UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Software Development Process

2526-1-F1802Q104

Aims

Learn how to manage complex software projects using agile methods and DevOps,

Learn how to analyze project risks,

Learn how to use formal, semi-formal and informal techniques for the analysis and specification of software requirements,

Learn how to design and develop complex software applications.

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.

Design patterns for enterprise applications.

Prerequisites

Basic knowledge of Java, SQL, and Web technologies (e.g., HTML, http, etc.)

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

Textboooks (selected chapters)

Requirements Engineering, Axel van Lamsweerde, Wiley, 2009.

Patterns of Enterprise Application Architecture, Martin Fowler, Addison-Wesley, 2002.

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 (one assignment is also developed and 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