

SYLLABUS COURSE DESCRIPTION

COURSE TITLE	Programming Project
COURSE CODE	76204
SCIENTIFIC SECTOR	INF/01
DEGREE	Bachelor in Computer Science
SEMESTER	2nd
YEAR	1st
CREDITS	9
TOTAL LECTURING HOURS	60
TOTAL LAB HOURS	30
PREREQUISITES	Students should be familiar with the basic knowledge of object-oriented programming and Java, as taught in the course "Computer Programming"
COURSE PAGE	https://ole.unibz.it/course/view.php?id=4743
SPECIFIC EDUCATIONAL OBJECTIVES	<p>Type of course: "caratterizzanti" for L-31 Scientific area: "Discipline informatiche" for L-31</p> <p>The course is designed to give specific professional skills. It will provide students with advanced techniques in Java. In particular, students will acquire knowledge in the overall architecture and components of Java SDK and JRE, use of advanced programming techniques (e.g. multi-threads, reading/writing streams, generics, regular expressions, exception handling and testing) and code documentation (e.g. generate API documentation) of the software developed.</p>
LECTURER	Marko Tkalcic , office POS 1.13, marko.tkalcic@unibz.it
SCIENTIFIC SECTOR OF THE LECTURER	INF/01
TEACHING LANGUAGE	English
OFFICE HOURS	By appointment, office POS 1.13
TEACHING ASSISTANT	Billero Riccardo, Cardoso Evellin

OFFICE HOURS	TBA
LIST OF TOPICS COVERED	<ul style="list-style-type: none"> • Memory models in Java • Virtual functions, late binding, overriding, and overloading • Exception handling • Reflection and runtime type identification • Generics and collections • I/O, serialization and XML/JSON processing • Designing large applications: design patterns • Multithreading • Code optimization
TEACHING FORMAT	Frontal lectures Lab exercises Individual projects
LEARNING OUTCOMES	<p>Knowledge and understanding</p> <ul style="list-style-type: none"> • Know basic and advanced programming techniques • Have a basic knowledge of the most important data structures and their use in programming languages <p>Applying knowledge and understanding</p> <ul style="list-style-type: none"> • Be able to develop small and medium size programs using Java • Be able to solve problems through the application of programming methods <p>Making judgments</p> <ul style="list-style-type: none"> • Be able to work autonomously according to the own level of knowledge and understanding <p>Communication skills</p> <ul style="list-style-type: none"> • Be able to structure and write scientific documentation <p>Learning skills</p> <ul style="list-style-type: none"> • Have acquired learning capabilities to pursue further studies with a high degree of autonomy
ASSESSMENT	<p>The assessment is based on the lab assessment and the written exam. The lab assessment is composed of weekly assignments and a project. The weekly assignments are optional and motivate the students to study throughout the semester. The project is mandatory and evaluates the students' abilities to integrate the learned techniques into a stand-alone software project.</p> <p>The written exam evaluates the students' understanding of the theoretical backgrounds and solving smaller, individual programming tasks.</p>
ASSESSMENT LANGUAGE	English
EVALUATION CRITERIA AND CRITERIA FOR AWARDING MARKS	<p>The assessment is based on (i) the lab assessment (up to 30 points) and (ii) the written exam (up to 30 points).</p> <p>The lab assessment consists of (i.i) weekly assignments (optional, up to 10 points) and (i.ii) a project (mandatory, up to 20 points).</p> <p>The final mark is: (a) the score of the written exam if that is higher than the lab assessment score, or (b) the average between the lab assessment</p>

	<p>score and the written exam score if the lab score is higher than the written exam score.</p> <p>In order to be eligible to enroll for the written exam, the student needs to obtain at least 5 points (out of 20) from the project. The lab assessment is a sum of the scores from the weekly assignments and the project score. The weekly assignments scores can be obtained only during the lectures period. The project must be submitted before each written exam (deadlines to be defined depending on the exam dates).</p> <p>There is a mid-term exam. It is optional. The mid-term exam accounts for the first part (50%) of the final written exam. The grade of the mid-term exam is valid for all three regular exam sessions.</p>
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REQUIRED READINGS	Lecture notes will be handed out during the course.
SUPPLEMENTARY READINGS	Paul Deitel; Harvey Deitel, Java™ How to Program (Early Objects), Tenth Edition, Prentice Hall, 2014, ISBN 978-0-13-381303-6, available through Library access to Safari Books Online, Permanent link: http://ubz-primo.hosted.exlibrisgroup.com/UNIBZ:All:39UBZ_ALMA_DS51129685850001241
SOFTWARE USED	<ul style="list-style-type: none"> - Eclipse IDE - JDK