

## Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
INF333-A	Operating Systems	6	2	0	2	3	5

Prerequisites	INF116
Admission Requirements	INF116

Language of Instruction	French
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	The course focuses on processes, memory management, IO management, file systems, and inter-process communication/synchronization. The C programming language is used in laboratory work to put the knowledge gained in class into practice.
Content	<ol style="list-style-type: none"><li>1. Introduction, OS Types, Basic Concepts, Course Scope</li><li>2. OS Components, Hardware Classes, File Systems</li><li>3. Process, Thread, System Calls, Kernel and User-level Context Switching</li><li>4. Synchronization Primitives, Producer/Consumer Pattern</li><li>5. Scheduling</li><li>6. Security, Protection</li><li>7. Midterms</li><li>8. Virtual Memory I</li><li>9. Virtual Memory II</li><li>10. Efficient Cache Management, Consistency and Coherence</li><li>11. High-Performance Locks, Fair Scheduling, Deadlocks, Livelocks</li><li>12. Dynamic Memory Management</li><li>13. Linking, Dynamic Libraries, Deployment</li><li>14. Virtual Machines, Containers, Jails, Sandboxing</li></ol>
References	Book: Operating System Concepts, 10th Ed. Silberschatz, Galvin, Gagne Lecture Notes: <a href="https://burakarslan.com/inf333">https://burakarslan.com/inf333</a> Course Project: <a href="https://pintos-os.org/">https://pintos-os.org/</a>

## Theory Topics

Week	Weekly Contents
1	Introduction, OS Types, Basic Concepts, Course Scope
2	OS Components, Hardware Classes, File Systems
3	Process, Thread, System Calls, Kernel and User-level Context Switching
4	Synchronization Primitives, Producer/Consumer Pattern
5	Scheduling
6	Security, Protection
7	Midterm Break
8	Virtual Memory I
9	Virtual Memory II
10	Efficient Cache Management, Consistency and Coherence
11	High-Performance Locks, Fair Scheduling, Deadlocks, Livelocks

<b>Week</b>	<b>Weekly Contents</b>
12	Dynamic Memory Management
13	Linking, Dynamic Libraries, Deployment
14	Virtual Machines, Containers, Jails, Sandboxing