Syllabus

Kursbeschreibung

Titel der Lehrveranstaltung	Grundlagen der Programmierung
Code der Lehrveranstaltung	42611
Zusätzlicher Titel der Lehrveranstaltung	
Wissenschaftlich-disziplinärer Bereich	INFO-01/A
Sprache	Englisch
Studiengang	Berufsbildender Bachelor in Holztechnik
Andere Studiengänge (gem. Lehrveranstaltung)	
Dozenten/Dozentinnen	Prof. Chiara Ghidini, Chiara.Ghidini@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/49601
Wissensch. Mitarbeiter/Mitarbeiterin	
Semester	Zweites Semester
Studienjahr/e	1
KP	3
Vorlesungsstunden	30
Laboratoriumsstunden	0
Stunden für individuelles Studium	45
Vorgesehene Sprechzeiten	9
Inhaltsangabe	1. Introduction to: different computing devices, their hardware and software; computer organisation; data hierarchy; machine languages, assembly languages, high-level programming languages. Introduction to programming conventions and paradigms, with a focus on the structured programming paradigm. Basic syntax and structure in Python: data types, variables, constants, operators, Boolean and arithmetic expressions; standard

	input/output handling. 2. Basic control flow structures, e.g., conditional control structures; error handling. 3. Basic data structures and subroutines, e.g., functions. The above is tackled for covering the basics of computing to critically understand a computational problem and develop a resolution in a Python-based programming language.
Themen der Lehrveranstaltung	- statements - conditionals - boolean expressions - loops - functions - lists - dictionaries - search - tuples
Stichwörter	Intropduction to programming, Python
Empfohlene Voraussetzungen	Basics of mathematics.
Propädeutische Lehrveranstaltungen	
Unterrichtsform	In-presence, lecture and workshop-based.
Anwesenheitspflicht	Attendance is not compulsory for lectures, albeit highly recommended. Attendance is compulsory for labs to profit from the course material (e.g., programmable boards) which cannot be borrowed outside class hours.
Spezifische Bildungsziele und erwartete Lernergebnisse	The course belongs to the type "caratterizzanti – discipline informatiche". By following the latest European Commission and national recommendations and guidelines on computational thinking and computing education, the course gives a general overview of scientific contents and computing technologies, which are relevant for tomorrow's citizens. The overall goal of the course is to empower different students to tackle a simple computational problem and develop a solution for it, critically and collaboratively. The specific objectives to achieve the goal are as follows. 1) First, the course aims to provide participants with basic knowledge of computing to understand a basic computational

	problem, that is, to analyse it and abstract away what needed for developing a basic computing solution for it. 2) Second, the course aims to enable students to develop basic computing solutions for different problems, which requires them to specify and program them. Third the course aims to enable students to collaborate in the analysis of problems and development of solutions, and to critically reflect on what they are doing. Intended Learning Outcomes (ILO): Knowledge and understanding: 1. Know fundamental principles of computing. 2. Know different models of computation and computing devices. 3. Have a basic knowledge of programming for different computing devices. 4. Understand how to efficiently interact with basic programming environments. Applying knowledge and understanding 5. Be able to analyse basic computational problems. 6. Be able to specify one among many computational solutions. 7. Be able to program computational solutions. 8. Be able to understand computational solutions. Making judgements 9. Be able to collect and interpret useful data and to judge computational solutions and their applicability. 10. Be able to identify critical aspects in the development process and take a critical stance towards what is developed. Communication skills 11. Be able to describe and motivate choices. 12. Be able to properly document a computing solution.
Spezifisches Bildungsziel und erwartete Lernergebnisse (zusätzliche Informationen)	
Art der Prüfung	Formative assessment Not foreseen Summative assessment Assessment format: paper-based written exam, with questions

	related to all the listed topics (1–3). The exam is organised and weighted as follows: 1. C. 30% multiple-choice questions 2. C. 70% open-ended questions Its duration is expected to be c. 2 hours. The total number of hours the student devotes to the course is #CFU * 25 (e.g., 150 hours for a 6 CFU course), including: o the time spent in class; o the preparation of the project; o the time for independent study.
Bewertungskriterien	The outcome is based on the answers to the written exam. The following ILOs will be taken in consideration for evaluating answers and awarding marks: - Via multiple choice questions (30%): knowledge and understanding - Via open-ended questions (70%): o Applying knowledge and understanding o Making judgements o Communication skills
Pflichtliteratur	Material provided by the lecturer.
Weiterführende Literatur	Online resources suggested by the lecturer, and available through the unibz library to all enrolled students
Weitere Informationen	Software used: Python, basic IDEs.
Ziele für nachhaltige Entwicklung (SDGs)	Hochwertige Bildung