

| STUDY MODULE DESCRIPTION FORM | | |
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| Name of the module/subject Technical building systems(water, sewerage, gas) | | Code 1010101151010139337 |
| Field of study Sustainable Building Engineering First-cycle | Profile of study (general academic, practical) general academic | Year /Semester 3 / 5 |
| Elective path/specialty - | Subject offered in: Polish | Course (compulsory, elective) obligatory |
| Cycle of study: First-cycle studies | Form of study (full-time,part-time) full-time | |
| No. of hours Lecture: 30 Classes: - Laboratory: - Project/seminars: 15 | | No. of credits 4 |
| Status of the course in the study program (Basic, major, other) other | | (university-wide, from another field) university-wide |
| Education areas and fields of science and art technical sciences Technical sciences | | ECTS distribution (number and %) 4 100% 4 100% |
| Responsible for subject / lecturer: dr inż. Tomasz Schiller email: tomasz.schiller@put.poznan.pl tel. 616652078 Wydział Budownictwa i Inżynierii Środowiska ul. Piotrowo 5 60-965 Poznań | | |
| Prerequisites in terms of knowledge, skills and social competencies: | | |
| 1 | Knowledge | - basic knowledge from mathematics and physics - structured general knowledge including key fluid mechanics issues |
| 2 | Skills | - use of available sources of information - reading of technical drawings as well as drawing them in a traditional way and using computer programmes - communication in English, including knowledge of technical language elements |
| 3 | Social competencies | - understanding the need to raise professional and personal competences |
| Assumptions and objectives of the course: Acquisition of basic knowledge and skills in the field of water, sewage and gas building installations, taking into account modern technical and material solutions related to it, needed for solving practical problems. | | |
| Study outcomes and reference to the educational results for a field of study | | |
| Knowledge: | | |
| 1. Student knows legal legislation and technical conditions which buildings should fulfill (effect achieved during lectures) - [KSB_W07] | | |
| 2. Student knows basic environmental engineering installation necessary for building functioning (effect achieved during lectures) - [KSB_W13] | | |
| 3. Student knows basic instalation materials used in instalation and its properties (effect achieved during lectures) - [KSB_W14] | | |
| 4. Student knows basis of environmental engineering instalation design (effect achieved during lectures) - [KSB_W20] | | |
| Skills: | | |
| 1. Student is able to project simple water, sewage and gas instalation (effect achieved during projects) - [KSB_U12] | | |
| 2. Student can choose instalation material proper to projected instalation (effect achieved during projects) - [KSB_U21, KSB_U23] | | |
| Social competencies: | | |
| 1. Student is aware of the advantages, disadvantages and limitations of technical solutions applied (effect achieved during projects) - [KSB_K02, KSB_K08] | | |
| 2. Student understands the need of team work in solving technical problems (effect achieved during projects) - [KSB_K04] | | |

| Assessment methods of study outcomes | | |
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| <p>The learning outcomes will be checked during multianswer test and during student's work design exercise. Obtaining a positive assessment directly related to student's design exercise requires compliance with substantive and graphical content of study provided by lecturer at the beginning of class.</p> <p>Lectures - written final multianswer test (effects W1 to W4).</p> <p>Evaluation of design exercises - exercise prepared by a double-student team and a multianswer test at time specified at the beginning of the semester will be assessed (effectc U01, U02, K01, K02).</p> <p>Mark scale (percentage / mark): 0-50 ndst, 51-60 dst, 61-70 dst+, 71-80 db, 81-90 db+, 91-100 bdb</p> | | |
| Course description | | |
| <p>Lectures</p> <ol style="list-style-type: none"> 1. Place (location) of water, sewage and gas installations in media supply system of settlement unit. Requirements, difficulties, and tasks for the designer. 2. Methods for calculating required amount of delivered media (water and gas) and wastewater. 3. Solution which can limit water consumption and wastewater. 4. Materials used for construction of installations. 5. Rules for locating elements of installation systems in building structure together with estimation of required surface. 6. Sanitary room requirements depending on building type. 7. The most important legal and normative requirements related to design of water, sewage and gas installations. 8. Wybrane zagadnienia związane z obliczeniami i doborem elementów instalacji wodnych, kanalizacyjnych i gazowych. Selected issues related to calculation and selection of water, sewage and gas installations elements. <p>Projects</p> <ol style="list-style-type: none"> 1. Calculation of required quantity of the supplied media (water and gas) and discharged wastewater for building being designed. 2. Checking availability of media sources and potential wastewater receivers. 3. Comparative calculations to assess applicability of proposed solutions. 4. Selection and justification of design solution. 5. Calculation of installation by selected solution. 6. Preparation of installation drawings according to calculation of selected solution. | | |
| Basic bibliography: | | |
| Additional bibliography: | | |
| Result of average student's workload | | |
| Activity | Time (working hours) | |
| 1. Participation in lectures | 30 | |
| 2. Participation in practical exercises | 15 | |
| 3. Participation in consultations related to practical exercises | 4 | |
| 4. Preparation for the practical exercises | 12 | |
| 5. Preparation for the exam | 10 | |
| 6. Presence at the exam | 4 | |
| Student's workload | | |
| Source of workload | hours | ECTS |
| Total workload | 75 | 4 |

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| Contact hours | 53 | 2 |
| Practical activities | 37 | 2 |