



Subject card

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|---|--|---|-------------------------------------|------------|--|---------|-----|--|
| Subject name and code | Failure Analysis, PG_00039090 | | | | | | | |
| Field of study | Chemistry in Construction Engineering | | | | | | | |
| Date of commencement of studies | October 2020 | Academic year of realisation of subject | | | 2022/2023 | | | |
| Education level | first-cycle studies | Subject group | | | | | | |
| Mode of study | Full-time studies | Mode of delivery | | | at the university | | | |
| Year of study | 3 | Language of instruction | | | Polish | | | |
| Semester of study | 6 | ECTS credits | | | 3.0 | | | |
| Learning profile | general academic profile | Assessment form | | | exam | | | |
| Conducting unit | Department of Electrochemistry, Corrosion and Materials Engineering -> Faculty of Chemistry | | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr hab. inż. Paweł Ślepski | | | | | | |
| | Teachers | dr hab. inż. Paweł Ślepski dr hab. inż. Michał Szociński dr inż. Łukasz Gawel | | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM | |
| | Number of study hours | 15.0 | 0.0 | 30.0 | 0.0 | 0.0 | 45 | |
| | E-learning hours included: 0.0 Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=14291 | | | | | | | |
| 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 | 5.0 | 25.0 | 75 | | | |
| Subject objectives | The student properly investigates objects damaged by the corrosion processes. The student is able to prepare analysis of corrosion damage report. | | | | | | | |
| Learning outcomes | Course outcome | Subject outcome | | | Method of verification | | | |
| | K6_W08 | The student presents typical dangers for material caused by the given environment | | | [SW1] Assessment of factual knowledge | | | |
| | K6_K03 | The student is able to use the necessary information to identify corrosion damage and prepare a report. | | | [SK5] Assessment of ability to solve problems that arise in practice | | | |
| Subject contents | Analysis of corrosion damages generated by different corrosion processes (general corrosion, galvanic corrosion, pitting corrosion, crevice corrosion, intergranular corrosion, stress corrosion cracking, etc.). General description of particular corrosion processes. Review of common places of corrosion damages in industrial systems. Methods of failure analysis. Elements of prevention. Preparation of reports | | | | | | | |
| Prerequisites and co-requisites | Basic knowledge of electrochemistry | | | | | | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | | | Percentage of the final grade | | | |
| | reports | 100.0% | | | 40.0% | | | |
| | written exam | 50.0% | | | 60.0% | | | |
| Recommended reading | Basic literature | Practical Engineering Failure Analysis, H.M. Tawancy, A. Ul-Hamid, N.M. Abbas, Marcel Dekker, New York 2004 | | | | | | |
| | Supplementary literature | Fundamentals of Metallic Corrosion, P.A. Schweitzer, CRC Press, New York 2006 | | | | | | |
| | eResources addresses | Adresy na platformie eNauczanie: | | | | | | |

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| Example issues/ example questions/ tasks being completed | Corrosion of metal elements in industrial plants Corrosion of heat exchangers Corrosion of pipework in the ground Electrochemical corrosion in reinforced concrete structures |
| Work placement | Not applicable |