

## Syllabus

### Course description

<b>Course title</b>	Fundamentals of programming
<b>Course code</b>	42307
<b>Scientific sector</b>	INF/01
<b>Degree</b>	Bachelor in Wood Engineering
<b>Semester</b>	2
<b>Year</b>	1
<b>Academic Year</b>	2018-2019
<b>Credits</b>	6
<b>Modular</b>	No

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

<b>Specific educational objectives</b>	
--	--

<b>Lecturer</b>	Nicolas Troquard Faculty of Computer Science Piazza Domenicani, 3 Room 3.02 <a href="mailto:nicolas.troquard@unibz.it">nicolas.troquard@unibz.it</a>
<b>Scientific sector of the lecturer</b>	ING-INF/05
<b>Teaching language</b>	English
<b>Office hours</b>	Mondays to Fridays, by appointment
<b>Teaching assistant (if any )</b>	
<b>Office hours</b>	
<b>List of topics covered</b>	<p>Good programming principles: code clarity, modularity, maintainability, testability. Appropriate programming choices of:</p> <ul style="list-style-type: none"> <li>- Syntax</li> <li>- Data structures</li> <li>- Paradigm (imperative; functional; object)</li> <li>- Logic</li> <li>- Algorithms</li> <li>- External libraries</li> </ul>

	<p>Interfacing with external systems (OS, other programming languages, Internet services, devices, sensors and effectors, ...)</p> <p>Applications to scripting; task automatization; data management; IoT; ...</p> <p>Particular focus on the language Python. Other programming and script languages will be mentioned and used in examples and exercises.</p>
<b>Teaching format</b>	<p>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.</p>

<b>Learning outcomes (ILOs)</b>	<p><u>Knowledge and understanding</u></p> <ol style="list-style-type: none"> <li>1. Fundamental aspects of function design.</li> <li>2. Fundamental aspects of software design.</li> <li>3. How to develop software solutions to simple problems.</li> </ol> <p><u>Applying knowledge and understanding</u></p> <ol style="list-style-type: none"> <li>4. Apply knowledge and understanding to solve hands-on problems.</li> </ol> <p><u>Making judgements</u></p> <ol style="list-style-type: none"> <li>5. Assess the requirements and make appropriate programming choices.</li> </ol> <p><u>Communication skills</u></p> <ol style="list-style-type: none"> <li>6. How to write user and technical manuals, and documentation.</li> </ol> <p><u>Learning skills</u></p> <ol style="list-style-type: none"> <li>7. Foundational knowledge for further study in more advanced topics in Programming and Software Engineering.</li> </ol>
---------------------------------	--

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

	<b>Summative assessment</b> <table><tr><th>Form</th><th>%</th><th>Length /duration</th><th>ILOs assessed</th></tr><tr><td>Labs</td><td>40</td><td>24 hours</td><td>1-7</td></tr><tr><td>Written final exam</td><td>60</td><td>3 hours</td><td>1-5</td></tr></table>	Form	%	Length /duration	ILOs assessed	Labs	40	24 hours	1-7	Written final exam	60	3 hours	1-5
Form	%	Length /duration	ILOs assessed										
Labs	40	24 hours	1-7										
Written final exam	60	3 hours	1-5										
<b>Assessment language</b>	English												
<b>Evaluation criteria and criteria for awarding marks</b>	Labs: Overall quality of the problem assessments and problem solutions. Quality of documentation and manuals.  Exam: Theoretical knowledge, and overall quality of the answers.												

<b>Required readings</b>	<ul style="list-style-type: none"><li>• <i>Automate the Boring Stuff with Python</i> -- by Al Sweigart (ISBN-13: 978-1593275990) (Free to read under a Creative Commons license. <a href="https://automatetheboringstuff.com/">https://automatetheboringstuff.com/.</a>)</li></ul>
<b>Supplementary readings</b>	<ul style="list-style-type: none"><li>• <i>Think Python</i> -- 2nd edition -- by Allen B. Downey (ISBN-13: 978-1491939369) (Free Book. Under Creative Commons Attribution-NonCommercial 3.0 Unported License. <a href="http://greenteapress.com/thinkpython2/thinkpython2.pdf">http://greenteapress.com/thinkpython2/thinkpython2.pdf.</a>)</li></ul>