UNIVERSIDADE DA BEIRA INTERIOR
Faculdade de Engenharia | Departamento de Informática

Qualidade de Software - 2025/26

Project

Overview

The project is an integral part of this course. You will work in teams to design, implement, and evaluate one of the following projects. Each team should choose the project they want to work on.

1	Human–AI Collaboration in Software Quality	link
2	Metamorphic Testing for AI-Based Systems	link
3	Verification Boundaries for AI-Based Systems	link
4	Architecture Under AI Uncertainty	link
5	AI-Enabled Quality Gates in CI/CD	link
6	Causal Reasoning About AI Quality Failures	link

Goals

1. To create something useful;
2. To understand and apply the **software engineering development cycle** with a focus on **Continuous Testing and Review processes**.
3. To leverage **AI-based tools**, particularly **LLMs**, to enhance the efficiency and quality of **test automation, code reviews, and debugging activities**.
4. To critically evaluate the role of **AI-powered assistants** in improving **software quality assurance (SQA)** and fostering **collaboration between developers and testers**.
5. To gain valuable experience and enjoy the journey.

Restrictions

There are several **hard** restrictions on the project:

1. The final report must be written in accordance with the Springer template

2. The solution must feature a **well-justified architectural style**;

3. All project activities should be **organized and regularly updated** in a tool (JIRA, Trello, Notion, …);

In addition, consider the following **soft** restrictions when choosing the project topic:

1. Each team should be composed of 2 or 3 students. Any exceptions must be approved in advance by the professor

2. All team members are expected to actively participate in team activities, including attending in-person lectures;

Team Formation

Deadline: 06/03/2026. How to apply: see the link in the Seminar assignment document.

Project Setup

Once your team is formed, you must create a **Jira dashboard** for your project. Suggested boards include: **Product Backlog**, **To Do**, **In Progress**, **Done**, **Artifacts**, and **Team Contract**.

Jira Board Structure:

- Product Backlog: List of all features, enhancements, and requirements to be addressed throughout the project;

- **To Do, In Progress, and Done:** Columns representing the current status of project tasks and activities;

- **Artifacts:** Links to external project-related files, such as **wireframes**, **mockups**, **modeling diagrams**, **GitHub repository**, and other relevant documents;

- Team Contract: A content outlining key team agreements, including: a) expectations for team meetings, b) team and individual responsibilities, c) strategies for managing challenges and resolving conflicts, and d) any additional considerations important for team functioning.

Methodology, Outcomes, and Assessment

In each project theme description, you will find the proposed methodology (which you are free to modify), the expected deliverables, and the evaluation criteria.

Project Presentation

- Final presentation: 08.06.2026, 14h, Room: 6.18/6.20

NOTE#1: *This project will be graded on a* ***0 to 20 scale****;*

NOTE#2: *Under the* ***continuous assessment (ensino-aprendizagem) model****, this project accounts for* ***14 points of the final course grade*** *(i.e.,* ***70%****). The final contribution of the project to the course grade will be calculated using the formula:* ***Final Score = P × 14 / 20***

Under the ***exam-based assessment model****, the practical component related to this project will be* ***individual****, with an* ***assignment defined by the course instructor****.*