Faculty of Applied Sciences

INGI2113   Structure and use to computer systems

[30h+30h exercises] 5 credits

This course is taught in the 1st semester

Teacher(s):   Olivier Bonaventure, Marc Lobelle (coord.), Peter Van Roy
Language: French
Level: Second cycle

Aims

- To understand and 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 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 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
* Individual and group based active learning
* Course language: French ; the course can be taken by English speaking students

Programmes in which this activity is taught

FSA3DS	Diplôme d'études spécialisées en sciences appliquées
INFO2	Ingénieur civil informaticien

Other credits in programs

FSA3DS/IN	Diplôme d'études spécialisées en sciences appliquées (informatique)	(5 credits)
FSA3DS/TL	Diplôme d'études spécialisées en sciences appliquées (télécommunications)	(5 credits)
INFO21	Première année du programme conduisant au grade d'ingénieur civil informaticien	(5 credits) Mandatory