

Faculty of Applied Sciences



SINF1140 Electronic bases of computer science

[30h+30h exercises] 6 credits

This course is taught in the 2nd semester

Teacher(s): Marc Lobelle
Language: French
Level: First cycle

Aims

The purpose of this course is to give the student a basic understanding of the working of the main components of a computer system, as well as the physical principles on which they are based, in order to be able to use them appropriately and if necessary to select such components.

No pre-existent knowledge in electronics is required.

Main themes

- Specificity of software for real-time systems: specific concepts, design methods, specific functions of operating systems, fault tolerance.
- Realisation of small computer systems based on microprocessors.

Content and teaching methods

(1) Physical principles

- o Fundamental laws of electronics
- o Measurements and precision of measurements
- o Elements of signal theory (frequency, phase)
- o Elements of line theory (reflections, matching)

(2) Representation of information

- o Binary representation of information
- o Electronic processing of binary information (combinatory logic, elementary sequential circuits)
- o Electronic implementation of basic logic circuits and memory cells
- o Technology of memories (central memory, magnetic or optical disks, archives)

(3) Transmission of information on serial lines (asynchronous, synchronous) and parallel buses : roles, operation, protocols.

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

No pre-existent knowledge in electronics is required.

Other credits in programs

FSA13BA	Troisième année de bachelier en sciences de l'ingénieur, orientation ingénieur civil	(6 credits)	
SINF11BA	Première année d'études de bachelier en sciences informatiques	(6 credits)	Mandatory
SINF12BA	Deuxième année d'études de bachelier en sciences informatiques	(6 credits)	
SINF13BA	Troisième année d'études de bachelier en sciences informatiques	(6 credits)	