GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Technology of Informatics, PG_00048549		
Field of study	Chemical Technology		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2022/2023
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	1	Language of instruction	Polish
Semester of study	2	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Physical Chemistry -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Adam Kloskowski	
	Teachers	dr inż. Joanna Grabowska dr inż. Anna Kuffel dr hab. inż. Jarosław Wawer dr inż. Mateusz Kogut dr hab. inż. Adam Kloskowski	

Lesson types and methods of instruction							
	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	45.0	0.0	15.0	60
	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	60	2.0	38.0	100

Subject objectives	The aim of the course is to acquire the student the ability to combine the computer on-line with control and measurement devices and data collection. Students should also be able to properly select software and statistical tools for the analysis of the results of measurements.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_K05	Student is able to prepare and present a presentation of the project using properly selected computer programs. The student has the ability to analyze information in the context of the impact of the decisions made on the environment. Is aware of the responsibility for decisions. He is able to work in a group as well as individually and is aware of the need to keep the set deadlines.	[SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work
K6_W06	After completing the course the student should: 1) use the advanced functions of MS Office programs (Word, Excel) in an expert way. 2) use a spreadsheet to solve problems in the field of statistics and numerical methods. 3) on the skills and knowledge of input-output devices, including: - support for COM, USB, LPT ports, - microcontrollers, - basics of Lab View	[SW1] Assessment of factual knowledge

Subject contents	The laboratory is divided into three sections that will be implemented in the following hourly basis: BLOCK 1 Creating a MS Word document editor, editing mathematical formulas, editing ISIS chemical formulas, the use of MS Excel spreadsheet in chemical calculations. BLOCK 2 Basics of programming in Visual Basic for Applications. Communication with I/O devices. Serial ports, parallel port, RS-232 and USB standard. BLOCK 3 The issue of numerical instability in the calculation. Practical application of numerical methods to solve computational problems. The program of seminars: 1 Error propagation and number rounding rules 2 Data set statistical description 3 Normal and t-Student distributions 4 Statistical tests 5 Linear and linearized regression 6 Solving of nonlinear equations 7 Interpolation of function 8 Numerical integration
Prerequisites and co-requisites	
Assessment methods and criteria	

Subject passing criteria	Passing threshold	Percentage of the final grade
Seminars	50.0%	60.0%
Labs	50.0%	40.0%

Recommended reading	Basic literature	W. Sikorski : Podstawy technik informacyjnych , PWN 2004 D. Hawley, R. Hawley, 100 sposobów na Excel 2007 PL. Tworzenie funkcjonalnych arkuszy, Helion, Warszawa 2008 J. Czermiński i inni, Metody statystyczne dla chemików, PWN, Warszawa 1986 P. Lesiak, D. Świsulski, Komputerowa Technika Pomiarowa w przykładach, PAK 2002, (Pomiary, Automatyka, Kontrola)
	Supplementary literature	P. Górecki, Mikrokontrolery dla początkujących, Wydawnictwo BTC, 2006 M. Gook, Interfejsy sprzętowe komputerów PC, Helion2004
	eResources addresses	Adresy na platformie eNauczanie: Technologie Informacyjnw 2023 - Moodle ID: 30198 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=30198

Example issues/ example questions/ tasks being completed	1) data transition in RS-232 conection 2) I / O devices 3) Based on the data set evaluate the accuracy and precision of the measurement technique 4) Edit the text file based on defined requirements (format) for a specific journal.
Work placement	Not applicable