linfo1122

2024

Program design methods

5.00 credits	30.0 h + 30.0 h	Q1

Teacher(s)	Pecheur Charles ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	This course assumes acquired skills in programming, algorithms and data structures covered by the LEPL1402 course and the logic concepts covered by the LINFO1114 course.
Main themes	• Specification of simple programs, with procedures and with data structures • Logic and recurrence • Proof of simple programs, with procedures and with data structures • Algorithm design techniques • Programming schemes
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: • S1.I5 • S2.2-3 1 Students completing successfully this course will be able to • imagine a correct and efficient algorithm to solve a given problem • create and specify the design of a software product using an appropriate program design and notation methodology • demonstrate the exactness of simple algorithms • use a rigorous approach to ensure the exactness of the result, using mathematical tools
Evaluation methods	The assessment is based on the work done during the semester (25%) and on a written exam during the session (75%). The works cannot be represented in the second session; in September, the final grade will be made up of the exam only (100%). Depending on the circumstances, the exam can be organized remotely.
Teaching methods	The course includes: • lectures every week, • exercise sessions to apply the concepts seen in class in simple situations, • projects to practice the techniques when designing a larger application. Depending on the circumstances, all or part of the courses and exercises could be broadcast and recorded so that they can be followed remotely.
Content	• Specification of programs • Proof of simple programs: wp calculus • Recurrence and Induction • Proofs of programs: method of inductive assertions • Procedures and recursion • Data structures • Decomposition into sub-problems • Automatic Program Proofs • Object-oriented programming: design patterns
Inline resources	All resources are available at site Moodle du cours.
Faculty or entity in charge	INFO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Additional module in computer science	APPSINF	5		🔍
Master [120] in Chemistry and Bioindustries	BIRC2M	5		🔍