

6.0 credits	30.0 h + 30.0 h	2q
-------------	-----------------	----

Teacher(s) :	Lobelle Marc ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	 > http://foditic.org
Prerequisites :	-- First approach of electrical phenomena and waves -- Mathematics (elementary operations, integrals, derivatives, complex)
Main themes :	-- Basic concepts in electricity -- Basic concepts in wave theory -- Basic concepts in electronics
Aims :	Students who have successfully completed this course will be able to -- explain the behavior of the components used in computer systems using the physical principles on which they rely, -- apply these principles to solve simple problems. Students will have developed skills and operational methodology. In particular, they have developed their ability to -- collect real-world (physical) constraints related to electricity, waves on computer systems. <i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i>
Evaluation methods :	-- written exam (open books) -- tests on each mission
Teaching methods :	The course is organized into 6 successive missions of two weeks each with a learning component and an enforcement component. Each mission consists of the following steps: -- A lecture at which the material of the mission is briefly introduced (about 1 hour). -- An introductory session to the practical works of the mission, (2 hours), during this session, you will receive a solution to exam question related to the previous mission and you will receive simple exercises to prepare for the second practical session of the new mission. -- Students discover individually by themselves the learning material of each mission in the beginning of the corresponding two week period. They identify the points they find hard to understand or those they would like to know more about. -- The group can use the forum to discuss these points and ask the teacher to check their contributions. -- If asked by the group, these points are discussed in a meeting with the professor. -- A second practical session takes place in the middle of the mission; it starts by a test (the test marks participate to the final grade); the simple exercises proposed at the introductory session and more substantial (and representative of the exam) exercises are solved; several questions related to the mission and asked during previous year exams are proposed.
Content :	Physical principles -- Fundamental laws of electricity -- Measurements and precision of measurements -- Elements of signal theory (frequency, phase) -- Elements of line theory (reflections, matching) Representation of information -- Binary representation of information -- Electronic processing of binary information (combinatory logic, elementary sequential circuits) -- Electronic implementation of basic logic circuits and memory cells -- Technology of memories (central memory, magnetic or optical disks, archives) Transmission of information on serial lines (asynchronous, synchronous) and parallel buses : roles, operation, protocols.
Cycle and year of study :	 > Bachelor in Computer Science
Faculty or entity in charge:	INFO