



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Fundamentals of Electrochemical Technology

		Course
Field of study		Year/Semester
Environmental Protection Technologies		III/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	0
Tutorials	Projects/seminars	
0	0	
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. Student understand the need for further education and enhance of professional and personal competences.

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_W12],
2. The knowledge in the field of various electrochemical technologies and apparatus used–[K_W10],
3. The knowledge in the field of related fields –[K_W06].

Skills

1. The student has the ability to selection of measurement techniques –[K_U12],



2. The student has the ability to perform the characterization of materials used in electrochemistry – [K_U13],

2. The student has the ability to acquire the information necessary to conduct the investigations – [K_U01].

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_K03].

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. Electrode balances.

3. The kinetics of electrode processes.

4. The selected electrochemical processes.

5. The processes based on the electrochemical processes,

6. Examples of regeneration processes apply in electrochemistry.

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. Błaszczuk, 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