

## Faculty of Applied Sciences



### ELEC2570 Implementation of digital electronic systems

[30h+30h exercises] 5 credits

This course is taught in the 1st semester

**Teacher(s):** Jean-Didier Legat  
**Language:** French  
**Level:** Second cycle

#### Aims

The aim of the course is to study in-depth advanced digital integrated circuits and digital electronics systems. This course will also introduce reconfigurable architectures and parallel processor architectures.

#### Main themes

Identical to the contents of the course

#### Content and teaching methods

- 1) Advanced digital integrated circuits
  - precharged circuits (Domino Logic, No-Race, TSPC)
  - differentials circuits
  - arithmetic circuits (adders, multipliers, PLA)
  - test of digital circuits
- 2) Reconfigurable architectures
  - PLD, CPLD, FPGA
  - hardware-software codesign
  - simulation and synthesis : VHDL and SystemC
- 3) Processor architectures
  - risk and pipelined architectures
  - parallel architectures (VLIW, SIMD, superscalar)
  - DSP architectures

#### Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Prerequisite :

ELEC2531 : Electronics III

Assessment method :

Works performed during the semester

Based on small projects done by the students (VHDL, SystemC, Eldo simulations) on a written examination

Support :

Copy of the slides and a dedicated website

For more information:

<http://www.dice.ucl.ac.be/~jdl/InfoCours/InfoCours.htm>

#### Other credits in programs

<b>ELEC23</b>	Troisième année du programme conduisant au grade d'ingénieur civil électricien	(5 credits)
<b>ELME23/M</b>	Troisième année du programme conduisant au grade d'ingénieur civil électro-mécanicien (mécatronique)	(5 credits)