Syllabus

Kursbeschreibung

Titel der Lehrveranstaltung	Computer Systems Architecture
Code der Lehrveranstaltung	76240
Zusätzlicher Titel der Lehrveranstaltung	
Wissenschaftlich-disziplinärer Bereich	INF/01
Sprache	Englisch
Studiengang	Bachelor in Informatik
Andere Studiengänge (gem. Lehrveranstaltung)	
Dozenten/Dozentinnen	Prof. Enrico Franconi, franconi@inf.unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/943
Wissensch. Mitarbeiter/Mitarbeiterin	
Semester	Erstes Semester
Studienjahr/e	1
KP	6
Vorlesungsstunden	40
Laboratoriumsstunden	20
Stunden für individuelles Studium	90
Vorgesehene Sprechzeiten	
Inhaltsangabe	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.

Themen der Lehrveranstaltung	• 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
Stichwörter	Computer Architecture, Digital Logic, Assembly Language, Processor Design, Data Representation
Empfohlene Voraussetzungen	There are no prerequisites for this course.
Propädeutische Lehrveranstaltungen	
Unterrichtsform	The course includes frontal lectures and lab sessions.
Anwesenheitspflicht	Attendance is not mandatory but strongly recommended.
Spezifische Bildungsziele und erwartete Lernergebnisse	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.
Spezifisches Bildungsziel und erwartete Lernergebnisse (zusätzliche Informationen)	
Art der Prüfung	Written exam: a final oral exam with exercises, and verification and transfer of knowledge questions; there will be no pure theoretical questions.
Bewertungskriterien	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.
Pflichtliteratur	• 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.
Weiterführende Literatur	Additional material will be provided during lectures/labs.
Weitere Informationen	- Digital Trainer (digital trainer box) - Digital Works or Logism (digital circuits simulator) - CPU simulator - 6502 Assembler Simulator
Ziele für nachhaltige Entwicklung (SDGs)	Hochwertige Bildung