UCLouvain

lsinc1001 2022	Project 1 in Computer Science: Applications and Introduction to IoT

5.00 credits	30.0 h + 30.0 h	Q1

This learning unit is not open to incoming exchange students!

Teacher(s)	Pelsser Cristel ;
Language :	French
Place of the course	Charleroi
Prerequisites	These projects assume the parallel acquisition of basic notions in programming as targeted by the course LSINC1101.
Main themes	This teaching unit revolves around programming projects. The objectives are: • to apply the notions seen in parallel in the course LINFO1101 Introduction to programming; • to model simple situations using computer systems; • explore various applications of computing, including the use of information from sensors; • to confront professional constraints: group work, meeting deadlines, sense of responsibility; • to acquire transversal skills taking notes, writing reports, oral presentation of results.
Learning outcomes	**At the end of this learning unit, the student is able to :** With regard to the AA reference system of the "Bachelor in Computer Science" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes: S1.I2 S2.1, S2.2, S2.4 S4.1, S4.2, S4.3 S5.2, S5.3, S5.4, S5.5, S5.6 Students who successfully complete this course will be able to: S1.I2 S2.1, S2.2, S2.4 S4.1, S4.2, S4.3 S5.2, S5.3, S5.4, S5.5, S5.6 • analyze a concrete situational problem requiring the development of a computer application and perceive the role that this application will have to play; • design the computer application corresponding to the needs identified by making use of structured programming and justify the design choices; • implement a computer application by making good use of the elements of the Python language; • produce an application of reduced scale, but correct, modular, readable, and well documented; • implement unit tests to validate the correctness of a program; • use a programming environment comprising integrated programming tools such as an editor, compiler, debugger, and tools for handling files, tests, documentation. Students will have developed methodological and operational skills. In particular, they will have developed their ability to: • contribute to group functioning within the framework of cooperative active learning devices of the project type, explain the issues (advantages, disadvantages) of group work and give some operational leads to promote effective group work; • lead a process of developing a computer application • understand a situational problem described via written documents, an oral presentation and extract what makes its essence and reformulate it in order to define the expected result; • establish the specifications and a roadmap for a project; • break down the initial problem into sub-problems that can be easily solved using a computer tool; • schematize the architecture of the application to give a high-level description allowing any IT specialist to quickly perceive its structure; • document the application so that it can easily be adapted later by another IT specialist; • design and perform tests to validate the developed application; • collaborate effectively on application development; • communicate effectively: • write a technical document describing the developed application, the recipients of this document being IT specialists who have not participated in its development but who must adapt it; • write a coherent and structured project report in order to convince of the success of the project; • present with a multimedia support the solution developed in order to convince him of the success of the project.

Evaluation methods	Group work, continuous assessment. For the January session, grading will use the following scale: • Project 1: 3 points ; • Project 2: 7 points ; • Project 3: 10 points. Project 1 is considered for the grade only if it raises the weighted average (otherwise it is ignored). For the September session, grading will use the following scale: • Projects 1 and 2 cannot be redone. They only count, together, if counting both increases the grade. Otherwise, none of the two projects counts. • A new project 3 must be represented individually (10 points if projects 1 and 2 increase the grade, 20 points otherwise).
Teaching methods	Project-based teaching
Content	The course consists in three projects involving problem-solving using computer systems and applications. Each project is realized by a group and develops know-how in analysis, work planning, and computer software implementation. Projects last for 2 to 6 weeks each.
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		🔍