linfo1121
2018

UCLouvain

5 credits	30.0 h + 30.0 h	Q1

⚠️ **This learning unit is not being organized during this academic year.**

Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	This course assumes the mastery of programming and program design in an object-oriented language such as Java, knowledge of elementary data structures and notions of recursion and computational complexity as targeted by the course LEPL1402. *The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Main themes	• Complexity measures of an algorithm and complexity analysis methods. • Dichotomic sorting and search algorithms. • Basic data structures (lists, trees, binary search trees): study of their abstract properties, their concrete representations, their application and the main algorithms that manipulate them. • Advanced data structures (union-find, hash tables, heaps, balanced binary trees, graph representation and manipulation, textual data processing, dictionaries).
Aims	Given the learning outcomes of the "Bachelor in Engineering" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes: • AA1.1, AA1.2 • AA2.4, AA2.5, AA2.7 • AA3.2 • AA4.3 Given the learning outcomes of the "Bachelor in Computer science" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes: • S1.I1, S1.I3 • S2.2, S2.3, S2.4 • S4.3 • S5.4 • S6.1, S6.3 Students who have successfully completed this course will be able to : • make an informed choice on the use of the main data structures used to represent collections, • make good use of existing algorithms to manipulate these data structures and analyze their performance, • design and implement variants of the algorithms studied, • test algorithms and data structures, • make good use of algorithms and data structures documented in an API • abstract, model and implement effective solutions to algorithmic puzzle problems. **Students will have developed methodological and operational skills. In particular, they will have developed their ability to:** • analyze critically a problem, • to test and debug algorithmic programs, • effectively implement short but non-trivial algorithms. learn for themselves in a reference book and in the complementary technical documentation - - - - *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".*
Faculty or entity in charge	INFO

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Computer Science	SINF1BA	5	LEPL1402	🔍
Bachelor in Engineering	FSA1BA	5	LINFO1225	🔍