DESCRIPTION OF THE COURSE OF STUDY

Course code	**0719-2ID-C15-WdP**	
Name of the course in	Polish	**Wstęp do programowania**
	English	***Introduction to programming***

1. **LOCATION OF THE COURSE OF STUDY** within the system of studies

1.1. Field of study	Data Engineering
1.2. Mode of study	Full-time
1.3. Level of study	Undergraduate engineering study
1.4. Profile of study*	General academic
1.5. Person/s preparing the course description	Przemysław Ślusarczyk
1.6. Contact	pslusarczyk@ujk.edu.pl

2. **GENERAL CHARACTERISTICS OF THE** course of study

2.1. Language of instruction	English
2.2. Prerequisites*	none

3. **DETAILED CHARACTERISTICS OF THE COURSE OF STUDY**

3.1. Form of classes		lectures, laboratories, project
3.2. Place of classes		Courses in the UJK teaching rooms of the Faculty of Exact and Natural Sciences
3.3. Form of assessment		credit with grade (lectures, laboratories), credit without grade (project)
3.4. Teaching methods		lecture– informative lectures laboratory, project – laboratory method (practical classes using Python development tools)
3.5. Bibliography	**Required reading**	1. M. Lutz, Learning Python: Powerful Object-Oriented Programming. 6th Edition, O'Reilly Media 2025 2. Tutorials and resources from the Real Python website (realpython.com)
	Further reading	1. D. Harel, Y. Feldman, Algorithmics. The Spirit of Computing, Pearson Education 2004 2. T. Cormen, Ch.E. Leiserson, R.L. Rivest, C.Stein, Introduction to Algorithms, 4th Edition, The MIT Press 2022

4. **OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES**

4.1. Course objectives ***(including form of classes)***

Lecture:

C1. Gaining knowledge in the field of specification and implementation of algorithms.

C2. Learning the basics of imperative programming in Python.

Laboratory + project

C3. Developing skills in formulation and implementation of standard algorithms in Python

4.2. Detailed syllabus ***(including form of classes)***

Lecture:

An overview of fundamental programming paradigms. Python interpreter, running programs. Data types in Python (numbers, strings, lists, dictionaries, tuples, files), dynamic types. Python statements, if tests and syntax rules, while and for loops, iterations. Functions basics: coding, calling, polymorphism. Scopes. Arguments. Modules and packages, module coding basics.

Laboratory:

Exploring the PyScripter development environment. Simple data types and variables. Operators and expressions - priority and connectivity of operators. Flow control – conditional and control instructions. Functions – passing arguments and returning the result. Recursions. String processing. I/O operations.

Project:

Student implements low complexity software in Python..

4.3. Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of **KNOWLEDGE:**		
W01	has knowledge and understanding of basic concepts in the field of programming, algorithms and computational complexity	ID1A_W07
W02	has knowledge and understanding of basic programming constructs (assignment, control instructions, calling subroutines and passing parameters)	ID1A_W07
W03	knows and understands selected methods of designing and programming algorithms	ID1A_W07
within the scope of **ABILITIES:**		
U01	can formulate typical algorithms and assess their computational complexity	ID1A_U07
U02	is able to use various types of data according to the situation (numbers, tables, text), remembering their limitations,	ID1A_U07
U03	can implement simple algorithms in Python	ID1A_U07
within the scope of **SOCIAL COMPETENCE:**		
K01	is ready to make critical evaluation of the knowledge it have and the content it receive	ID1A_K01

4.4. Methods of assessment of the intended teaching outcomes

Teaching outcomes *(code)*	Method of assessment (+/-)																	
	Test			Reports			Project			Effort in class								
	Form of classes			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*		
	L	*C*	*P*	*L*	*C*	*P*	*L*	*C*	*P*	*L*	*C*	*P*	*L*	*C*	*P*	*L*	*C*	*P*
W01		+			+						+							
W02		+			+						+							
W03		+			+						+							
U01		+			+				+		+							
U02		+			+				+		+							
U03		+			+				+		+							
K01		+			+				+		+							

4.5. Criteria of assessment of the intended teaching outcomes

Form of classes	Grade	Criterion of assessment
lecture (L)	3	at least 50% and not more than 60% of the total number of available points
	3,5	more than 60% and not more than 70% of the total number of available points
	4	more than 70% and not more than 80% of the total number of available points
	4,5	more than 80% and not more than 90% of the total number of available points
	5	more than 90% of the total number of available points
classes (C)	3	at least 50% and not more than 60% of the total number of available points
	3,5	more than 60% and not more than 70% of the total number of available points
	4	more than 70% and not more than 80% of the total number of available points
	4,5	more than 80% and not more than 90% of the total number of available points
	5	more than 90% of the total number of available points
project (P)	3	at least 50% and not more than 60% of the total number of available points
	3,5	more than 60% and not more than 70% of the total number of available points
	4	more than 70% and not more than 80% of the total number of available points
	4,5	more than 80% and not more than 90% of the total number of available points
	5	more than 90% of the total number of available points

5. **BALANCE OF ECTS CREDITS – STUDENT'S WORK INPUT**

Category	Student's workload	
	Full-time studies	**Extramural studies**
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/		
Participation in lectures	30	
Participation in laboratories	30	
Project work	15	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/		
Preparation for the lecture	5	
Preparation for the laboratories	25	
Preparation for the exam/final test	10	
Gathering materials for the project	10	
TOTAL NUMBER OF HOURS	***125***	
ECTS credits for the course of study	**5**	

Accepted for execution *(date and signatures of the teachers running the course in the given academic year)*

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