

**Subject card**

|  |   |   |   |  |                |   |            |
|--|---|---|---|--|----------------|---|------------|
| <b>Subject name and code</b>                       | Water melioration - auditorium exercises, PG_00091524   |   |   |  |                |   |            |
| <b>Field of study</b>                              | Water Management and Protection of Water Resources  |   |   |  |                |   |            |
| <b>Date of commencement of studies</b>             | October 2024  |   | <b>Academic year of realisation of subject</b>  |  |                | 2025/2026   |            |
| <b>Education level</b>                             | undergraduate studies   |   | <b>Subject group</b>  |  |                | Obligatory subject group in the field of study<br>Subject group related to scientific research in the field of study<br>Subject group related to practical vocational preparation |            |
| <b>Mode of study</b>                               | full-time studies   |   | <b>Mode of delivery</b>   |  |                | at the university   |            |
| <b>Year of study</b>                               | 2   |   | <b>Language of instruction</b>  |  |                | Polish<br>Polish  |            |
| <b>Semester of study</b>                           | 4   |   | <b>ECTS credits</b>   |  |                | 1.0   |            |
| <b>Learning profile</b>                            | practical   |   | <b>Assessment form</b>  |  |                |   |            |
| <b>Conducting unit</b>                             | Pracownia Hydrologii -> Katedra Hydrologii -> Faculty of Oceanography and Geography   |   |   |  |                |   |            |
| <b>Name and surname of lecturer (lecturers)</b>    | <b>Subject supervisor</b>   |   | dr Izabela Chlost   |  |                |   |            |
|  | <b>Teachers</b>   |   |   |  |                |   |            |
| <b>Lesson types</b>                                | <b>Lesson type</b>  | <b>Lecture</b>  | <b>Tutorial</b>   | <b>Laboratory</b>                          | <b>Project</b> | <b>Seminar</b>  | <b>SUM</b> |
|  | Number of study hours   | 0.0   | 15.0  | 0.0  | 0.0            | 0.0   | 15         |
|  | E-learning hours included: 0.0  |   |   |  |                |   |            |
| <b>Learning activity and number of study hours</b> | <b>Learning activity</b>  | <b>Participation in didactic classes included in study plan</b> |   | <b>Participation in consultation hours</b> |                | <b>Self-study</b>   | <b>SUM</b> |
|  | Number of study hours   | 15  |   | 5.0  |                | 10.0  | 30         |
| <b>Subject objectives</b>                          | <ul style="list-style-type: none"> <li>• Learning the principles of designing basic and detailed drainage systems.</li> <li>• Methods for calculating agricultural water resources and characteristic flows.</li> <li>• Characteristics of water management and water needs of soils and plants.</li> </ul> |   |   |  |                |   |            |
| <b>Learning outcomes</b>                           | <b>Course outcome</b>   |   | <b>Subject outcome</b>  |  |                | <b>Method of verification</b>   |            |
|  | [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  |   | The student is able to carry out basic measurements and calculations related to air-water relations in the soil and calculate parameters characterizing water resources, characteristic flows and selected hydrotechnical devices used in land improvement. |  |                | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report   |            |
|  | [GWOZWL3-K06] an informed and reliable assessment of the impact of humans on the aquatic environment  |   | The student is able to assess the impact of shaping water conditions using drainage methods and determine their positive and negative effects on the environment water.   |  |                | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report<br>[SK5] implementation of a problem task   |            |
|  | [GWOZWL3-W06] basic problems of water construction water construction and the processes of water and wastewater treatment   |   | The student knows and is able to discuss technical and non-technical methods of improving water conditions in the soil used in irrigation and drainage meliorations.  |  |                | [SW1] oral statement/conversation/discussion<br>[SW5] implementation of a problem task  |            |

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|--|--|--|-------------------------------|
| Subject contents   | <ul style="list-style-type: none"> <li>• Calculating the water balance of agricultural areas.</li> <li>• Soil water retention curve (pF) - water easily available to plants.</li> <li>• Distribution of air-water relations in the soil.</li> <li>• Drainage - calculation of drainage spacing.</li> <li>• Determining technical parameters of water, drainage and irrigation devices.</li> <li>• Calculating water demand for irrigation.</li> <li>• Water management in polders and protected areas affected by drainage.</li> </ul> |  |                               |
| Prerequisites and co-requisites                                | Basics of hydrology and knowledge about the principles of water circulation in nature.   |  |                               |
| Assessment methods and criteria                                | Subject passing criteria   | Passing threshold  | Percentage of the final grade |
|  | projects completion  | 51.0%  | 100.0%                        |
| Recommended reading  | Basic literature   | <ul style="list-style-type: none"> <li>• Marcilonek S., Kostrzewa S., 1974, Guide to exercises in agricultural land improvement and surveying elements, Ed. III corrected and extended, Scripts of the Agricultural University of Wrocław, Wrocław.</li> <li>• Ostromecki J., 1980, Hydraulic methods for determining the spacing of drainage devices, IMUZ, PWRIL, Warsaw.</li> <li>• Somorowski Cz., 1965, Guide to agricultural land improvement exercises, Publishing Department of the Warsaw University of Life Sciences, Warsaw.</li> </ul> |                               |
|  | Supplementary literature   | <ul style="list-style-type: none"> <li>• Łata B., Stankiewicz-Kosyl M., Wińska-Krysiak, 2019, Guide to exercises in soil cultivation and fertilization of horticultural plants, Ed. SGGW.</li> </ul>   |                               |
|  | eResources addresses   | Adresy na platformie eNauczanie:   |                               |
| Example issues/<br>example questions/<br>tasks being completed | <ul style="list-style-type: none"> <li>• Assessment of rainfall deficiency during the growing season. Calculation of the climatic water balance for a selected catchment area.</li> <li>• Calculation of characteristic flows on streams without hydrometric control.</li> <li>• Plotting the pF curve for sandy soils.</li> <li>• Designing the method and amount of irrigation for garden crops.</li> </ul>  |  |                               |
| Work placement   | Not applicable   |  |                               |

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