



## Subject card

Subject name and code	Construction Materials in Chemical Industry; Corrosion, PG_00048556						
Field of study	Chemical Technology						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	4	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Corrosion and Electrochemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Kazimierz Darowicki					
	Teachers	prof. dr hab. inż. Kazimierz Darowicki dr hab. inż. Stefan Krakowiak					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	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	45	2.0		28.0		75
Subject objectives	Linking structure and alloys with their properties						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_U08	student is able to link the structure of metals and alloys with their corrosive properties			[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject		
	K6_W07	student has basic knowledge of construction materials and their corrosion			[SW1] Assessment of factual knowledge		
Subject contents	-Energy band theory of metals, semiconductors and dielectrics. -Electric, magnetic and thermal properties of metals. -Types of crystal lattice of solids. -Solid solutions. -Alloys and phase transitions, heat treatment. -Iron-carbon phase diagram. -Classifications of steels and cast irons. -Basics of thermodynamics and chemical kinetics. -Types of corrosion failures. -Corrosion: general, selective, intergranular, pitting, crevice. -Stress corrosion cracking and corrosion fatigue.						
Prerequisites and co-requisites	Chemical bonds, theory of solutions, chemical thermodynamics, basics of quantum chemistry.						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	test	60.0%			50.0%		
	laboratory	100.0%			50.0%		
Recommended reading	Basic literature	Ch.A.Wert, R.M. Thomson, Fizyka ciała stałego, PWN Warszawa 1974 J. Dereń, J. Chaber, R. Pampuch, Chemia ciała stałego, PWN Warszawa 1977 L.L. Shreier, R.A. Barman, G.T. Burstein, Corrosion, Butterworth, London 1994 P.A. Schweitzer, Fundamentals of Metallic Corrosion, CRC Press, London 2007					
	Supplementary literature	No requirements					
	eResources addresses	Adresy na platformie eNauczenie:					

Example issues/ example questions/ tasks being completed	Discuss the iron-carbon phase diagram.  List the types of corrosion damage.  What kind of crystallographic networks do you know
Work placement	Not applicable

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