

Title (Podstawy technologii elektrochemicznej)	Code 1010701261010710422
Field Chemical Technology	Year / Semester 3 / 6
Specialty -	Course core
Hours Lectures: 2 Classes: - Laboratory: 3 Projects / seminars: -	Number of credits 6
	Language polish

Lecturer:

prof. dr hab. Jan Skowroński
Instytut Chemii i Elektrochemii Technicznej

Faculty:

Faculty of Chemical Technology
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Status of the course in the study program:

Obligatory.

Assumptions and objectives of the course:

Basic knowledge of electrochemical technology.

Contents of the course (course description):

Basic knowledge of electrochemical equilibrium: laws of electrochemical thermodynamics, ion-solvent and ion-ion interactions, theories of dissociation and association of electrolytes, electric double layer and the origin of electrochemical potential. Ion transport: diffusion and migration of ions in aqueous and non-aqueous solutions of electrolytes, in polymeric electrolytes and melt salts. Equilibrium states in the heterogeneous electrode/electrolyte system, types of electrodes, electromotive force. Principle knowledge of electrochemical kinetics: types of electrochemical polarization, the reasons for the formation and elimination of electrochemical overpotentials. The selected devices and processes of electrochemical technology: electrolysis and galvanic electrodeposition processes, the inorganic and organic electrosynthesis, methods of electrochemical purification of wastewater, rules of construction and performance of chemical power sources (galvanic cells, fuel cells, accumulators, supercapacitors).

Introductory courses and the required pre-knowledge:

Basic knowledge of physical chemistry.

Courses form and teaching methods:

Lecture.

Form and terms of complete the course - requirements and assessment methods:

Written exam (repeat exam - oral).

Basic Bibliography:

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Additional Bibliography:

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