

## Faculty of Applied Sciences



### INGI2716 Computer science 3

[30h+30h exercises] 5 credits

This course is taught in the 2nd semester

**Teacher(s):** Marc Lobelle  
**Language:** French  
**Level:** Second cycle

#### Aims

Introduction to architecture and structure of computer systems for non computer scientists.

Computer architecture is the way the computer system looks like for users (persons or programs).

Computer structure is the way architecture is implemented.

#### Main themes

(1) Basis concepts:

- \* computer architecture and structure,
- \* Layer analysis of architecture,
- \* virtual machine,
- \* process,
- \* virtual communication

(2) Conventional machine layer:

- \* generalities,
- \* components (memory, disks, ...),
- \* classic architectures (IBM 370, PDP11),
- \* addressing, operations (instructions, traps, interruptions).

(3) microprogramming layer:

- \* data path,
- \* control unit,
- \* caches

(4) Operating system and basic softwares:

- \* specific hardware for the operating system (supervisor mode, dynamic address translation),
- \* functions of the operating system (resource management, multiprogramming, process communication),
- \* user interfaces,
- \* spoolers et servers,
- \* databases,
- \* distributed systems.

#### Content and teaching methods

see "Main themes"

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

Prerequisites: Computer sciences courses like FSAB1401 and FSAB1402

**Other credits in programs**

<b>ELEC22</b>	Deuxième année du programme conduisant au grade d'ingénieur civil électricien	(5 credits)	Mandatory
<b>ELME22/M</b>	Deuxième année du programme conduisant au grade d'ingénieur civil électro-mécanicien (mécatronique)	(5 credits)	
<b>FSA13BA</b>	Troisième année de bachelier en sciences de l'ingénieur, orientation ingénieur civil	(5 credits)	
<b>GC22</b>	Deuxième année du programme conduisant au grade d'ingénieur civil des constructions	(5 credits)	