becge1230

2023

Computer science II

| 4.00 credits | 30.0 h + 30.0 h | Q2 |

Teacher(s)	Laurier Wim ;
Language :	French
Place of the course	Bruxelles Saint-Louis
Learning outcomes	**At the end of this learning unit, the student is able to :** The course contains in two closely related parts (i.e. introduction to the application of algorithms using a programming language, and an introduction to object-oriented programming). The first part focuses on procedural programming, which useful in the development of mathematical models and (statistical) data processing. This processing part is closely related to web technologies and allows teaching an introduction to web technologies in the context of the course. The introduction to algorithms aims at training students in the search for solutions adapted to a set of specifications. Unlike other courses, the goal is not to apply a technique to find the answer but to develop this technique (we do not seek the answer but how to find the answer for the user). Emphasis is also placed on the study of algorithms and instruction sequences (simple instruction, sequential flow, repetition, conditional). By writing algorithms, students learn to explain/communicate their reasoning step by step. Expressing ideas avoiding ambiguity is an essential skill for every student and a methodological support for the other courses. The introduction to a programming language aspect aims to introduce students to a programming language. By learning a programming language, students have a tool to test their algorithms, which gives them immediate feedback. The skills acquired in this course are especially useful for students who will need to write algorithms themselves in their master's degree, e.g. when processing data in SPSS, SAS or R, using mathematical software (e.g. MatLab). The introduction to object-oriented programming teaches students to organize their thoughts when designing an application. At the same time they learn the vocabulary of a computer scientist which should enable them to understand the needs and requirements of a computer scientist and to communicate their needs and requirements to a computer scientist as well as to evaluate the quality of a computer scientist's work.
Evaluation methods	The summative assessment is a written closed-book examination of three hours. The questions will mix fairly basic aspects (e.g., interpretation/understanding/evaluation of code), concepts seen in the course, and practical questions of data structure development, algorithm development, and production of a program meeting a given specification.
Teaching methods	Face-to-face, • 30 hours of theory • 30 hours of exercices Ex cathedra presentations Computers are used for tutorials
Content	• Algorithmics • Procedural programming • Object Oriented programming • Treatment of (web) data • Applied Statistics and Mathematics
Other infos	The textbook is available online http://inforef.be/swi/download/apprendre_python3.pdf
Faculty or entity in charge	ESPB

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Economics and Management	ECGB1BA	4		🔍
Bachelor in Economics and Management (French-English)	ECAB1BA	4		🔍
Bachelor in Economics and Management (French-Dutch-English)	ECTB1BA	4		🔍
Bachelor : Business Engineering	INGB1BA	4		🔍
Bachelor : Business Engineering (French-English)	INAB1BA	4		🔍
Bachelor : Business Engineering (French-Dutch-English)	INTB1BA	4		🔍