

5.0 credits	30.0 h + 30.0 h	1q
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Teacher(s) :	Legat Jean-Didier ;
Language :	Français
Place of the course	Louvain-la-Neuve
Prerequisites :	No prerequisites
Main themes :	Identical to description
Aims :	<p>At the end of this course, the students will be able to:</p> <ul style="list-style-type: none"> -- Understand how the digital circuits (combinational circuits, sequential circuits) work -- Understand the architecture of programmable circuits (FPGA) -- Synthesize and simulate digital circuits in a language such as Verilog or VHDL -- Understand the architecture of a RISC processor -- Use and program a microcontroller -- Understand and implement a digital electronic system <p><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></p>
Evaluation methods :	The evaluation is based on the work during the semester and a written examination on the theoretical part of the course.
Teaching methods :	<ul style="list-style-type: none"> -- Learning is based on courses with compulsory homework. -- Each student has at his disposal during the semester an electronic system comprising an FPGA (Altera Cyclone IV) and and PIC32 microcontroller from Microchip. -- This course is closely linked to the project LELEC2103: Electronic System
Content :	<ul style="list-style-type: none"> -- Combinational logic -- Sequential logic -- Implementation technology -- Simulation language and Verilog synthesis -- Main logic circuits: arithmetic circuits, memories, programmable circuits -- Architecture and microarchitecture of a RISC processor -- Memories (caches, ...) -- Architecture of microcontrollers -- Peripherals and main communication systems
Bibliography :	Digital Design and Computer Architecture - David Money Harris @ Sarah L. Harris - 2007, Elsevier

<p>Cycle and year of study :</p>	<p>> Master [120] in Electrical Engineering > Master [120] in Electro-mechanical Engineering > Master [120] in Biomedical Engineering</p>
<p>Faculty or entity in charge:</p>	<p>ELEC</p>