GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Essentials of Computer Science I, PG_00042612		
Field of study	Environmental Engineering		
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 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	2	Language of instruction	Polish
Semester of study	3	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Hydraulic Engineering -> Faculty of Civil and Environmental Engineering		
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

Adresy na platformie eNauczanie:
Podstawy Informatyki I n-stacj (IŚ, sem. III) - Moodle ID: 18848
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18848

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	4.0	50.0	79

Subject objectives

Acquaint the student with the principles of working with Office-type packages in order to prepare text documents, spreadsheets, multimedia presentations and databases. Introduction to basic numerical methods for solving nonlinear equations, systems of linear and nonlinear equations, interpolation and approximation methods, methods for numerical integration and elements of optimization .

Introduction to the computer algebra systems.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W15] 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	The student is able to visualize and analyze the results of hydraulic and hydrological measurements.	
[K6_U11] can use selected computer programs to support design, including CAD graphics programs	The student is able to use the advanced capabilities of the office suite.	
[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 has the knowledge about the basic numerical methods and has the ability to implement them in the spreadsheet.	

Subject contents	LECTURE Fundamentals of computer algebra systems. Rules for creating text documents. Basic concepts of typography. Creating text documents in a text editor. Creating equations in text editors. Basics of creating a presentation. Basics of vector graphics. Password security and data security.
Prerequisites and co-requisites	Knowledge of basics computer and operating system service, Windows or Linux. Knowledge of the basics of Mathematics, and Hydraulics.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
complete laboratory	100.0%	50.0%
complete lecture	60.0%	50.0%

Recommended reading

Basic literature	1). Williams R.: Komputer nie jest maszyną do pisania. Wydawnictwo Helion 2003. 2). Szymkiewicz R. „Metody numeryczne w inżynierii wodnej”, Wyd. PG, Pomorska Biblioteka Cyfrowa, Gdańsk, 2013 (pdf).
Supplementary literature	Ralston A. „Wstęp do analizy numerycznej”, PWN, Warszawa, 1971. Mathematica programming, an advanced introduction, Leonid Shifrin
eResources addresses	Podstawy Informatyki I n-stacj (IŚ, sem. III) - Moodle ID: 18848 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18848

Example issues/ example questions/ tasks being completed	Automatization of the document creation Solution of the ordinary differential equation with the Euler's and trapezoidal methods Determination of the loss coefficient using the Colebrook-White's formula Analiza danych hydrologicznych (stany wody)
Work placement	Not applicable