



Subject card

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|---|--|--|--|-------------------------------------|---------|---|-----|
| Subject name and code | Fundamentals of Electronics and Electrotechnics, PG_00060532 | | | | | | |
| Field of study | Naval Architecture and Offshore Structures | | | | | | |
| Date of commencement of studies | October 2026 | Academic year of realisation of subject | | | | 2026/2027 | |
| 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 | 1 | Language of instruction | | | | Polish | |
| Semester of study | 2 | ECTS credits | | | | 3.0 | |
| Learning profile | general academic profile | Assessment form | | | | assessment | |
| Conducting unit | Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr inż. Wojciech Leśniewski | | | | |
| | Teachers | | | | | | |
| Lesson types | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 30.0 | 15.0 | 15.0 | 0.0 | 0.0 | 60 |
| | 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 | 60 | | 6.0 | | 9.0 | 75 |
| Subject objectives | Familiarize students with the basics of electrical engineering and electronics | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | | Method of verification | |
| | [K6_K02] can work in a team, assuming various roles, can act in a rational and ethical way | | Performs laboratory tasks in accordance with his/her role in the team. | | | [SK5] Assessment of ability to solve problems that arise in practice [SK1] Assessment of group work skills | |
| | [K6_U06] in compliance with a formulated specification and with the aid of appropriate tools and methods, is able to complete a simple engineering task within the range of design, construction and operation of ocean technology objects and systems | | Student perform basic calculations of physical parameters in electric and magnetic circuits. | | | [SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task | |
| | [K6_W08] has knowledge of physics, including solid state physics and optics, necessary to understand the basic physical phenomena occurring in ocean engineering | | Understands the physical phenomena occurring in electrical and electronic systems used in ocean engineering. | | | [SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects | |
| | [K6_W04] has knowledge in the field of computer science, electronics, electrical engineering, automation and control, information technology, computer graphics, useful for understanding the possibilities of their use in ocean engineering | | Knows the basics of electrical engineering and electronics in accordance with the requirements of engineering work in the shipbuilding industry. | | | [SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects | |

| Subject contents | Course content – lecture <ul style="list-style-type: none"> • Electric current, sources of electricity, basics of electrical circuits. • Magnetic field and electromagnetism. • Sources of electricity 1. • AC circuits, power in AC systems. • Sources of electricity 2 • Control systems in electrical engineering and electronics. • Ship energy systems and electrical installations. • Electronic Components I • Electric drives of ships and floating objects. • Electronic components II • Measurements of non-electrical quantities and long-distance signal transmission. • Classification regulations in shipbuilding: • Electrical installations and control systems. • Basics of radio technology | | | | | | | | | | | | | | |
|--|---|-------------------------------|--|--------------------------|-------------------|-------------------------------|--|-------|-------|--|-------|-------|--|-------|-------|
| Prerequisites and co-requisites | The knowledge of mathematics and physics of university level | | | | | | | | | | | | | | |
| Assessment methods and criteria | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Subject passing criteria</th> <th style="width: 33%;">Passing threshold</th> <th style="width: 34%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td></td> <td style="text-align: center;">50.0%</td> <td style="text-align: center;">35.0%</td> </tr> <tr> <td></td> <td style="text-align: center;">50.0%</td> <td style="text-align: center;">30.0%</td> </tr> <tr> <td></td> <td style="text-align: center;">50.0%</td> <td style="text-align: center;">35.0%</td> </tr> </tbody> </table> | | | Subject passing criteria | Passing threshold | Percentage of the final grade | | 50.0% | 35.0% | | 50.0% | 30.0% | | 50.0% | 35.0% |
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| Recommended reading | Basic literature | | | | | | | | | | | | | | |
| | Supplementary literature | | | | | | | | | | | | | | |
| | eResources addresses | | | | | | | | | | | | | | |
| Example issues/ example questions/ tasks being completed | Description and solution electrical circuits. in the time domain and symbolic method. Impedance replacement of electrical circuits. Resonances in the electrical circuits Magnetic circuits - solving systems. | | | | | | | | | | | | | | |
| Practical activities within the subject | Not applicable | | | | | | | | | | | | | | |

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