

Subject programme

1. Subject name / subject module: **Python Programming**
2. Lecture language: **English**
3. The location of the subject in study plans:
 - Area or areas of the studies: **Computer Control Systems Engineering**
 - Degree of the studies: **2nd degree studies**
 - Field or fields (implementation of effects standard): **Mechatronics**
4. Supervision of subject implementation:
 - The Institute / Another unit: Institute of Informatics and Mechatronics
 - The person responsible for the subject: **Shakhovska Nataliya, dr hab. inż.**
 - People cooperating in the development of the programme of the subject:
5. The number of hours and forms of teaching for individual study system and the evaluation method:

Mode of study	Teaching activities with the tutor											Total	
	Form of classes											ECTS	
	Lecture	SOW	ECTS	Laboratory work	SOW	ECTS	...	SOW	ECTS	...	SOW	ECTS	
Full-time studies	15	35	2	45	55	4							6
Part-time studies													
Credit rigor	Exam			Graded assignment									

6. Student workload – ECTS credits balance:

1 ECTS credit corresponds to 25-30 hours of student work needed to achieve the expected learning outcomes including the student's own work

Activity (please specify relevant work for the subject)	Hourly student workload (full-time studies/part-time studies)
Participation in lectures	15
Participation in laboratory classes	45
Preparation to laboratory classes	25
Independent study of the subject	18
Preparation of homeworks	30
Preparation to a final test	15
Participation in an graded assignment	2
Total student workload (TSW)	150
ECTS credits	6
* Student's workload related to practical forms	100
Student's workload in classes requiring direct participation of academic teachers	60

7. Implementation notes: recommended duration (semesters), recommended admission requirements, relations between the forms of classes:
 - Recommended admission requirements – none.
 - Recommended duration of the subject is taken from the course plan.
8. Specific learning outcomes – knowledge, skills and social competence:

Specific learning outcomes for the subject		Form	Teaching method	Methods for testing of (checking, assessing) learning outcomes
Outcome symbol	Outcome description			
Knowledge				
K_W01	The student is able to present the knowledge representation models, declarative programming techniques.	Laboratory work	Inquiry methods	Exam, Final test, Student learning activities
K_W07	Students can use appropriate inference methods when solving IT problems.			
Skills				
K_U02	To write OOP-programs in Python.	Laboratory work	Inquiry methods	Exam, Final test, Student learning activities

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9. Assessment rules / criteria for each form of education and individual grades:

a. exam:

0% - 50%	ndst	81% - 90%	db
51% - 70%	dst	91% - 93%	db+
71% - 80%	dst+	94% - 100%	bdb

b. laboratory classes:

Activity	Grades	Calculation	To final
Final test	bdb (5)	$5 * 50\%$	2,5
Classroom activities	db, dst, bdb (4, 3, 5)	arithmetic mean (4,3,5) * 20%	0,8
Homeworks	ndst, bdb, dst (2, 5, 3)	arithmetic mean (2,5,3) * 20%	0,67
Classes attendance	> 75%	$(80\% * 5) * 10\%$	0,4

0 – 3.00	ndst	4.01 – 4.50	db
3.01 – 3.50	dst	4.51 – 4.7	db+
3.51 – 4.00	dst+	4.71 – 5.0	bdb

10. The learning contents with the form of the class activities on which they are carried out:

1. Introducing to Python (lecture, laboratory work):

- a. Syntax,
- b. Variables,
- c. Lists,
- d. Arrays,
- e. Operators,
- f. Logical expressions,
- g. Loops,
- h. Dictionary,
- i. Functions;

2. OOP in Python (lecture, laboratory work):

- a. Classes,
- b. Members of classes,
- c. Objects,
- d. Inheritance,
- e. Iterators,
- f. Working with Data;

3. Exercises (laboratory work).

11. Required teaching aids:

- a. Lecture - multimedia projector.

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b. Laboratory classes - specialist laboratory.

12. Literature:

a. Basic literature:

Hetland, M. L. (2014). Python Algorithms: mastering basic algorithms in the Python Language. Apress.

b. Supplementary literature:

Summerfield, M. (2010). Programming in Python 3: a complete introduction to the Python language. Addison-Wesley Professional.

c. Internet sources:

13. Available educational materials divided into forms of class activities (Author's compilation of didactic materials, e-learning materials, etc.)

14. Teachers implementing particular forms of education:

Form of education	Name and surname
1. Lecture	Piechowiak Maciej, dr inż.
2. Laboratory classes	Ocetkiewicz Tomasz, mgr inż.
3. Training	
4. Project classes	
5. Workshop classes	
6. Simulation game	
7. Language classes	