

# Systèmes d'exploitation

## Lecturers

Joël GOOSSENS (Coordinator) and Olivier MARKOWITCH

## Course mnemonic

INFO-F201

## ECTS credits

5 credits

## Language(s) of instruction

French

## Course period

First term

## Campus

Plaine

## Course content

How does a UNIX kernel work, and how to use such a system to build a distributed application.

## Objectives (and/or specific learning outcomes)

1. Understand how modern operating systems are composed and operate in order to offer applications and users a simple and efficient abstraction which hides the inherent complexity of the hardware (processors, cores, screens, network interfaces, memories, disks, etc.). The student will have to understand the generic conceptual mechanisms (i.e., not specific to a particular operating system). 2. The student will have to understand how these concepts are concretely implemented in a target operating system (eg, Linux). 3. Provide the student with the tools necessary for the development of "multi-process" and "multi-thread" applications close to the operating system that use its APIs (ie, "system calls") in a high-level host language (C for example for Linux). 4. Being able to write "scripts" with the basic operating system commands in one of the shell scripting languages.

## Pre-requisites and co-requisites

### Pre-requisites courses

INFO-F102 | Fonctionnement des ordinateurs | 5 crédits and  
INFO-H2001 | Programmation orientée objet | 5 crédits

### Co-requisites courses

INFO-H304 | Compléments de programmation et  
d'algorithmique | 5 crédits

## Course having this one as pre-requisit

INFO-F309 | Administration de systèmes | 5 crédits

## Courses having this one as co-requisit

INFO-F209 | Projets d'informatique 2 | 10 crédits and INFO-F303 | Réseaux, information et communications | 5 crédits

## Teaching method and learning activities

1. Introduction to operating systems. 2. Processes and threads. 3. Memory management. 4. File system 5. Input / Output. 6. Deadlock 10. Case study: Linux

## References, bibliography and recommended reading

Andrew S. Tanenbaum, Modern Operating Systems, Third edition, Prentice Hall, 2009.

## Other information

### Place(s) of teaching

Plaine

### Contact(s)

Lecturer: Joël Goossens - email: joel.goossens@ulb.ac.be - Plaine campus, building NO, floor 8th, room N8.114

## Evaluation method(s)

written examination and Project

### Evaluation method(s) (additional information)

Written for the evaluation of practical work Oral for theory assessment

### Determination of the mark (including the weighting of partial marks)

Written (15 points) and projects (5 points), total 20 points arithmetic mean.

### Main language(s) of evaluation

French

## Programmes

Programmes proposing this course at the faculty of Sciences

BA-INFO | Bachelor in Computer science | unit 2

Programmes proposing this course at the Brussels School of Engineering

BA-IRCI | Bachelor in Engineering Sciences | option Bruxelles/unit 3

