

Faculty of Applied Sciences



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 have the necessary background to follow an advanced lecture in digital electronics.

In particular they 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 compute 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

- reminder on circuit theory : resistive, RL, RC and RLC circuits; dependent sources; DC and transient responses
- periodic and transient responses
- 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 exercises and laboratories

Reference :

Electrical Engineering - Principles and Applications 2nd Edition - Allan R. Hambley - 2002-0-13061070-4

For more information :

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

Assessment :

Written exam during the sessions.

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Programmes in which this activity is taught

INFO2 Ingénieur civil informaticien

Other credits in programs

INFO21	Première année du programme conduisant au grade d'ingénieur (5 credits) civil informaticien	Mandatory
INFO22	Deuxième année du programme conduisant au grade d'ingénieur civil informaticien (5 credits)	