



Subject card

Subject name and code	Information Technologies , PG_00021023						
Field of study	Mathematics						
Date of commencement of studies	October 2023	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	1	Language of instruction			Polish The lecture slides are in Polish, while part of the other teaching resources (books and documentation) are only available in English.		
Semester of study	1	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Instytut Matematyki Stosowanej -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Paweł Pilarczyk					
	Teachers	dr Adrian Myszkowski dr Joanna Cyman dr hab. Paweł Pilarczyk					
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	5.0		25.0		75
Subject objectives	Learning how to use selected features of the computer for mathematical purposes; specifically, acquiring the following abilities and knowledge: <ul style="list-style-type: none">• creating mathematical formulas in office packages,• using spreadsheets for conducting mathematical calculations (including VBA programming) and for data visualization in graphs and diagrams,• using LaTeX for preparing mathematical documents, including presentations and posters,• understanding the basics of encoding characters and numbers in the computer.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_U10	The student can create mathematical formulas using office software packages. The student is able to create LaTeX documents containing mathematical formulas.			[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject		
	K6_W08	The student understands the method used in the computers for binary encoding of characters and numbers (integers and reals).			[SW1] Assessment of factual knowledge		
	K6_U07	The student uses spreadsheet software to solve practical problems. The student can expand the capabilities of a spreadsheet by programming additional functions in VBA, and knows the available data types.			[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		

Subject contents	<p>Lecture:</p> <ol style="list-style-type: none"> 1. Computer science and information technology. Computer systems. 2. Mathematical formulas in office packages. 3. Conducting calculations using spreadsheet software (including VBA programming) and creating graphs. 4. LaTeX and useful packages, including beamer and tikzposter. 5. Mathematical formulas in HTML: MathJax and MathML. 6. Representing integer and real numbers in the computer. 7. Encoding alphabetic characters: from ASCII to Unicode. <p>Laboratory:</p> <p>Using the e-course Moodle platform. Hands-on experience in using the techniques introduced in the lecture (items 2-5), with emphasis on LaTeX.</p>											
Prerequisites and co-requisites	Computer science lab in secondary school. The ability to use the computer and to work with office software and a Web browser. Basic programming skills.											
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Subject passing criteria</th> <th style="width: 30%;">Passing threshold</th> <th style="width: 30%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Tests and quizzes at the lecture</td> <td>60.0%</td> <td>30.0%</td> </tr> <tr> <td>Hands-on problem solving in the lab</td> <td>60.0%</td> <td>70.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Tests and quizzes at the lecture	60.0%	30.0%	Hands-on problem solving in the lab	60.0%	70.0%
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Example issues/ example questions/ tasks being completed	<p>Creating a mathematical formula in an office program.</p> <p>Programming a new function in VBA to be used in a spreadsheet.</p> <p>Creating mathematical slides in LaTeX using beamer.</p>											
Work placement	Not applicable											