UCLouvain

lepl1402

2024

Informatics 2

5.00 credits	30.0 h + 30.0 h	Q1

Teacher(s)	. SOMEBODY ;Jodogne Sébastien ;Sadre Ramin ;Schaus Pierre ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	This course assumes that you have acquired the basic notions of programming (instructions, variables, loops, conditions, etc.) as taught in the LEPL1401 or LINFO1101 course. *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.*

Teaching methods	The teachers will present the material in a traditional classroom setting, using the textbook entitled "Programming Concepts in Java". For each topic covered, exercises are continuously available on the INGInious platform, allowing the application of theoretical concepts. During the practical sessions, assistants or tutors will be present to support and guide the students. Each student is fully responsible for his or her own learning. To succeed in the computer exam, it is essential for students to practice Java on a regular basis using the IntelliJ tool.
Content	This teaching unit focuses on: • Introduction to Java: compilation, byte-code, virtual machine, primitive type, strings, tables; • Abstract data types; • Linear and tree structures, and their applications; • Recursive solution formulation and recursive algorithms; • Reasoning technique: preconditions, postconditions, invariants; • Notions of computational complexity and analysis of the temporal and spatial complexity of an algorithm; • Functional programming and higher-order programming; • Object-oriented modeling (inheritance, composition, reuse, polymorphism, class invariant); • Introduction to design patterns; • Program testing and validation methods; • Introduction to parallelization: notion of threads and synchronization mechanisms. Students who have successfully completed this course will be able to: •

Programmes containing this learning unit (UE)