



## Subject card

Subject name and code	Informatics II, PG_00039414						
Field of study	Mechatronics, Mechatronics						
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	Full-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	4	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Mechanics and Mechatronics -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marek Galewski					
	Teachers	dr inż. Yurii Tsybrii dr hab. inż. Marek Galewski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	E-learning hours included: 0.0						
Adresy na platformie eNauczanie: Informatyka II, WL, MTR, I st., sem. 04, letni 2021/22 (M:31391W1) - Moodle ID: 19697 <a href="https://enauzanie.pg.edu.pl/moodle/course/view.php?id=19697">https://enauzanie.pg.edu.pl/moodle/course/view.php?id=19697</a>							
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	5.0	35.0	100		
Subject objectives	Teaching students of structural (in C language) and object oriented programming (n Java) basics, relational databases and essential Artificial Intelligence algorithms.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_W06	Student understands basic principles of structural and Object Oriented Programming and describes basics of selected Artificial Intelligence algorithms			[SW1] Assessment of factual knowledge		
	K6_U05	Student knows how to utilise modern programming tools and techniques (e.g. NetBeans, UML, SQL)			[SU4] Assessment of ability to use methods and tools		
	K6_U09	Student develops simple structural and Object Oriented programmes in C and Java			[SU1] Assessment of task fulfilment		
Subject contents	Programming in C language: basic elements of the C language, basic elements of program, functions, conditional statements, loops, I/O operations, array operations, strings, pointers; Programming in Java language: basic elements of the Java language, elements of object oriented programming (Classes, objectd, inheritance), I/O operations, collections, programming for GUI ; UML modelling language; Relational databeses (SQL); Artificial Intelligence methods: neural networks, genetic algorithms, fuzzy logic and modelling.						
Prerequisites and co-requisites	Passed Computer Science I course.						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Obligatory laboratory exercises	55.0%	20.0%
	Individual project	50.0%	20.0%
	Exam	52.0%	60.0%
Recommended reading	Basic literature	[1] M. Galewski: Lecture materials published at the eNaucznie site [2] M. Galewski, P. Duba: Laboratory exercises handbooks	
	Supplementary literature	Kernighan B.W, Ritchie D.M, Język ANSI C. Programowanie. wyd. II, Helion, 2020 Horstmann C.S, Java. Podstawy. Helion, 2019 (ew. wcześniejsze, ale niezbyt stare wydania) Schmuller J., UML dla każdego, Helion 2003 Flasinski, M., Introduction to Artificial Intelligence, 2016 Rutkowska D., Piliński M., Rutkowski L., Sieci neuronowe, algorytmy genetyczne i systemy rozmyte, PWN, Warszawa, 1997 Tadeusiewicz R., Gąciarz T., Borowik B., Leper B. Odkrywanie właściwości sieci neuronowych przy użyciu programów w języku C#, PAU, Kraków, 2007 Piegat A., Modelowanie i sterowania rozmyte, Exit, Warszawa, 2003	
	eResources addresses	Informatyka II, WL, MTR, I st., sem. 04, letni 2021/22 (M:31391W1) - Moodle ID: 19697 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=19697">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=19697</a>	
Example issues/ example questions/ tasks being completed	<p>The list of sample questions for the exam (around 50) and laboratory individual projects (around 40) are given to the student during the semester.</p> <p>Sample examination questions:</p> <ul style="list-style-type: none"> <li>- How does type cast operation work? When do we use it and why? Provide examples of typ casting in C.</li> <li>- What is pointer data type used for? When do we use it? What are it's advantages? What danger it brings for a program? Provide an example of pointer declaration and initialization.</li> <li>- Describr principles of Object Oriented Analysis, Modelling and Design.</li> <li>- Describe basic elements of relational data model.</li> </ul> <p>In case of on-line exam it can be performed as quiz with various types of questions that cover course topics.</p>		
Work placement	Not applicable		