University of Gdańsk

Subject card

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|---|---|---|---|
| Subject name and code | Hydrophysics - laboratory classes, PG_00199806 | | |
| Field of study | Water Management and Protection of Water Resources | | |
| Date of commencement of studies | October 2027 | Academic year of realisation of subject | 2027/2028 |
| Education level | Bachelor's studies | Subject group | Obligatory subject group in the field of study<br>Subject group related to practical vocational preparation |
| 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 | 1.0 |
| Learning profile | practical | Assessment form | credit |
| Conducting unit | Department of Geophysics -> Faculty of Oceanography and Geography -> Rector | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | mgr Aleksandra Malecha-Łysakowska | |
| | Teachers | | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 0.0 | 0.0 | 15.0 | 0.0 | 0.0 | 15 |

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 | 15 | 1.0 | 9.0 | 25 |

**Subject objectives**

1 To familiarise students with basic physical phenomena and processes, the laws governing them and the methods of their study.
2. To learn and understand the basic laws responsible for physical phenomena occurring in the hydrosphere.
3. To impart knowledge and develop skills necessary to:
- to use mathematical apparatus to describe physical phenomena;
- to make natural observations, to analyse and interpret them.
4. To lay the foundations for the effective study of further courses

<table>
<tr><td>Learning outcomes</td><td>
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<tr><th>Course outcome</th><th>Subject outcome</th><th>Method of verification</th></tr>
<tr><td>[GWOZWL3-U16] demonstrate creativity in working independently and in team, taking on a variety of roles, including a leadership role.</td><td>K_U01 - Able to carry out basic observations of physical processes and phenomena in the laboratory (related to content - point B3)</td><td>[SU1] oral statement/conversation/ discussion</td></tr>
<tr><td>[GWOZWL3-U01] make basic observations of processes and phenomena occurring in the hydrosphere and carry out basic measurements of selected processes of water purification on a laboratory scale.</td><td>K_U16 - Can demonstrate creativity in working independently and in teams,<br>taking on different roles</td><td>[SU8] observation of student's independent or team work</td></tr>
<tr><td>[GWOZWL3-U02] select and independently apply basic research techniques and tools, with adhering to established analytical procedures in the field of environmental research in water management, adequately to the considered research problem.</td><td>K_U07 - Able to use the literature and other available sources of information in physics and to select and critically evaluate information (concerning content substantive content - para. A1, B1 and B3)</td><td>[SU6] demonstration of practical skills</td></tr>
<tr><td>[GWOZWL3-U07] use literature and other available sources of information, including information technology, multimedia, Internet, databases, and select and critically evaluate information.</td><td>K_U02 - Can select and independently apply basic research techniques and tools, with established analytical procedures, in environmental research in water management</td><td>[SU2] presentation/project/paper/ report</td></tr>
<tr><td>[GWOZWL3-K05] take responsibility for the safety of his own work and that of others, dealing with emergencies, exercising caution in the laboratory and in the field, responsibility for entrusted equipment and apparatus.</td><td>K_K05 - Is willing to take responsibility for work safety and to be careful in the laboratory and for the equipment and apparatus entrusted to him/her (Ref. Content - point B3)</td><td>[SK8] observation of student's independent or team work</td></tr>
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<tr><td>Subject contents</td><td>B3. Laboratory (15 hours):<br>B.3.1 Laboratory measurements and measurement uncertainty rasch.<br>B.3.2 Laboratory exercises will address selected topics listed in A.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>report</td><td>51.0%</td><td>100.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>1. Szydłowski H. [red.], 1981, Teoria pomiarów, PWN Warszawa.</td></tr>
<tr><td>Supplementary literature</td><td>1. D. Halliday, R. Resnick, J. Walker,Podstawy Fizyki, Wydawnictwo Naukowe PWN, W-wa 2003</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table>
</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Dynamics:<br>1. coefficient of friction;<br>2. mathematical pendulum.<br>Heat:<br>3. specific heat;<br>4. the time constant of a thermometer.<br>Selected macroscopic properties of matter:<br>5. speed of sound;<br>6. gas constant.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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