Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus
Course description

Course title	Fundamentals of programming
Course code	42307
Scientific sector	INF/01
Degree	Bachelor in Wood Engineering
Semester	2
Year	1
Academic Year	2019/20
Credits	6
Modular	No

Total lecturing hours	36 hours
Total lab hours	24 hours
Total exercise hours	18 hours
Attendance	Attendance to dedicated laboratory hours and lecture attendance is strongly recommended.
Prerequisites	Introduction to Information Science
Course page	https://www.unibz.it/de/faculties/sciencetechnology/bachelor-industrial-mechanical-engineering/course-offering/?academicYear=2018

Specific educational objectives	

Lecturer	Dr. Moraschini Marco Dr. Andric Marina
Scientific sector of the lecturer	
Teaching language	English
Office hours	Mondays to Fridays, by appointment
Teaching assistant (if any)	
Office hours	
List of topics covered	Good programming principles: code clarity, modularity, maintainability, testability. Appropriate programming choices of: - Syntax - Data structures - Paradigm (imperative; functional; object) - Logic - Algorithms - External libraries Interfacing with external systems (OS, other programming languages, Internet services, devices, sensors and effectors, ...)

	Applications to scripting; task automatization; data management; IoT; … Particular focus on the language Python. Other programming and script languages will be mentioned and used in examples and exercises.
Teaching format	The course consists of lectures in which the topics are presented by the professor, and laboratories in which the theoretical topics are put into practice. Course topics will be presented at the blackboard and using electronic slides. Teaching material and additional materials will be provided by the Professor during the semester.

Learning outcomes (ILOs)	Knowledge and understanding 1. Fundamental aspects of function design. 2. Fundamental aspects of software design. 3. How to develop software solutions to simple problems. Applying knowledge and understanding 4. Apply knowledge and understanding to solve hands-on problems. Making judgements 5. Assess the requirements and make appropriate programming choices. Communication skills 6. How to write user and technical manuals, and documentation. Learning skills 7. Foundational knowledge for further study in more advanced topics in Programming and Software Engineering.

Assessment

Formative assessment

Form	Length /duration	ILOs assessed
Labs	24 hours	1-6

Summative assessment

Form	%	Length /duration	ILOs assessed

	Labs	40	24 hours	1-7
	Written final exam	60	3 hours	1-5
Assessment language	English			
Evaluation criteria and criteria for awarding marks	Labs: Overall quality of the problem assessments and problem solutions. Quality of documentation and manuals. Exam: Theoretical knowledge, and overall quality of the answers.			

Required readings	• *Automate the Boring Stuff with Python* -- by Al Sweigart (ISBN-13: 978-1593275990) (Free to read under a Creative Commons license. https://automatetheboringstuff.com/.)
Supplementary readings	• *Think Python* -- 2nd edition -- by Allen B. Downey (ISBN-13: 978-1491939369) (Free Book. Under Creative Commons Attribution-NonCommercial 3.0 Unported License. http://greenteapress.com/thinkpython2/thinkpython2.pdf.)