



Subject card

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|---|--|---|-------------------------------------|------------|--|---------|-----|
| Subject name and code | Corrosion Processes, PG_00048916 | | | | | | |
| 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 | 5 | ECTS credits | | | 3.0 | | |
| Learning profile | general academic profile | Assessment form | | | assessment | | |
| Conducting unit | Department of Electrochemistry, Corrosion and Materials Engineering -> Faculty of Chemistry | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | prof. dr hab. inż. Kazimierz Darowicki | | | | | |
| | Teachers | prof. dr hab. inż. Kazimierz Darowicki | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 15.0 | 0.0 | 15.0 | 0.0 | 0.0 | 30 |
| | 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 | 30 | 5.0 | 40.0 | 75 | | |
| Subject objectives | Understanding the essence of electrochemical processes. Thermodynamic conditions. Kinetic conditions | | | | | | |
| Learning outcomes | Course outcome | Subject outcome | | | Method of verification | | |
| | K6_K03 | The student is able to perform basic works related to the protection of building materials against corrosion and independently makes decisions about the choice of the protection method. | | | [SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice [SK2] Assessment of progress of work | | |
| | K6_W05 | The student is able to use the acquired knowledge to select appropriate building materials. | | | [SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects | | |
| | K6_U09 | The student knows the methods of environmental corrosivity assessment. Is able to apply appropriate building materials or an appropriate corrosion protection method to the existing corrosion hazards. | | | [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 | | |
| Subject contents | Lecture: -Chemical thermodynamics: corrosion cells, E/pH diagrams, thermodynamic stability of water and its solutions. -Corrosion processes kinetics: E=f(I) diagrams, corrosion processes control. -Types of corrosion: general, pitting, selective, intergranular, crevice, stress corrosion and stress corrosion cracking, corrosion-erosion, cavitation. -Corrosion occurring conditions (practical examples). -Atlas of corrosion fatigue: description and visualization of fatigues. Laboratory: 1.Introduction and safety. 2.Temperature cell. 3.Oxygen concentration cell. 4.Galvanic cell. 5.Crevice corrosion. 6.Intergranular corrosion. 7.Selective corrosion of brass. 8.Pitting corrosion of steel. 9.Water 10.Reserved. | | | | | | |
| Prerequisites and co-requisites | Chemical thermodynamics | | | | | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | | | Percentage of the final grade | | |
| | Written exam | 60.0% | | | 50.0% | | |
| | Laboratory | 60.0% | | | 50.0% | | |
| Recommended reading | Basic literature | http://www.korozja.pl | | | | | |
| | Supplementary literature | No requirements | | | | | |

| | eResources addresses | Adresy na platformie eNauczanie: |
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| Example issues/ example questions/ tasks being completed | 1-Types of corrosion? 2- Structure of construction materials? 3-Characteristics of corrosive environments? | |
| Work placement | Not applicable | |