

ELEC6010 Digital Integrated Circuit Design

A Practical Course in VLSI Design

Taught by

- Iain McNally

Teaching

- Regular lab sessions to introduce CAD tools and techniques
+ lectures to introduce theory and design exercises

Assessment

- 100% Coursework - 4 Design Exercises:
 1. Simple cell design and layout with performance optimisation
 2. Digital system design (HDL model only)
 3. Cell library design and layout (team exercise)
 4. System design combining HDL model and cell based layout

- Layout for VLSI
Cell layout, Standard cell layout, Full and semi-custom design, Floorplanning, Bit slice design.
- Digital design using SystemVerilog
Introduction to SystemVerilog, Design for Synthesis.
- CAD Tools & Techniques
Magic VLSI layout editor, HSpice analogue circuit simulator, SystemVerilog Hardware Description Language and digital simulator, Cadence IC design toolset.

For more details see:

<http://users.ecs.soton.ac.uk/bim/notes/did>

Part II

D2 IC Design Exercise

Simple Digital System Design using "Black Box" Standard Cells

Part III

ELEC3025 Integrated Circuit Design

An Introduction to VLSI Design in CMOS

Part IV

ELEC6010 Digital IC Design

Lots of hands-on CAD

ELEC6027 VLSI Design Project

Complex System Design
Complete Custom IC Design Flow

ELEC6027 Novel 16-bit Microprocessor
(The best design from each year is fabricated)