GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Essentials of Computer Science, PG_00059068		
Field of study	Environmental Engineering		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department Of Geotechnical And Hydraulic Engineering -> Faculty Of Civil And Environmental Engineering -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Wojciech Artichowicz	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	10.0	0.0	0.0	25

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	25	3.0	48.0	76

Subject objectives

Introduction to computation and data analysis using the spreadsheet.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W14] knows and understands the methods of measuring basic quantities characteristic for fluid mechanics and hydraulics, hydrology; knows the calculation methods and IT tools necessary to analyze the results of laboratory and field work	Student can use spreadsheet for environmental data analysis.	[SW1] Assessment of factual knowledge
[K6_W06] has a structured and theoretically founded knowledge in the field of computer science, numerical methods and the possibilities of their applications for solving tasks, description of phenomena related to the flow of water in the environment, in open pipes and channels, filtration, migration of pollutants	Student is able to perform basic mathematical computation using the spreadsheet.	[SW3] Assessment of knowledge contained in written work and projects
[K6_U01] has the ability to self-education, can obtain information from literature, databases and other sources, uses information technology, Internet resources; can integrate the obtained information, make their interpretation, as well as draw conclusions and formulate and justify opinions	Student knows the sources of knowledge on programming issues and data analysis.	[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information
[K6_U02] can work individually and in a team; knows how to estimate the time needed to complete the task ordered; is able to develop and implement a work schedule that ensures deadlines	Student knows and is able to use in practice the methodology of kanban with the use of the Trello software.	[SU4] Assessment of ability to use methods and tools

<table>
<tr><td>Subject contents</td><td>LECTURE:

Problems of computing in engineering.

The principles of how computer works.

Number systems, binary system.

Digital representation of data (numbers, images, files, etc.).

Introduction to databases.

Relational databases.

Scrum and kanban work methodologies.

Spreadsheet fundamentals.

LAB:

• spreadsheet introduction
• fundamentals of working in spreadsheets
• computation, working with text
• formatting, advanced formatting for data analysis
• data analysis, filters, pivot tables, etc.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Knowledge of basics computer and operating system service, Windows or Linux. Knowledge of the basics of Mathematics, and basic Meteorology.</td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>complete laboratory</td><td>100.0%</td><td>50.0%</td></tr><tr><td>complete lecture</td><td>60.0%</td><td>50.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>Libre Office Calc Help

Kanban, Marcus Hammarberg, Joakim Sunden</td></tr><tr><td>Supplementary literature</td><td>Data Smart: Using Data Science to Transform Information into Insight, John W. Foreman, Wiley</td></tr><tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Visualization of the IMGW data.

Solution of the non-linear equation</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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