



Subject card

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| Subject name and code | , PG_00059099 | | | | | | |
| Field of study | Environmental Engineering | | | | | | |
| Date of commencement of studies | October 2022 | | Academic year of realisation of subject | | 2024/2025 | | |
| Education level | first-cycle studies | | Subject group | | Optional subject group | | |
| Mode of study | Part-time studies | | Mode of delivery | | at the university | | |
| Year of study | 3 | | Language of instruction | | Polish | | |
| Semester of study | 5 | | 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 | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr inż. Krzysztof Szarf | | | | |
| | Teachers | | dr inż. Krzysztof Szarf | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 10.0 | 0.0 | 0.0 | 5.0 | 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 | | 34.0 | 50 |
| Subject objectives | The aim of the class is to teach the students of Environmental Engineering problems of civil engineering, especially sanitary engineering, regarding in particular the design, construction and exploitation of sanitary constructions, earth works, geotechnical engineering. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K6_U16] can, when formulating and solving engineering tasks in environmental engineering, evaluate, select and apply appropriate methods and tools, recognize their non-technical aspects, including environmental, economic and legal aspects | | Student can apply the calculation methods to design sanitary constructions | | [SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject | | |
| | [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 learns about methods of construction design Student gathers knowledge about engineering calculations of sanitary constructions | | [SW1] Assessment of factual knowledge | | |
| | [K6_U03] can prepare documentation regarding the implementation of an engineering task/project and prepare a text or presentation including a discussion of the results of the implementation | | Student learnt methods of sanitary constructions civil engineering design and is capable of applying them Is able to complete a design project and to present the results | | [SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment | | |
| | [K6_U06] knows and applies the basic provisions of construction law, water law and environmental law | | Student is aware of his part in the construction process Student knows current building codes | | [SU3] Assessment of ability to use knowledge gained from the subject | | |

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| Subject contents | <p>Lectures:</p> <ul style="list-style-type: none">• Construction design according to Eurocodes• Types of sanitary engineering constructions: potable water gathering and purification, stormwater drainage, retention and reclamation, sewage transport, treatment and reclamation• Elements of foundation engineering: shallow foundation bearing capacity, slope stability, passive and active earth pressure• Basics of concrete construction design <p>Project classes:</p> <ul style="list-style-type: none">• Calculating live and dead loads acting on a subsurface construction• Design and dimensioning of a reinforced concrete manhole or a tank located below the surface level | | |
| Prerequisites and co-requisites | A number of classes passed covering the following topics: classical mechanics, soil mechanics, hydraulics and hydrology, strength of materials, general construction or rudiments of civil engineering, technology of concrete | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Test | 50.0% | 50.0% |
| | Problem to calculate | 100.0% | 50.0% |
| Recommended reading | Basic literature | <ul style="list-style-type: none">• Rangwala, S.C., Water Supply And Sanitary Engineering, Charotar Publishing House 2005 | |
| | Supplementary literature | <ul style="list-style-type: none">• Braja M. Das Fundamentals of Geotechnical Engineering, Cengage Learning, 2012 | |
| | eResources addresses | Adresy na platformie eNauczanie: | |
| Example issues/ example questions/ tasks being completed | <p>Exemplary test questions:</p> <ol style="list-style-type: none">1. Describe constructions used for gathering surface water for drinking purposes2. Describe constructions used for sewage reclamation3. How to determine the cover thickness in reinforced concrete and what is its purpose4. How to design an underground tank5. List materials used for constructions of sewer systems <p>Exemplary project elements:</p> <ul style="list-style-type: none">• Design calculations: Load calculations, static calculations regarding GEO and STR limit states, sizing of a surface or a subsurface tank• Design calculations: slope stability assessment for an excavation with natural or reinforced slopes | | |
| Work placement | Not applicable | | |

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