GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

| | | | |
|---|---|---|---|
| Subject name and code | , PG_00069244 | | |
| Field of study | Hydrogeologia i odwodnienia | | |
| Date of commencement of studies | October 2022 | Academic year of realisation of subject | 2025/2026 |
| Education level | first-cycle studies | Subject group | |
| Mode of study | Full-time studies | Mode of delivery | at the university |
| Year of study | 4 | Language of instruction | Polish |
| Semester of study | 7 | ECTS credits | 2.0 |
| Learning profile | general academic profile | Assessment form | assessment |
| Conducting unit | Department of Geotechnical and Hydraulic Engineering -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | prof. dr hab. inż. Adam Szymkiewicz | |
| | Teachers | dr inż. Marzena Wójcik<br>prof. dr hab. inż. Adam Szymkiewicz | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 15.0 | 15.0 | 0.0 | 0.0 | 0.0 | 30 |

E-learning hours included: 0.0

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=2586

Moodle ID: 2586 Hydrogeologia i Odwodnienia sem 7 Budownictwo WILiŚ r.a.2025-2026 https://enauczanie.pg.edu.pl/2025/course/view.php?id=2586

**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 | 2.0 | 18.0 | 50 |

**Subject objectives**

To familiarize students with basic principles of design and operation of dewatering systems, with focus on construction dewatering

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K6_U07] Design and build engineering structures in a sustainable manner, with care for the natural environment and a minimum carbon footprint | The student is able to propose design solutions that reduce the impact of drainage and dewatering systems on the environment. | [SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu |
| [K6_U06] Conduct engineering activities in civil engineering subject area, using and applying practical knowledge and understanding of materials, equipment and tools, processes and technologies. | Students gain skills in designing dewatering systems | [SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu |
| [K6_K01] Is aware of the key aspects of professional, ethical and social responsibility related to management, business operation, decision making and opinion formulation in civil engineering. | The student is aware of the aspects of professional and social responsibility related to the operation of drainage and dewatering systems. | [SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce |
| [K6_W07] Understand the investment's impact on the environment and the interrelationships and dependencies between the building structure and the natural environment | The student gains knowledge about the impact of dewatering systems on the surroundings and methods to minimize this impact | [SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym |
| [K6_W06] Demonstrates practical knowledge and understanding of materials, devices and tools, processes and technologies in the field of civil engineering (and their limitations). | The student has knowledge on design and operation of dewatering systems | [SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym |

**Subject contents**

Course content – lecture
Groundwater occurence and its impact on structures. Horizontal drainage systems. Dewatering of excavations. Impact of dewatering on surroundings.

Course content – exercises
Inflow from the catchment, Designing rainwater canals. Calculating groundwater discharge to horizontal drains and excavations. Drainage of excavation.

**Prerequisites and co-requisites**

Knowledge of the subjects Soil Mechanics and Foundation Engineering

**Assessment methods and criteria**

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Evaluation of project exercises | 50.0% | 100.0% |

**Recommended reading**

| | |
|---|---|
| Basic literature | E. Mielcarzewicz (1990), Odwadnianie terenów zurbanizowanych i przemysłowych<br>J. Sokołowski, A. Żbikowski (1993), Odwodnienia budowlane i osiedlowe |
| Supplementary literature | Cashman, P. M., & Preene, M. (2020). Groundwater lowering in construction: a practical guide to dewatering. CRC Press. |
| eResources addresses | |

**Example issues/ example questions/ tasks being completed**

Calculating the water inflow to the excavation. Determining the location of drainage wells. Calculating the water inflow to the horizontal drainage system.

**Practical activites within the subject**

Not applicable

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