Ilia State University
Faculty of Business, Technology and Education
Bachelor's Level
Syllabus

1.	Course Title (GEO)	დააპროგრამება პითონში
2.	Course Title in English	Programming in Python
3.	Course Duration	1 semester
4.	Number of Credits	6 credits
5.	Distribution of Hours:	**Contact hours: 48 hours.** Lecture - 14 hours; Practical work- 25 hours; Intermediate exam I, II - 6 hours; Final exam- 3 hours;; **Independent work: 102 hours.**
6.	Lecturer	**David Datunashvili** - Invited lecturer E-mail: daviti.datunashvili.1@iliauni.edu.ge *Note: Office hours will be scheduled by the beginning of the semester and students will be notified through the Argus system.*
7.	Prerequisites	N/A
8.	Teaching methods	• Lecture • Method of practical work; • Problem-based learning; • Methods of analysis and synthesis.
9.	Course Aim	The purpose of the training course is to give the student a basic knowledge of the Python programming language and to develop the skills necessary for data analysis, algorithmic thinking, software product creation, including elementary software application creation, and technical understanding of the process.

10.	Major Topics	- Concept and basics of programming; - data types and operators; - functions and functional programming; - Python data structures; - classes and objects; - basics of object oriented programming; - generators and decorators; - Error handling and working with files; - Scripts, modules and packages.
11.	Learning Outcomes and Competences (general and subject-specific):	*As a result of the successful completion of the training course, the student will develop the following competencies:* • The student has Python knowledge of basic principles, concepts and mechanisms; • A student can use Python programming language capabilities, corresponding operations and functions use of; • A student can File processing, data extraction, and basic statistical analysis in Python using • The student has developed programming thinking skills and effectively uses Python programming language can write efficient code without errors. • The student can review open projects, and analyze and implement functionality in the work. • The student has developed the skills to follow technological changes, follow scientific innovations, constantly update knowledge, independently search for information, and assess and plan learning needs in the field.

12.	Evaluation and Grading	The educational component is evaluated using a 100-point system:

The educational component is evaluated using a 100-point system:
(A) 91-100 The best
(B) 81-90 Very good
(C) 71-80 Good
(D) 61-70 satisfactory
(E) 51-60 enough
(FX) 41-50 failed, which means that the student needs more work to pass and is allowed to take one additional exam with independent work;
(F) 0-40 Failed, which means that the work done by the student is not sufficient and he has to retake the subject.

Rate	limit	Max. score
Quizzes		10 points
laboratory	36score	30 points
Intermediate exam I		15 score
Intermediate exam II		15 score
Final exam	10 score	30 points
all		100 points

Taking the final exam is mandatory for all students!

Each component is evaluated as follows:

Quiz - 10 points
The quiz component allows students to demonstrate theoretical knowledge. Within the framework of the component, the skills of forming reasoned opinions and conclusions, analyzing and synthesizing information about the discussed issue will be assessed.

The course consists of 10 quizzes, which will be conducted before the beginning of practical work and will consist of 5 test-type questions. When answering at least 3 questions correctly, the student will get 1 point.

Rubric for evaluating issues:

correct answer	wrong answer
1	0

Laboratory task - 30 points

The course consists of 10 laboratory assignments, which the student must perform during practical work. Each laboratory task will be evaluated with a total of 3 points.

Laboratory task evaluation rubric:

Evaluation criteria	score
Correct use of operators, methods and functions	1
Use of additional resources and implementation of functionality	1
Identify and fix bugs in the code	1

Intermediate exam - 30 points (15 points each)

Each midterm exam consists of 15 questions, each worth 1 point.

Final exam - 30 points

The final exam consists of 30 tasks, each of which is worth 1 point.

Task evaluation rubric:

is correctly solved	is solved incorrectly
1	0

13.	Main Literature	Main literature: ● Reader prepared by the lecturer, based on the following sources: ✓ Eric Matthes, Python Crash Course (2nd Edition), No Starch Press, 2019; ✓ Zed Shaw, Learn Python 3 the Hard Way (2nd Edition), Addison-Wesley Professional (2017); ✓ Wes McKinney, Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython, O'Reilly Media, Inc., 2017.
14.	Topics by week	Course Schedule

Week	learning method	Themes / Activities
1	Lecture - 2 hours.	**An introduction to the Python programming language**
1	Practical work- 1 hour	Debugging the environment and running the first code: ● Jupiter-Notebook ● Google Colab & Jupiter Lab ● Visual Studio Code
2	Lecture - 1 hour.	Data types and operators ● int, float, str, bool, … ● is, in, not, …
2	Practical work - 2 hours.	Quiz No. 1 Solving practical tasks about the issues discussed at the lecture **Laboratory assignment No. 1**
3	Lecture - 1 hour.	Conditional operators and loops ● if – elif – else ● for loop ● while loop ● break, continue, pass

	Practical work - 2 hours.	Quiz No. 2 Solving practical tasks about the issues discussed at the lecture Laboratory assignment No. 2
4	Lecture - 1 hour.	Functions and methods: ● def function, lambda function ● args, kwargs Arguments ● Data type conversion
	Practical work - 2 hours.	Quiz No. 3 Solving practical tasks about the issues discussed at the lecture Laboratory assignment No. 3
5	Lecture - 1 hour.	Data structures and their methods. ● lists ● Dictionaries (dict) ● sets ● Pleiades (tuple)
	Practical work - 2 hours.	Quiz No. 4 Solving practical tasks about the issues discussed at the lecture Laboratory assignment No. 4
6	Lecture - 1 hour.	Functional programming approach
	Practical work - 2 hours.	Quiz No. 5 Solving practical tasks about the issues discussed at the lecture Laboratory assignment No. 5
7	First intermediate exam - 3 hours	
8	Lecture - 1 hour.	classes and objects ● Class description ● Initialize the object ● Methods and constructors

	Practical work - 2 hours.	Quiz No. 6 Solving practical tasks about the issues discussed at the lecture Laboratory assignment No. 6
9	Lecture - 1 hour.	Inheritance and composition
	Practical work - 2 hours.	Quiz No. 7 Solving practical tasks about the issues discussed at the lecture Laboratory assignment No. 7
10	Lecture - 1 hour.	Polymorphism, de-encapsulation.
	Practical work - 2 hours.	Quiz No. 8 Solving practical tasks about the issues discussed at the lecture Laboratory assignment No. 8
11	Lecture - 1 hour.	generators and decorators
	Practical work - 2 hours.	Quiz No. 9 Solving practical tasks about the issues discussed at the lecture Laboratory assignment No. 9
12	Lecture - 1 hour.	Exceptions and error handling, working with file systems ● Types of errors ● try - except - finally ● raise-function and the rules of its use ● Manipulations on files
	Practical work - 2 hours.	Quiz No. 10 Solving practical tasks about the issues discussed at the lecture Laboratory assignment No. 10
13	Second intermediate exam - 3 hours	
14	Lecture - 1 hour.	Scripts, modules and packages ● Import the standard library ● Create/import your own library

	Practical work - 2 hours.	Solving practical tasks about the issues discussed at the lecture
15	Lecture - 1 hour.	**Building a "Text Quest" type game**
	Practical work - 2 hours.	Review and feedback of midterm assessment results, course summary
Final exam - 3 hours		

Information for students:

Plagiarism - It is unacceptable to use someone else's work, idea or opinion without citing the source when presenting the homework or presenting it in writing. In such a case, the lecturer is obliged to leave the student's assignment without evaluation.

Transcription/dictation - This action is prohibited during any type of activity (homework, exam, report, presentation...). In such a case, the lecturer is obliged to leave the students without evaluation.

The midterm exam can be retaken, If the student misses the mid-term evaluation due to an honorable reason (sickness, need to be at work during the given hours, business trip…). To recover a midterm grade, the student must apply to the administration of the Faculty of Business, Technology and Education. The lecturer determines the date of re-evaluation. Engaging in discussions/debates is not subject to reinstatement.