



Subject card

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| Subject name and code | Diagnostics of building structures, PG_00045870 | | | | | | |
| Field of study | Civil Engineering | | | | | | |
| Date of commencement of studies | February 2023 | Academic year of realisation of subject | | | 2023/2024 | | |
| Education level | second-cycle studies | Subject group | | | Optional subject group 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 | 1 | Language of instruction | | | Polish | | |
| Semester of study | 2 | ECTS credits | | | 2.0 | | |
| Learning profile | general academic profile | Assessment form | | | assessment | | |
| Conducting unit | Department of Building Structures and Material Engineering -> Faculty of Civil and Environmental Engineering | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr hab. inż. Łukasz Skarżyński | | | | | |
| | 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 | 0.0 | 0.0 | 45 |
| | 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 | 45 | | 2.0 | | 3.0 | 50 |
| Subject objectives | The aim of the course is to acquire knowledge about diagnostics of the engineering structures and to use the results for structure analysis. | | | | | | |

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| Learning outcomes | Course outcome | Subject outcome | Method of verification |
| | [K7_W02] knows principles of analysis, design and dimensioning of complex constructions and its elements | Student has general knowledge in the subject area. | [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects |
| | [K7_K01] is aware of necessity of professional competences improvement; obeys the professional ethics code | Student has general knowledge in the subject area. | [SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice [SK1] Assessment of group work skills |
| | [K7_U02] can design and dimension complex steel, concrete (including reinforced), wood and masonry constructions and its details | Student has general knowledge in the subject area. | [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task |
| | [K7_W16] knows methods of diagnostics of engineering objects, has knowledge about different kinds of defects in constructions and its reasons; knows means of fixing and reinforcing of constructions. | Student has comprehensive knowledge of the structure condition assessment and knows popular methods of repair and strengthening. | [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects |
| [K7_U16] is able to estimate the technical condition of engineering object; can interpret the results of constructions and materials examination; | Student has comprehensive knowledge of the structure condition assessment on the basis of diagnostic methods. | [SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task | |
| Subject contents | 1. Introduction to structure diagnostics 2. Morphology of cracks. 3. Destructive and non-destructive diagnostic methods. 4. Using the results of diagnostic tests to analyse the structure. 5. Test load. | | |
| Prerequisites and co-requisites | | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Project | 50.0% | 40.0% |
| | Colloquium | 50.0% | 60.0% |

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| Recommended reading | Basic literature | <p>1. Masłowski E., Spizewska D.: Wzmacnianie konstrukcji budowlanych. Arkady 1999.</p> <p>2. Małyszko L., Orłowicz R.: Konstrukcje murowe zarysowania i naprawy. Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego w Olsztynie 2000.</p> <p>3. Konstrukcje murowe Lech Rudziński Politechnika Świętokrzyska 2006.</p> <p>4. Naprawy Elementów Budowlanych w budynkach mieszkalnych realizowanych metodami uprzemysłowionymi. Inwestprojekt Łódź 1994.</p> <p>5. Trwałość i skuteczność napraw obiektów budowlanych. Dolnośląskie Wydawnictwo Edukacyjne 2007.</p> <p>6. Mitel A., Stachurski W., Suwalski J.: Awarie konstrukcji betonowych i murowych. Arkady 1973.</p> <p>7. Materiały Konferencyjne: Warsztat Pracy Projektanta Konstrukcji WPPK. Ustroń-Wisła-Szczyrk 1998-2008.</p> <p>8. Materiały informacyjne firm zajmujących się opracowywaniem i wdrażaniem nowych rozwiązań technologicznych oraz konstrukcyjno-materiałowych w budownictwie ogólnym.</p> |
| | Supplementary literature | No requirements. |
| | eResources addresses | Adresy na platformie eNauczanie: |
| Example issues/ example questions/ tasks being completed | <p>1. Assessment of the bearing capacity of a retaining wall on the basis of diagnostic tests and numerical FEM calculations.</p> <p>2. Assessment of the bearing capacity of a reinforced concrete ceiling on the basis of diagnostic tests and numerical FEM calculations.</p> <p>3. Assessment of the bearing capacity of stairs on the basis of diagnostic tests and numerical FEM calculations.</p> | |
| Work placement | Not applicable | |