



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Software Architecture

2122-2-F1801Q150

---

#### Aims

How to apply design principles, patterns, and architectures to create reusable and flexible software systems. How to document the system architecture. Software architectures of the new generation of systems.

#### Contents

Software architecture models. Component-based systems. Architectures design at different abstraction levels.

#### Detailed program

- Definition and overview of software architecture
- The architecture business cycle
- Understanding and achieving quality attributes
- Architecture design using patterns and tactics
- Documenting software architecture
- Evaluating software architecture
- Architecture in the Cloud
- Design of an architectural solution for a simplified case study

#### Prerequisites

General knowledge and expertise about programming, object-oriented design, software engineering, operating systems, and distributed systems.

## **Teaching form**

Lessons and classroom presentations and discussion of projects and in-depth studies carried out by the students.

The course will be given in Italian.

During covid-19 emergency, the lectures and recitations will be both online and recorded.

## **Textbook and teaching resource**

Articles and resources will be indicated.

[suggested] Software Architecture in Practice (3rd Edition) (SEI Series in Software Engineering) 3rd Edition by Len Bass, Paul Clements, Rick Kazman. ISBN-10: 0321815734

[suggested] Engineering Software Products by Ian Sommerville. ISBN-10: 013521064-X

## **Semester**

First semester.

## **Assessment method**

The final evaluation will be based on:

- the presentation of the in-depth study assigned, presented and discussed in the classroom.
- a document summarizing the architectural specification of the project presented and discussed in the classroom.

Evaluation criteria used: quality of the presentation and knowledge of the topic in the first part; quality of the solution proposed in the second part.

## **Office hours**

On appointment.

---