UCLouvain

lsinc1313

2023

Numerical algorithmic

5.00 credits	30.0 h + 30.0 h	Q1

This learning unit is not open to incoming exchange students!

Teacher(s)	Massart Estelle ;Quertenmont Loïc ;
Language :	French
Place of the course	Charleroi
Prerequisites	*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.*
Learning outcomes	**At the end of this learning unit, the student is able to :** 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: A.A. S1.G1, S1.3 - A.A. S2.2, S2.4 - A.A S6.1 • S1.G1, S1.3 • S2.2, S2.4 • S6.1 Students who have successfully completed this course will be able to: • model a simple problem using the proper mathematical notation, • identify classical numerical methods suitable for solving a simple problem expressed mathematically, • choose, on the basis of precise criteria, the most effective method for numerically solving such a problem, • implement a numerical resolution of this simple problem, • explain the problems related to the numerical resolution of equations and their impacts: rounding errors, convergence, stopping criteria.
Evaluation methods	If the sanitary conditions allow it, the exam will be carried out face-to-face, in writing with open questions and, failing that, remotely in writing with a mix of open questions and multiple-choice questions on the moodle platform. The assessment covers all the material seen during the lectures and practical work. The exam mark counts for 90% of the final evaluation, the remaining 10% coming from continuous work and attendance during the exercise sessions.The mark obtained for the continuous work and attendance holds for the whole academic year (no re-evaluation during the second exam session for this part).
Teaching methods	By presentation of the concept and by implementation. If the COVID allows it, the lectures are given face-to-face or, if not, remotely. Practical work is given entirely in the classroom if possible, otherwise it is given every other week in the classroom and every other week remotely.
Content	Introduction to numerical methods by means of description and especially implementation of concepts from algebra and analysis courses. The aim is to develop algorithms to understand the limits of implementing a mathematical concept: data representation (numbers,...) and error processing (calculation, stability, propagation,...). Language: Python
Inline resources	https://moodle.uclouvain.be/course/view.php?id=5751
Faculty or entity in charge	SINC

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Computer Science	SINC1BA	5	LSINC1101 AND LSINC1111 AND LSINC1112	