GDAŃSK UNIVERSITY OF TECHNOLOGY

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 2020	Academic year of realisation of subject	2021/2022
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 Electrochemistry, Corrosion and Materials Engineering -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Kazimierz Darowicki	
	Teachers	prof. dr hab. inż. Kazimierz Darowicki	

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

Adresy na platformie eNauczanie:

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, magnetics 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	

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