linfo1103

2018

6 credits	30.0 h + 30.0 h	Q2

Teacher(s)	Dupont Pierre ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	• Design and implementation of iterative or recursive algorithms: path, counting, sorting, searching in collections • Computational complexity • Basic data structures: arrays, stacks, queues, linked lists • Recursive data structures: tree structures, binary search trees • Invariants
Aims	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.I2, S1.I3 • S2.2-4 • S6.2 Students who have successfully completed this course will be able to: • justify a choice between several algorithmic solutions to solve a given problem, • analyze algorithms, iterative or recursive, to represent and manipulate collections and to propose variants thereof, • choose, design and use data structures, including recursive, • give a reasoned estimate of the time complexity of iterative algorithms and the spatial complexity of data structures; • reasoning about properties of algorithms or data structures in terms of invariants. Students will have developed methodological and operational skills. In particular, they have developed their ability to: • to take a critical look and make a reasoned analysis of a solution or set of solutions that could be made to a given problem by setting quality criteria, • realize small programs using conventional algorithms and data structures. - - - - *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 note of PARTICIPATION reflects the involvement of the student during the year to workouts, its work on INGINIOUS (a server offering partially automatic correction and/or feedback) and 2 mini-projects at the end of the semester. In the first session, the participation grade is worth 20% of the final grade + 80% for the final exam (closed book). The participation mark can not be reassessed. In the second session, participation grade and the final exam are worth respectively 10 % and 90% of the overall score.
Teaching methods	• Lectures • Practical sessions • 2 mini-projects at the end of the semester • Computing server (INGINious) to facilitate self-assessment by students of the solutions they propose to practical works
Content	Algorithmics is concerned with solving problems by implementing sequences of elementary operations according to a predefined process or procedure leading to a solution. This discipline is both abstract and put into practice through programs (e.g. implemented in Python) and run on a computer
Inline resources	http://moodleucl.uclouvain.be/course/view.php?id=9010

Bibliography	L'ensemble des documents (transparents des cours, énoncés de travaux pratiques, ...) présents sur le site Moodle du cours :
	http://moodleucl.uclouvain.be/course/view.php?id=9010
	Il n'y a pas d'ouvrage de référence obligatoire mais, à titre complémentaire, des ouvrages sont recommandés sur le site Moodle.
Faculty or entity in charge	INFO

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Computer Science	SINF1BA	6		🔍
Master [120] in Linguistics	LING2M	6		🔍
Minor in Computer Sciences	LINFO100I	6		🔍
	LSTIC100P	6		🔍