



Subject card

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| Subject name and code | Physics elementary issues, PG_00039854 | | | | | | |
| Field of study | Mechanical Engineering, Mechanical Engineering | | | | | | |
| Date of commencement of studies | October 2020 | | Academic year of realisation of subject | | 2020/2021 | | |
| Education level | first-cycle studies | | Subject group | | Obligatory subject group in the field of study | | |
| Mode of study | Full-time studies | | Mode of delivery | | e-learning | | |
| Year of study | 1 | | Language of instruction | | Polish | | |
| Semester of study | 1 | | ECTS credits | | 3.0 | | |
| Learning profile | general academic profile | | Assessment form | | assessment | | |
| Conducting unit | Department of Physics of Electronic Phenomena -> Faculty of Applied Physics and Mathematics | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr inż. Marcin Dampc | | | | |
| | Teachers | | dr inż. Marcin Dampc | | | | |
| | | | dr inż. Ireneusz Linert | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 0.0 | 30.0 | 0.0 | 0.0 | 0.0 | 30 |
| | E-learning hours included: 30.0 | | | | | | |
| | 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 | | 40.0 | 75 |
| Subject objectives | To review and improve understanding of physics from secondary school | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K6_W02] possesses an organized knowledge on physics, including classic mechanics, acoustics, optics, electricity and magnetism, shows knowledge of the elements of quantum physics | | The student knows the theoretical foundations of classical physics | | [SW1] Assessment of factual knowledge | | |
| | [K6_U01] is able to acquire information from specialized literary sources, databases and other resources, essential for solving engineering tasks; is able to compile the obtained information pieces and to interpret them, additionally is able to form conclusions and present justified opinion | | The student knows how to solve simple physical problems using fundamental principles of classical physics | | [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment | | |
| Subject contents | Motion along a straight line. Velocity and acceleration. Free-fall acceleration. Graphical integration in motion analysis. Force. Mass. Newton's First Law. Newton's Second Law. Some particular forces. Newton's Third Law. Friction. Work and energy. Conservation of Energy. Linear momentum. The linear momentum of a system of particles. Conservation of Linear Momentum. Momentum and kinetic energy in collisions. Simple harmonic motion. Simple pendulum. Waves. Wavelength and frequency. The speed of traveling wave. Interference of waves. Electric charge. Coulomb's Law. Capacitors. Capacitors in parallel and in series. Electric current. Ohm's Law. Magnetic field. Force between two parallel conductors with current. Faraday's Law of Induction. | | | | | | |
| Prerequisites and co-requisites | High school level physics knowledge | | | | | | |
| Assessment methods and criteria | Subject passing criteria | | Passing threshold | | Percentage of the final grade | | |
| | Midterm colloquium | | 50.0% | | 100.0% | | |

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| Recommended reading | Basic literature | 1. K. Jezierski, K. Sierański, I. Szlufarska, "Repetytorium. Zadania z fizyki", Oficyna Wydawnicza Script, Wrocław 1997. 2. G. Jarosz, "Zadania na repetytorium" umieszczone na e-nauczaniu przy kursie Fizyka I |
| | Supplementary literature | No requirements |
| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | Three capacitors, $C_1=0,1\text{ nF}$, $C_2=0,01\text{ nF}$ i $C_3=0,001\text{ nF}$, were first connected in series and then in parallel. Which connection can store more charge? | |
| Work placement | Not applicable | |