lepl1401

2021

UCLouvain

Informatics 1

5.00 credits	30.0 h + 30.0 h	Q1

Teacher(s)	. SOMEBODY ;Mens Kim ;Nijssen Siegfried ;Pecheur Charles ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	Basic concepts of object-oriented programming The Java programming language Problem analysis; specification and implementation of solutions Linear data structures, including dynamic implementations.
Learning outcomes	**At the end of this learning unit, the student is able to :**

	Contribution of the course to the program objectives
	Regarding the learning outcomes of the program of Bachelor in Engineering, this course contributes to the development and the acquisition of the following learning outcomes:

- LO 1.1, 1.2
- LO 2.4, 2.5
- LO 3.1
- AA 4.2, 4.3, 4.4

Specific learning outcomes of the course

1   More precisely, at the end of the course the students will be able to

- Demonstrate their understanding of the basic concepts and the methodology of object-oriented programming.
- Use the main elements of an object-oriented language such as Java in an appropriate way.
- Analyze a simple problem, to propose an algorithmic solution for this problem and to program the solution in Java.

The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled 'Programmes/courses offering this Teaching Unit'.

Evaluation methods	A programming assignment is due each week. A mid-term evaluation will be organised halfway throughout the quadrimester. The end-of-term exam aims to assess both the understanding of the course material and the capacity to apply it to write simple but correct Python programs. The final course mark takes into account the mid-term evaluation and assignments during the quadrimester, in addition to the mark of the end-term exam. The assignments and mid-term evaluation cannot be retaken for the June or September sessions. If the mark for the mid-term evaluation is higher than that for the end-term exam, it will count for 1/3 and the mark of the end-term exam for 2/3. If the mark for the mid-term evaluation is lower than that for the end-term exam, only the mark for the exam will be used to calculate the final course mark. A bonus of 1 point will be granted to students who have participated in and regularly submitted their programming assignments during the quadrimester. In case of plagiarism detection confirmed by a plagiarism detection tool the course teachers reserve the right to invite the student to pass an oral interrogation.
Teaching methods	The chosen teaching method relies on active student participation, through a mixture of : • course lectures, • partical exercice sessions with tutors, • programming exercices on the INGInious platform? Even though preference will be given to face-to-face teaching sessions, depending on the health situation and the number of students enrolled, other forms of teaching and evaluation (online, co-modal or hybrid) may be considered.
Content	• Programs, source code and program execution

	• Identifiers, variables, values, types, assignment • Expressions, statements • Conditional structures and loops • Functions, parameters, calls, results, execution, variable scoping • Specifications and tests • Modules • Data structures, lists, strings and their operations • References and nested data structures • Nestsed lists, tuples, matrices, dictionnaries • Dichotomic search algorithms • File handling, input/output • Exception handling • Object-oriented programming and garbage collection • Classes, objects, constructors, methods • References to an object, self-references and self-calls • Class, instance and local variables, scope and visibility • Class composition, inheritance and encapsulation • Polymorphism, super calls and dynamic binding • Object equality • Linked data structures
Inline resources	All course material will be made available online: slides, syllabus, exercices, ...
Faculty or entity in charge	BTCI

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Engineering	FSA1BA	5		🔍