Digital architectures and design

Lecturer
Dragomir MILOJEVIC (Coordinator)

Course mnemonic
ELEC-H409

Language(s) of instruction
English

Course period
First term

Course content

Basics of VHDL; FPGA architecture; Basic design flow; Concurrent and sequential statements; Signals, variables and advanced statements; Basics of simulation process and simulation kernel operation; State machines, complex design management; Analysis of circuit performance: timing, power and area

Objectives (and/or specific learning outcomes)

Learn to model combinatorial, sequential circuits and finite state machines in VHDL. Learn to handle FPGA design flow tools: design synthesis, implementation, and analysis of results. Understand various approaches towards design modelling, analysis and optimization.

Pre-requisits and co-requisits

Course having this one as pre-requisit

MEMO-H503 | Master thesis in Electrical Engineering | 24 crédits

Teaching method and learning activities

Ex-cathedra lectures + labs

Contribution to the teaching profile

> Embedded design systems design using state of the art techniques and tools

> Model, simulate, analyze real-world digital electronic components and systems (but at smaller scale)

> Provide critical approach with respect to given design choices

> Conceive, plan and execute smaller embedded system design project

> Report, present and explain results obtained

Other information

Contact(s)

Prof. Dragomir MILOJEVIC - T: 02 650 30 60 - Dragomir.Milojevic(at)ulb.ac.be

Axel DERO - T: 02 650 28 65 - Axel.Dero(at)ulb.ac.be

Evaluation method(s)

written examination

Evaluation method(s) (additional information)

Written exam

Determination of the mark (including the weighting of partial marks)

Final mark = 1/3 practical work 1/3 theoretical exam + 1/3 practical exam

Main language(s) of evaluation

English

Programmes

Programmes proposing this course at the Brussels School of Engineering

MA-IRCB | Master of science in Biomedical Engineering | finalité Professional/unit 2, MA-IREL | Master of science in Electrical Engineering | finalité electronics and information technologies/unit 1 and MA-IRIF | Master of science in Computer Science and Engineering | finalité Professional/unit 1 and finalité Professional/unit 2