



Programme of Course "Ingegneria Del Software"

- Code: I0339
- Type of course unit: Elective (Laurea Magistrale in Ingegneria Informatica e Automatica curriculum Automatica), Compulsory (Laurea Magistrale in Ingegneria Informatica e Automatica curriculum Informatica)
- Level of course unit: Postgraduate Degrees
- Semester: 1

Number of ects credits: (Laurea Magistrale in Ingegneria Informatica e Automatica) 9 (workload 225 hours)

Teachers: Serafino Cicerone

1	Course objectives	The course presents the fundamental aspects of modeling, analysis and software design, with reference to modern techniques of object-oriented analysis and design and to iterative, incremental and agile software processes. It also analyzes the different architectures underlying systems to be realized. In this context issues and technologies for the construction of distributed object systems are presented. Students who have passed the course will be able to independently design software applications of medium complexity, as well as participate in the development of large size software applications.
2	Course content and learning outcomes (dublin descriptors)	<p>Topics of the module include:</p> <ul style="list-style-type: none"> • Life cycle and development process of a software system. Iterative and incremental development. Unified Process (UP) • Requirements analysis. Use Cases • Object-oriented analysis (OOA). Domain model. System sequence diagrams. Contract of operations • Object-oriented design (OOD). Interaction diagrams. Class diagrams. • From object-oriented design to object-oriented programming • Principles of object-oriented design. GRASP principles. SOLID principles • Design patterns • Logical architecture. Architectural patterns • CASE tools for modeling and round-trip engineering. Visual Paradigm for UML • Unified Modeling Language (UML) • Object persistence. ORM technologies • Hibernate
3	Course prerequisites	Prerequisite for this course: deep knowledge about "Object Oriented Programming" and "Data Bases"
4	Teaching methods and language	<p>Lectures and exercises</p> <p>Language: Italian</p> <p>Reference textbooks</p> <ul style="list-style-type: none"> • Craig Larman, <i>Applicare UML e i pattern - Analisi e progettazione orientata agli oggetti</i>. Pearson Education Italia. 2016. • E. Gamma, R. Helm, R. Johnson, J. Vlissides, <i>Design patterns: elementi per il riuso di software a oggetti</i>. Addison Wesley. 2002.
5	Assessment methods	Grading: project 80%, oral examination 20%