



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Fundamentals of electrochemical technology

Course

Field of study

Year/Semester

Chemical and process engineering

3/5

Area of study (specialization)

Profile of study

general academic

Level of study

Course offered in

First-cycle studies

Polish

Form of study

Requirements

full-time

compulsory

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

30

30

Tutorials

Projects/seminars

Number of credit points

5

Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

dr hab. Piotr Krawczyk, prof. PP

Prerequisites

Student has a ordered knowledge of mathematics and physical chemistry and he also has ability to use the basic techniques in a laboratory scale.

Course objective

The aim of the course is to familiarize students with an overview of technical electrochemistry methods and develop skills for their practical application.

Course-related learning outcomes

Knowledge

1. The knowledge in the field of basics of electrochemical processes –[K_W03, K_W04],
2. The knowledge in the field of various electrochemical technologies –[K_W13, K_W15],
3. The knowledge in the field of related fields –[K_W12].

Skills

1. The student has the ability to selection of measurement techniques –[K_U15, K_U16],



2. The student has the ability to use specialized vocabulary in English –[K_U01, K_U02].

Social competences

1. The student understands the need for self-study and improvement of their professional competence –[K_K01],
2. Student can act and cooperate in the group accepting different roles –[K_K04].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Laboratory assessment on the basis of the current work during the laboratory and the written tests.

The written exam.

Programme content

1. The principles of electrochemical processes.
2. Electrodes balances.
3. The kinetics of electrode processes.
4. The selected electrochemical processes.
5. The processes based on the electrochemical processes.
6. Construction solutions of electrochemical reactors and their influence on the course of electrochemical processes.

Teaching methods

Lecture, problem lecture, explanation, didactic discussion, classes, project method, laboratory exercises

Bibliography

Basic

1. A. Kiszka – Elektrochemia cz. I i II (Jonika i Elektrodyka) WNT, W-wa, 2001,
2. R. Dylewski, W. Gniot, M. Gonet, Elektrochemia przemysłowa, Wyd. Politechniki Śląskiej, 1999,
3. A. Czerwiński, Ogniwa, akumulatory, baterie, WNT, W-wa, 1999,
4. C. G. Zoski praca zb., Handbook of Electrochemistry, Elsevier, 2007,
5. A. Ciszewski, Technologia chemiczna. Procesy elektrochemiczne, Wyd. Politechniki Poznańskiej, 2008.

Additional

1. A.V. da Rosa, Fundamentals of Renewable Energy Processes, Elsevier/Academic Press, 1990,
2. H. Scholl, T. Błaszczak, P. Krzyczmonik, Elektrochemia, Wyd. Uniwersytetu Łódzkiego, 1998.



Breakdown of average student's workload

| | Hours | ECTS |
|---|-------|------|
| Total workload | 140 | 5,0 |
| Classes requiring direct contact with the teacher | 70 | 2,5 |
| Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹ | 70 | 2,5 |

¹ delete or add other activities as appropriate