



Subject card

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|---|--|--|----------|-------------------------------------|--|------------|-----|
| Subject name and code | Hydrogeology, PG_00058798 | | | | | | |
| Field of study | Environmental Engineering | | | | | | |
| Date of commencement of studies | October 2023 | Academic year of realisation of subject | | | 2024/2025 | | |
| Education level | first-cycle studies | Subject group | | | Obligatory subject group in the field of study Subject group related to scientific research 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 | | | 5.0 | | |
| Learning profile | general academic profile | Assessment form | | | exam | | |
| Conducting unit | Department of Geotechnical and Hydraulic Engineering -> Faculty of Civil and Environmental Engineering | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | prof. dr hab. inż. Adam Szymkiewicz | | | | | |
| | Teachers | | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 30.0 | 15.0 | 0.0 | 15.0 | 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 | | 7.0 | | 58.0 | 125 |
| Subject objectives | Familiarizing students with basics of groundwater (occurrence, flow dynamics, chemical composition, possibilities of usage). | | | | | | |
| Learning outcomes | Course outcome | Subject outcome | | | Method of verification | | |
| | [K6_U04] can recognize basic rocks and minerals, can create and read maps and geological and hydrogeological sections; can read and interpret geological documentation | Student can draw and analyze hydrogeological maps and crosssections | | | [SU1] Assessment of task fulfilment | | |
| | [K6_W04] possesses elementary knowledge in the field of land mechanics, ground science, land reclamation and geotechnics; has basic knowledge about the composition of air, water and soil, environmental pollution and processes responsible for their formation and ways to reduce them, knows the principles and organization of sustainable water management | Student knows the basic processes leading to groundwater contamination | | | [SW1] Assessment of factual knowledge | | |
| | K6_W12 | Student knows the mechanisms of formation and flow of groundwater | | | [SW1] Assessment of factual knowledge | | |
| | [K6_W06] has a structured and theoretically founded knowledge in the field of computer science, numerical methods and the possibilities of their applications for solving tasks, description of phenomena related to the flow of water in the environment, in open pipes and channels, filtration, migration of pollutants | Student knows the basic calculation methods and tools for groundwater flow | | | [SW1] Assessment of factual knowledge | | |
| Subject contents | Origin and occurrence of groundwater. Hydrogeological properties of soils and rocks. Flow in saturated and unsaturated zones, groundwater flow systems. Groundwater abstraction, well hydraulics, dewatering. Chemistry and contamination of groundwater. | | | | | | |

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| Prerequisites and co-requisites | basic maths (differential and integral calculus), basic chemistry | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Exam | 55.0% | 50.0% |
| | Evaluation of exercises and projects | 55.0% | 50.0% |
| Recommended reading | Basic literature | Pazdro Z., Kozerski B. Hydrogeologia ogólna Wyd. Geol. Warszawa 1990 | |
| | Supplementary literature | Wieczysty A., Hydrogeologia Inżynierska, PWN, Warszawa 1982 Domenico P.A., Schwartz F.W., Physical and chemical hydrogeology, Wiley, 1998 | |
| | eResources addresses | Adresy na platformie eNauczenie: | |
| Example issues/ example questions/ tasks being completed | Estimation of hydraulic permeability based on soil granulometry Design of excavation dewatering Interpretation of chemical analyses of groundwater samples | | |
| Work placement | Not applicable | | |

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