

DESCRIPTION OF THE COURSE OF STUDY

Course code	0719-2ID-C24-PO	
Name of the course in	Polish	<i>Programowanie Obiektowe</i>
	English	<i>Object Oriented Programing</i>

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	FIRST-CYCLE DEGREE
1.4. Profile of study*	GENERAL ACADEMIC
1.5. Person/s preparing the course description	Jacek Treliński
1.6. Contact	jtreliniski@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE course of study

2.1. Language of instruction	Polish
2.2. Prerequisites*	Introduction to Programming Programmer's Environment

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	lectures, classes, project	
3.2. Place of classes	Teaching rooms of the UJK	
3.3. Form of assessment	Credit with grade	
3.4. Teaching methods	Lecture, laboratory	
3.5. Bibliography	Required reading	1. M. Lutz, Python. Wprowadzenie. Wydanie IV, Helion 2010 2. M. Dawson, Python dla każdego. Podstawy programowania. Wydanie III, Helion 2014 3. C. Severance, Python dla wszystkich: Odkrywanie danych z Python 3 (py4e.pl)
	Further reading	4. B. Slatkin, Efektywny Python. 59 sposobów na lepszy kod. Helion 2015 5. L. Ramalho, Zaawansowany Python. Jasne, zwięzłe i efektywne programowanie, Helion 2015 6. H. Abelson, G. Sussman, J Sussman, Struktura i interpretacja programów komputerowych, Wydawnictwo Naukowo-Techniczne 2002

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1. Course objectives (including form of classes)
Knowledge (lecture) - C1. The student is familiar with the principles of the object-oriented programming paradigm. - C2. The student understands Python language constructs that enable the implementation of the object-oriented model. Skills (laboratory) - C3. The student is able to implement software in Python using the object-oriented paradigm. - C4. The student is able to work effectively in a team. Social competences (laboratory and project) - C5. The student is aware of the engineer's responsibility in providing reliable and competent information in

the field of object-oriented programming.

4.2. Detailed syllabus

Lectures and Classes

Overview of basic programming paradigms. Object-oriented programming environments. Concept of an object, simple examples of objects, analogy to real-world entities. Object oriented domain modeling. Features of object-oriented programming. Object attributes – fields and methods. Access modifiers, information hiding. Namespaces. Initialization of class instances. Accessing attributes. Operators and operator overloading. Class inheritance, access to base class members, inheritance vs. class composition. Multiple inheritance. Polymorphism. Exceptions and exception handling. Iterators.

Project:

Working in teams, students carry out a software project in Python, applying the object-oriented programming paradigm. They learn to create clear and easily extensible code, while also developing their skills in error detection and application testing.

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of KNOWLEDGE:		
W01	The student understands the basic concepts of object-oriented programming (class, object, attribute, method). The student knows the principles of encapsulation, inheritance, and polymorphism.	ID1A_W07
W02	The student is able to apply the acquired knowledge of object-oriented programming theory to design an efficiently working application.	ID1A_W07
within the scope of ABILITIES:		
U01	The student is able to represent concepts from a given domain in the form of classes and use them to solve a problem.	ID1A_U07 ID1A_U08 ID1A_U13
U02	The student is able to independently implement software in Python, debug, and test application code based on object-oriented programming.	ID1A_U07 ID1A_U08 ID1A_U13
within the scope of SOCIAL COMPETENCE:		
K01	The student is aware of the importance of non-technical aspects of an IT engineer's work and the consequences of the decisions made, as well as the associated responsibility. The student is able to solve practical problems using the acquired knowledge and practical skills and propose solutions employing IT tools.	ID1A_K03 ID1A_K04

4.4. Methods of assessment of the intended learning outcomes

Teaching outcomes (code)	Method of assessment (+/-)																	
	Exam oral/written*						Project			Effort in class			Self-study			Group work		
	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
W01	+									+	+							
W02	+									+	+							
U01									+					+	+		+	
U02									+					+	+		+	
K01	+													+	+		+	

*delete as appropriate

4.5. Criteria of assessment of the intended learning outcomes

Form of classes	Grade	Criterion of assessment
	3	Achievement of <50–60% of the requirements applied in the assessment methods
	3,5	Achievement of <60–70% of the requirements applied in the assessment methods
	4	Achievement of <70–80% of the requirements applied in the assessment methods

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	5	Achievement of <90-100% of the requirements applied in the assessment methods
classes (C)*	3	Achievement of <50-60% of the requirements applied in the assessment methods
	3,5	Achievement of <60-70% of the requirements applied in the assessment methods
	4	Achievement of <70-80% of the requirements applied in the assessment methods
	4,5	Achievement of <80-90% of the requirements applied in the assessment methods
	5	Achievement of <90-100% of the requirements applied in the assessment methods
Project (P)	3	Achievement of <50-60% of the requirements applied in the assessment methods
	3,5	Achievement of <60-70% of the requirements applied in the assessment methods
	4	Achievement of <70-80% of the requirements applied in the assessment methods
	4,5	Achievement of <80-90% of the requirements applied in the assessment methods
	5	Achievement of <90-100% of the requirements applied in the assessment methods

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/	75	
Participation in lectures*	30	
Participation in classes, seminars, laboratories*	30	
Preparation in the exam/ final test*	15	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	50	
Preparation for the classes, seminars, laboratories*	20	
Preparation for the exam/test*	10	
Gathering materials for the project/Internet query*	20	
TOTAL NUMBER OF HOURS	125	0
ECTS credits for the course of study	5	0

*delete as appropriate

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

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