



## Subject card

|                                             |                                                                                                                                                                                                                                                                                                                                                            |                                                          |                                                                                                                 |                                     |                                                                                                                                                 |            |     |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | CORROSION IN PETROCHEMICAL INDUSTRY, PG_00064359                                                                                                                                                                                                                                                                                                           |                                                          |                                                                                                                 |                                     |                                                                                                                                                 |            |     |
| Field of study                              | Corrosion                                                                                                                                                                                                                                                                                                                                                  |                                                          |                                                                                                                 |                                     |                                                                                                                                                 |            |     |
| Date of commencement of studies             | February 2027                                                                                                                                                                                                                                                                                                                                              |                                                          | Academic year of realisation of subject                                                                         |                                     | 2027/2028                                                                                                                                       |            |     |
| Education level                             | second-cycle studies                                                                                                                                                                                                                                                                                                                                       |                                                          | Subject group                                                                                                   |                                     | Obligatory subject group in the field of study<br>Specialty subject group<br>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 Corrosion and Electrochemistry -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology                                                                                                                                                                                                                                       |                                                          |                                                                                                                 |                                     |                                                                                                                                                 |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                                                                                                                         |                                                          | prof. dr hab. inż. Juliusz Orlikowski                                                                           |                                     |                                                                                                                                                 |            |     |
|                                             | Teachers                                                                                                                                                                                                                                                                                                                                                   |                                                          |                                                                                                                 |                                     |                                                                                                                                                 |            |     |
| Lesson types                                | 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                                                       |                                                                                                                 | 2.0                                 |                                                                                                                                                 | 18.0       | 50  |
| Subject objectives                          | Familiarization with corrosion mechanisms in the refining industry                                                                                                                                                                                                                                                                                         |                                                          |                                                                                                                 |                                     |                                                                                                                                                 |            |     |
| Learning outcomes                           | Course outcome                                                                                                                                                                                                                                                                                                                                             |                                                          | Subject outcome                                                                                                 |                                     | Method of verification                                                                                                                          |            |     |
|                                             | [K7_W05] recognises key developments in research, apparatus and technology in corrosion and material degradation and related fields                                                                                                                                                                                                                        |                                                          | Skills in obtaining the necessary data for the assessment of corrosion phenomena                                |                                     | [SW1] Assessment of factual knowledge                                                                                                           |            |     |
|                                             | [K7_U01] designs experiments using computer methods of data analysis, computer simulation and based on the state-of-the-art in knowledge of in accordance with the most recent scientific literature                                                                                                                                                       |                                                          | Ability to simulate the composition of process streams using the AspenTech software package                     |                                     | [SU1] Assessment of task fulfilment                                                                                                             |            |     |
|                                             | [K7_K01] critically evaluates the content of scientific and practical problems                                                                                                                                                                                                                                                                             |                                                          | Ability to recognize corrosion mechanisms depending on technological conditions and construction materials used |                                     | [SK2] Assessment of progress of work                                                                                                            |            |     |
| Subject contents                            | Course content – lecture<br><br>Presentation of all the basic mechanisms of corrosion and degradation in the refining industry. Discussion of technological factors influencing corrosion risk. Presentation of risk analysis methodology in accordance with API 571 and API 581. Determination of aggressiveness parameters of the corrosive environment. |                                                          |                                                                                                                 |                                     |                                                                                                                                                 |            |     |
| Prerequisites and co-requisites             | Basics of corrosion, basics of chemical engineering                                                                                                                                                                                                                                                                                                        |                                                          |                                                                                                                 |                                     |                                                                                                                                                 |            |     |
| Assessment methods and criteria             | Subject passing criteria                                                                                                                                                                                                                                                                                                                                   |                                                          | Passing threshold                                                                                               |                                     | Percentage of the final grade                                                                                                                   |            |     |
|                                             | Final exam                                                                                                                                                                                                                                                                                                                                                 |                                                          | 60.0%                                                                                                           |                                     | 100.0%                                                                                                                                          |            |     |
| Recommended reading                         | Basic literature                                                                                                                                                                                                                                                                                                                                           |                                                          | API RBi standard 571, 581                                                                                       |                                     |                                                                                                                                                 |            |     |
|                                             | Supplementary literature                                                                                                                                                                                                                                                                                                                                   |                                                          | There is no requirement                                                                                         |                                     |                                                                                                                                                 |            |     |
|                                             | eResources addresses                                                                                                                                                                                                                                                                                                                                       |                                                          |                                                                                                                 |                                     |                                                                                                                                                 |            |     |

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| Example issues/<br>example questions/<br>tasks being completed | Corrosion Mechanisms in the Refining Industry<br>Conditions of Their Occurrence<br>Hazardous Materials |
| Practical activities within<br>the subject                     | Not applicable                                                                                         |

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