Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
INF116	Introduction to Computer Systems	2	3	0	0	3	5

Prerequisites	
Admission Requirements	

Language of Instruction	French
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	This course aims to provide foundational knowledge of how computer systems are designed, structured, and operate across hardware and software layers. It introduces students to the core components of computing systems, their interactions, and the fundamental principles underlying modern computing architectures.
Content	The course covers the physical foundations of computing (transistors and chip manufacturing), basic hardware components (CPU, GPU, memory, storage), abstraction layers in computer systems, digital logic fundamentals, instruction-level execution, memory hierarchy, input/output systems, operating systems basics, and an introduction to networking and system-level performance considerations.
References	Computer Systems, 5th Edition J. Stanley Warford

Theory Topics

Week	Weekly Contents
1	Computer manufacturing processes, semiconductor basics, transistor technologies
2	Introduction to computer hardware: CPU, GPU, RAM, storage devices
3	Abstraction layers in computer systems
4	Binary numbers, data representation, and number systems (decimal, binary, hexadecimal)
5	Digital logic fundamentals: logic gates, Boolean algebra, combinational circuits
6	Sequential logic and basic circuit design: flip-flops, registers, finite state machines
7	Midterm
8	Introduction to computer architecture: instruction sets, machine language, assembly basics
9	CPU organization: datapath, control unit, instruction execution cycle (fetch-decode-execute)
10	Memory systems: cache, main memory, virtual memory, memory hierarchy
11	Storage systems and I/O: disks, SSDs, peripherals, buses, and communication between components
12	Introduction to operating systems: processes, threads, scheduling, and memory management
13	System performance: benchmarking, latency vs throughput, bottlenecks, optimization basics
14	Emerging trends in computer systems: parallel computing, GPUs, cloud computing, and edge systems