



Programme of Course "Programmazione Ad Oggetti"		
<ul style="list-style-type: none"> • Code: I0647 • Type of course unit: Compulsory (Laurea in Ingegneria dell'Informazione curriculum Automatica) • Level of course unit: Undergraduate Degrees • Semester: 2 		
Number of ects credits: (Laurea in Ingegneria dell'Informazione) 6 (workload 150 hours)		
Teachers: Gabriele Di Stefano		
1	Course objectives	The aim of the course is to provide the fundamental concepts of the Object Oriented Programming (OOP). Such concepts are analyzed and then implemented in the design of C++ and Java programs. The UML language is used as an OOP notation.
2	Course content and learning outcomes (dublin descriptors)	<p>Topics of the module include:</p> <ul style="list-style-type: none"> • Basic concepts: Object Oriented Technology, introduction to Java (and partially C++) programming techniques. • Objects: Incapsulation, Information and Implementation Hiding. Attributes and methods. • Classes: Sets of objects and models for objects. • Object characteristics: Object Identity and Status. Messages between objects. • Relationships between Classes: Association, aggregation, composition, usage relation. • Inheritance: Mechanism for code reuse. Class hierarchies. • Polymorphism. • Abstract Classes and Interfaces. • Further concepts: Packages, file management and exception management • Programming: for each concept, programming examples are given in Java (and partially in C++). <p>On successful completion of this module, the student should :</p> <ul style="list-style-type: none"> • To have solid knowledge of methods and techniques in Object Oriented Programming (OOP). • To understand the fundamental OOP concepts of Objects and their usage, Class design, Interfaces, Relationships between Classes, Inheritance, Polymorphism. To applying acquired knowledge to Java programming. • To provide a description of a problem and to design a first solution by performing an analytical description of relevant entities and relationships in an application domain. • To demonstrate skill in OO design to propose and communicate solutions. To show skills in programming also through the use of tools like IDEs. • To exploit the acquired knowledge and abilities to solve problems in a larger variety of contexts. To demonstrate capacity for reading and understand other texts on related topics.
3	Course prerequisites	The student must know basic notions about programming languages and computer architecture.
4	Teaching methods and language	<p>Lectures and exercises based on team works and home works.</p> <p>Language: Italian</p> <p>Reference textbooks</p> <ul style="list-style-type: none"> • Cay S. Horstmann, <i>Concetti di Informatica e Fondamenti di Java</i> . Apogeo . 2020.
5	Assessment methods	Written and oral exam.

