



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Processo e Sviluppo del Software

2627-1-F1802Q104

Aims

Knowledge and understanding (DdD 1): manage DevOps processes; handle the risks of a software project; understand informal, semi-formal, and formal techniques for requirements analysis and specification; develop software following agile principles.

Applied knowledge and understanding (DdD 2): build automation pipelines; elicit the requirements of a software project; write Clean Code; analyze the risks associated with a project.

Contents

The course describes methods, techniques and technologies for managing complex software projects. In particular, the course covers the topic of agile software processes, DevOps, pipeline development, and risk analysis. Moreover, the course covers the analysis and specification of software requirements.

Detailed program

Agile software processes (basic principles, Extreme Programming, Scrum) and DevOps. CI/CD pipelines.

Process management: project cost estimation, risk analysis, capability maturity model (CMMI)

Requirements engineering: introduction, domain understanding and requirements elicitation, requirements evaluation, requirements specification and documentation (natural language, diagrammatic notations, formal specifications), requirements quality assurance, requirements evolution.

Software development according with Clean Code and software automation.

Prerequisites

Basic knowledge of software development processes. Knowledge of a programming language.

Teaching form

Lectures, exercises, self-assessment tests and e-learning material. The course is taught in Italian.

The in-class lectures follow the "modalità erogativa" and "modalità interattiva" modes. The activities performed on the elearning platform also follow both modes.

Textbook and teaching resource

Textbooks (selected chapters)

Requirements Engineering, Axel van Lamsweerde, Wiley, 2009.

Clean Code: A Handbook of Agile Software Craftsmanship, Robert C. Martin, 2025.

Online resources and articles available in the platform.

Self-assessment tests.

Semester

First semester

Assessment method

Two options available:

- assignments + oral discussion: the students who are active during the course can pass the exam by producing assignments that are discussed individually

- written exam + oral assessment: otherwise, the students can pass the course by taking a written exam followed by an oral assessment.

Office hours

On appointment.

Sustainable Development Goals
