

SYLLABUS COURSE DESCRIPTION YEAR 2025/26

COURSE TITLE	Computer Systems Architecture
COURSE CODE	76240
SCIENTIFIC SECTOR	INFO-01/A
DEGREE	Bachelor in Computer Science
SEMESTER	1st
YEAR	1st
CREDITS	6

TOTAL LECTURING HOURS	40
TOTAL LAB HOURS	20
ATTENDANCE	Attendance is not mandatory but strongly recommended.
PREREQUISITES	There are no prerequisites for this course.
COURSE PAGE	The course page will be made available on the Microsoft Teams class for this course or on https://ole.unibz.it , as communicated by the lecturer. Additional materials can also be found in the university's Reserve Collection at https://www.unibz.it/en/services/library/new-rc/ .

SPECIFIC EDUCATIONAL OBJECTIVES	This course belongs to the type "Attività formative di base" and the subject area is "Informatica". The goal of this course is to give students an understanding of the architecture and organization of modern computers, the basic of the circuit logic involved in their construction, and the foundation of their programming in assembly language.
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LECTURER	Enrico Franconi (franconi@inf.unibz.it)
SCIENTIFIC SECTOR OF THE LECTURER	INFO-01/A
TEACHING LANGUAGE	English

OFFICE HOURS	Office BZ B1 5.42, Mondays 14:00–16:00, by appointment via email
TEACHING ASSISTANTS	/
OFFICE HOURS	/
LIST OF TOPICS COVERED	– Computer abstractions and technology – Bits, datatypes, and arithmetic in computer systems – Gates, circuits, and combinational logic – Sequential logic – A simple processor architecture: the CPU – Instruction sets and assembly language
TEACHING FORMAT	The course includes frontal lectures and lab sessions.

LEARNING OUTCOMES	Knowledge and Understanding – D1.19: Understand the key principles, the structures and the organization of computer systems Applying knowledge and understanding – D2.4: Ability to develop programs to interact with microcontrollers and the operating systems of modern computers. Ability to make judgments – D3.1: Be able to collect and interpret useful data and to judge information systems and their applicability. – D3.2: Be able to work autonomously according to the own level of knowledge and understanding. Communication skills – D4.1: Be able to use one of the three languages English, Italian and German, and be able to use technical terms and communication appropriately. Learning skills – D5.1: Have developed learning capabilities to pursue further studies with a high degree of autonomy. – D5.3: Be able to follow the fast technological evolution and to learn cutting edge IT technologies and innovative aspects of last generation information systems.
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ASSESSMENT	Written exam: a final oral exam with exercises, and verification and transfer of knowledge questions; there will be no pure theoretical questions.
ASSESSMENT LANGUAGE	English

EVALUATION CRITERIA AND CRITERIA FOR AWARDING MARKS	The exam questions will be evaluated based on correctness of answers, clarity of answers, ability to summarize, evaluate, and establish relationships between topics, skills in critical thinking, ability to summarize in own words.
REQUIRED READINGS	– Introduction to Computing Systems: From bits & gates to C & beyond. By Yale N. Patt and Sanjay J. Patel. McGraw Hill. – Principles of Computer Hardware. By Alan Clements. Oxford University Press.
SUPPLEMENTARY READINGS	– Additional material will be provided during lectures/labs.
SOFTWARE USED	– Digital Trainer (digital trainer box) – Digital Works or Logism (digital circuits simulator) – CPU simulator – 6502 Assembler Simulator