contents                            | Principles and laws of electrical engineering. Measurements of electrical and non-electrical quantities. Electric drives. Production and distribution of electricity in the power system. Basics of electronics and power electronics. Rules for safe work with electrical devices. |  |   |                                     |  |            |     |
| Prerequisites and co-requisites             | Knowledge of basic laws of physics. Ability to use tools of analytical mathematics  |  |   |                                     |  |            |     |
| Assessment methods and criteria             | Subject passing criteria  |  | Passing threshold   |                                     | Percentage of the final grade  |            |     |
|   | Written exam  |  | 50.0%   |                                     | 50.0%  |            |     |
|   | Practical exercises   |  | 50.0%   |                                     | 50.0%  |            |     |
| Recommended reading                         | Basic literature  |  | 1. Hambley A. R. Electrical Engineering Principles And Application, Pearson 2014<br>2. Szumanowski A. Basics of Electrical Engineering, Electrotechnics, Electronics And Electric Machines Oficyna Wydawnicza Politechniki Warszawskiej |                                     |  |            |     |

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|  | Supplementary literature  | 1. Dennis T. H. Practical Marine Electrical Knowledge, Witherby<br>Seamanship International Ltd |
|  | eResources addresses  |   |
| Example issues/<br>example questions/<br>tasks being completed | Provide and explain the definition of electric current. Present and explain the definitions of the RMS value of electric current. How can the speed of an induction / asynchronous motor be controlled? |   |
| Work placement   | Not applicable  |   |