INSTITUTO POLITÉCNICO DE BRAGANÇA

Course Unit	Medical Information Management			Field of study	Informatics		
Bachelor in	Biomedical Technology			School	School of Technology and Management		
Academic Year	2023/2024	Year of study	2	Level	1-2	ECTS credits	6.0
Type	Semestral	Semester	2	Code	9600-752-2203-00-23		

Workload (hours)	162	Contact hours	T -	TP 60	PL -	TC -	S -	E -	OT -	O -

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s): Pedro João Soares Rodrigues

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. design a solution, build an algorithm and implement a Python program that meets the objectives sought to problems of small/medium complexity.
2. apply basic knowledge of imperative programming, in Python language, such as structure a program in functions, understand passing parameters and process data structures.
3. elaborate graphical interfaces and database.

Prerequisites

Before the course unit the learner is expected to be able to:
Programming concepts.

Course contents

Introductory concepts: The Python language: elementary data types, variables, constants, operations, statements and conversions of types; standard input and output; the If, If-else, the While, and For loops; definition and use of functions; function arguments; data structures. GUI using Tkinter. Python modules for database.

Course contents (extended version)

1. Introductory concepts:
   - the Python language.
2. Elementary data types:
   - data types, variables;
   - concept of constant;
   - arithmetic operations, statements, assignments, conversions of types;
   - statements to read and write in the console.
3. Testing and conditions:
   - conditions and logical values;
   - logical operators and relational operators;
   - conditional statements if and if-else.
4. Loops:
   - the while statement;
   - the For statement.
5. Functions:
   - concept of function and structure of a Python function;
   - parameters;
   - local/global variables.
6. Data structures:
   - lists;
   - dictionaries;
   - tuples;
   - sets.
7. Strings
8. GUI using Tkinter
9. Python modules for database

Recommended reading

1. Charles Severance, Sue Blumenberg, et al. , " Python for Everybody: Exploring Data in Python 3", Independently published, 2020
2. Adelaide Carvalho, "Práticas de Python - Algoritmia e Programação", FCA, 2021
3. Ernesto Costa, "Programação em Python - Fundamentos e Resolução de Problemas", FCA, 2015

Teaching and learning methods

The teaching method is semi-expository, which enables the transmission of the knowledge with continuity and with a minimum expenditure of time. Thus, the classes are more practical, and the most used method is the active one, thus provoking the students' activity through the resolution of practical exercises. The student is also expected to perform tasks during non-contact hours.

Assessment methods

- Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
  - Final Written Exam - 100%

Language of instruction

Portuguese

Electronic validation

Pedro João Soares Rodrigues	Tiago Miguel Ferreira Guimaraes Pedrosa	Joana Andrea Soares Amaral	José Carlos Rufino Amaro
15-02-2024	14-03-2024	15-03-2024	24-03-2024