



5.00 credits

30.0 h + 30.0 h

Q1

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| 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 | <ul style="list-style-type: none"> • 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 | <p>At the end of this learning unit, the student is able to :</p> <p>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:</p> <ul style="list-style-type: none"> • S1.I5 • S2.2-3 <p>1 Students completing successfully this course will be able to</p> <ul style="list-style-type: none"> • 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 | <p>The course includes:</p> <ul style="list-style-type: none"> • 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. <p>Depending on the circumstances, all or part of the courses and exercises could be broadcast and recorded so that they can be followed remotely.</p> |
| Content | <ul style="list-style-type: none"> • 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 | |  |