UCL Université catholique de Louvain

LINGI1113

2010-2011

Operating systems 1

5.0 credits	30.0 h + 30.0 h	2q

Teacher(s) :	Bonaventure Olivier ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	> http://www.icampus.ucl.ac.be/claroline/course/index.php?cid=INGI1113
Prerequisites :	Architecture of computer systems (e.g. SINF1252)
Main themes :	-- Architecture and implementation of operating systems -- Memory hierarchy, memory management -- Input/output devices and their interaction with the OS -- Security, fault tolerance -- Programming a computer that does not contain an OS
Aims :	Students completing successfully this course will be able to: -- Compare different implementations of operating systems and highlight the advantages and disadvantages of these implementations -- Understand and explain what are the main problems to be solved by an operating system and present the various solutions with their advantages and disadvantages -- Understand the interactions between hardware and software *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods :	Theoretical part -- Oral exam concerning any matter covered during the theoretical and TPs (50% of final grade) Tutorials -- Individual exercises in C (Penalties if the exercises are not rendered) -- Project to be done by groups of 2 (30% of final grade) -- Modification to MINIX kernel (20% of final grade)
Teaching methods :	Basic exercises -- Small base programs in C under Linux (individually each week and do random selection of the programs evaluated Project -- Program implementation to groups of two students -- Project to be submitted in two phases: validation of the architecture mid-February and final report and source Solaris + Linux mid-March: Topic: Kernel programming, to add a new feature in the kernel MINIX for mid-May
Content :	Deep understanding (theoretical and practical) of the functioning of operating systems Case study: Unix Family -- MINIX for the discovery / kernel modification -- Linux / Solaris for the first work -- Solaris / Linux for the group project Main issues discussed -- Processes and Threads: Concepts, Problems and Solutions -- Communication between processes -- Memory Management -- Input-Output -- Filesystems
Bibliography :	-- slides online -- A. Tanenbaum, A. Woodhull, Operating Systems Design and Implementation (third edition) - The MINIX book, Prentice Hall, 2006

Cycle and year of study :	> Bachelor in Engineering > Bachelor in Computer Science > Preparatory year for Master in Computer science > Bachelor in Engineering : Architecture > Bachelor in Economics and Management > Bachelor in Mathematics
Faculty or entity in charge:	INFO