

## Faculty of Applied Sciences



### SINF1252 Introduction to computer systems

[30h+30h exercises] 5 credits

This course is taught in the 2nd semester

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

#### Aims

- To Understand and to explain the functionalities provided by the different hierarchical levels of the architecture of a computing system, from the physical machine to software components directly supporting the applications
- To understand and explain typical system architectures their components, as well at the hardware as the operating system level.
- To use and to configure efficiently functions and services provided by computers and operating systems
- To compare various computer implementations and identify their strengthes and weaknesses
- To know and to understand the implications of the orders of magnitude of measurable characteristics of computing systems

#### Main themes

- Abstraction levels in computing systems
- Architectures of processors
- Memory hierarchy
- Peripherals and peripheral interfaces
- Techniques for performance enhancement
- Machine language, assembly language and C language
- Mission and functions of operating systems
- Key concepts in operating systems
- Use of operating system functions in C programs
- C programming on computer without OS.

#### Content and teaching methods

see "Main themes"

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

- Prerequisite:

- (1) Mastering a high level language such as Java, C or C++.
- (2) Passive technical english

- References

Mandatory Book:

- (1) Tanenbaum, A. S., "Modern Operating Systems (second edition)" , Prentice Hall Inc, 2001

Recommended reading

- (2) Patterson, D. A. and Hennessy, J .L. , "Computer Organization and Design: the Hardware / Software Interface" , Morgan Kaufman Publ. Inc, 1998.
- (3) Stevens, R. W, "Advanced Programming in the Unix Environment" , Addison-Wesley Inc, 1992.

- Organisation

- (1) Individual and group based active learning
- (2) Course language: French ; the course can be taken by English speaking students

**Other credits in programs**

<b>FSA12BA</b>	Deuxième année de bachelier en sciences de l'ingénieur, orientation ingénieur civil	(5 credits)	
<b>FSA13BA</b>	Troisième année de bachelier en sciences de l'ingénieur, orientation ingénieur civil	(5 credits)	
<b>MAP22</b>	Deuxième année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(5 credits)	
<b>MATH22/G</b>	Deuxième licence en sciences mathématiques	(5 credits)	
<b>SINF11BA</b>	Première année d'études de bachelier en sciences informatiques	(5 credits)	
<b>SINF12BA</b>	Deuxième année d'études de bachelier en sciences informatiques	(5 credits)	Mandatory