ELEC2525 Introduction to digital electronics

[30h+30h exercises] 5 credits

This course is taught in the 1st semester

Teacher(s):	Jean-Didier Legat, Michel Verleysen (supplée Jean-Didier Legat)
Language:	French
Level:	Second cycle

Aims

At the end of the course, the students will be able to :
- calculate DC, transient, periodic and frequency responses of circuits with resistors, capacitors and inductors,
- understand and describe the behavior of basic electronic components (diodes, MOS and bipolar circuits),
- use their knowledge of transistor responses to understand basic electronic circuits and comute their DC and transient responses
- design simple electronic circuits based on operational amplifiers,
- understand the principles of analog-to-digital and digital-to-analog converters,
- make electrical measures with standard measurement devices like oscilloscopes and multimeters

Main themes

Identical to the contents of the course

Content and teaching methods

Part A : introduction to electrical circuits
- reminder on circuit theory : resistive, RL, RC and RLC circuits; dependent sources; DC and transient responses
- periodic and transient responses

Part B : introduction to electronical circuits
- semiconductors : N and P doping
- diodes
- MOS transistors : DC and small-circuit responses, frequency response
- bipolar transistors : modes of operation, large and small-signals transfer functions
- operational amplifiers; feedback
- analog-to-digital and digital-to-analog converters

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

Group exercices and laboratories
Reference :
Electrical Engineering - Principles and Applications 2nd Edition - Allan R. Hambley - 2002-0-13061070-4
Assessment :
Written exam during the sessions.
For more information:
http://www.dice.ucl.ac.be/~jdl/InfoCours/InfoCours.htm

Other credits in programs

GC22	Deuxième année du programme conduisant au grade d'ingénieur civil des constructions	(5 credits)	Mandatory
INFO22	Deuxième année du programme conduisant au grade d'ingénieur civil informaticien	(5 credits)	