UNIVERSITÀ DI PAVIA

Anno Accademico 2021/2022

OBJECT ORIENTED PROGRAMMING AND SOFTWARE ENGINEERING

Enrollment year	2019/2020
Academic year	2021/2022
Regulations	DM270
Academic discipline	ING-INF/05 (DATA PROCESSING SYSTEMS)
Department	DEPARTMENT OF ELECTRICAL,COMPUTER AND BIOMEDICAL ENGINEERING
Course	ELECTRONIC AND COMPUTER ENGINEERING
Curriculum	Informatica
Year of study	3°
Period	1st semester (27/09/2021 - 21/01/2022)
ECTS	9
Lesson hours	76 lesson hours
Language	Italian
Activity type	ORAL TEST
Teacher	NOCERA ANTONINO (titolare) - 9 ECTS
Prerequisites	Basic programming skills provided by the courses of the previous years.
Learning outcomes	This course provides a general introduction to the Object Oriented programming and to the methodologies used in software conceptual modeling. Principles for the analysis, design and implementation of software applications are provided. Moreover, the course is devoted to the introduction and analysis of the main issues related to the design and development of medium and large software projects. Lectures are alternated with exercises and discussions on source code parts. The course aims at supporting the development of advanced

	capabilities in the context of software design and implementation, with particular emphasis on the requirement analysis, the identification and application of design patterns, and the techniques to verify and validate the obtained solutions. These capabilities will be completed by the knowledge of the Java language and the Object-Oriented Programming paradigm.
Course contents	The course covers the following topics:? - Object Oriented Programming (OOP). - The Java programming language.? - The UML Notation. - Software development processes. - Requirement Analysis - Software architectures and design patterns. - Verification and Validation strategies.
Teaching methods	Lectures (hours/year in lecture theatre): 64 ?Practical class (hours/year in lecture theatre): 0 ?Practicals / Workshops (hours/year in lecture theatre): 12
Reccomended or required readings	The programming language used in this course is Java. To learn the syntax of the language it is suggested to refer to the online documentation and to adopt one of the following:? - Walter Savitch. Programmazione di base e avanzata con Java. PEARSON ?- Arnold Ken, Gosling James, Holmes David. Il linguaggio Java. Manuale ufficiale. Pearson Education Italia The other topics covered in this course can be studied using the following: ?- Craig Larman. Applying UML and Patterns - Ian Sommerville Ingegneria del software. PEARSON
Assessment methods	The evaluation includes the presentation of a team project of a software in Java and the discussion of the topics presented during the lectures. A positive assessment of the project is a requirement for the access to the final oral exam.
Further information	
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile