

Faculty of Electronics (W4) / Department of Field Theory, Electronic Circuits and Optoelectronics (K35W04D02)

SUBJECT CARD

Name of subject in Polish: **Python**

Name of subject in English: **Python**

Main field of study (if applicable): **Electronic and Computer Engineering (ECE)**

Profile: **academic**

Level and form of studies: **1st level, full-time**

Kind of subject: **obligatory**

Subject code: **ECEA00025**

Group of courses: **Yes**

	Lecture	Exercise	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)	15		15		
Number of hours of total student workload (CNPS)	30		30		
Form of crediting	Crediting with grade		Crediting with grade		
For group of courses mark (X) the final course	X				
Number of ECTS points	3.0				
including number of ECTS points for practical (P) classes			2.0		
including number of ECTS points corresponding to classes that require direct participation of lecturers and other academics (BU)	0.5		1.5		

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. The student knows the basis of programming, and its methodology.

SUBJECT OBJECTIVES

- C1. Learning the basics of practical programming in the Python language.
- C2. Ability to communicate with external devices.

SUBJECT LEARNING OUTCOMES

Relating to knowledge:

PEU_W01 - The student has a basic knowledge of the Python programming.

PEU_W02 - The student has knowledge of popular protocols for communicating with external devices.

Relating to skills:

PEU_U01 - Writing the Python programs.
 PEU_U02 - Ability to communicate with external devices.

PROGRAM CONTENT		
Lecture		Number of hours
Lec1	Variables and data types. Conditional instructions, loops and strings.	3
Lec2	Lists, tuples, dictionaries, sets, exceptions, functions, modules, and classes.	2
Lec3	Using text files, JSON processing, and XML processing.	2
Lec4	Using libraries and file operations for data processing.	2
Lec5	Remote data, use of web services, and use of databases.	2
Lec6	Practical use of Python to communicate with measuring devices and smart home devices.	2
Lec7	Exam.	2
Total hours:		15

Laboratory		Number of hours
Lab1	Environment preparation. Hello World.	3
Lab2	Console programs. Standard input/output, mathematical and conditional operations.	3
Lab3	Signals processing from text files.	3
Lab4	Net services.	3
Lab5	Communication with measurement devices.	3
Total hours:		15

TEACHING TOOLS USED
N1. Lecture with using blackboard and LCD projector.
N2. Laboratories with computers, materials on course website.

EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT		
Evaluation: F — forming (during semester), C — concluding (at semester end)	Learning outcome code	Way of evaluating learning outcome achievement
F1	PEU_W01-W02	Grade from exam.
F2	PEU_U01-W02	Evaluation based on laboratory reports.
P = 0.5*F1 + 0.5*F2 (in order to pass the course, both F1 and F2 must be positive)		

PRIMARY AND SECONDARY LITERATURE
PRIMARY LITERATURE:
[1] Mark Lutz, Learning Python, ISBN-13: 978-1449355739, ISBN-10: 1449355730
[2] Allen Downey, Think Python How to Think Like a Computer Scientist, Green Tea Press Needham, Massachusetts, ISBN-13: 978-1491939369, ISBN-10: 1491939362

SECONDARY LITERATURE:

- [1] Luciano Ramalho, *Fluent Python: Clear, Concise, and Effective Programming*, O'Reilly Media Inc, USA, ISBN-13: 978-1491946008, ISBN-10: 1491946008

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

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