



Exchange programme Vrije Universiteit

Vrije Universiteit Amsterdam - Exchange programme Vrije Universiteit - 2022-2023

Exchange

Vrije Universiteit Amsterdam offers many English-taught courses in a variety of subjects, ranging from arts & culture and social sciences, neurosciences and computer science, to economics and business administration.

The International Office is responsible for course approval and course registration for exchange students. For details about course registration, requirements, credits, semesters and so on, please [visit the exchange programmes webpages](#).

Software Engineering Processes

Course Code	XB_0089
Credits	6.00
Period	P6
Course Level	200
Language Of Tuition	English
Faculty	Faculty of Science
Course Coordinator	dr. ing. C. Raibulet
Examiner	dr. ing. C. Raibulet
Teaching Staff	dr. I. Malavolta, dr. ing. C. Raibulet
Teaching method(s)	Lecture, Seminar

Course Objective

The main goal of the course is to provide students with the concept of software engineering process and the main principles behind it. The course introduces the most known software engineering processes (e.g., waterfall, agile).

Students will also learn that, depending on the specific context of the project and the application domain (e.g., web-based product vs embedded system with safety constraints), different software engineering processes can be applied, with different benefits and drawbacks. Specific cases are brought in the course. Cases are taken either from the literature or from industry.

Upon completion of the course, students will be able to:

- understand and explain the principles and terminology of software engineering processes (what they are, why they are useful) and their potential application in different domains (Knowledge and understanding);
- understand and explain the advantages and limitations of different software engineering processes (Knowledge and understanding);
- choose and apply a software engineering process on a case study in an application domain (Knowledge and understanding) (Applying knowledge and understanding);
- critically discuss the advantages and limitations of the application of a software engineering process for a case study in a specific domain. Cases are taken either from the literature or industry. (Making judgements) (Communication skills).

Course Content

Developing real software systems is complex; they have various dimensions (usually they are large), they involve several teams (having different backgrounds) collaborating and synchronizing with each other, they need various resources of different types, and their development often starts when the customer requirements are still unclear.

A software engineering process refers to the activities performed by software engineers to develop, maintain, and operate software. The main steps of a software engineering process are: analysis of requirements, software design, implementation, testing, and maintenance. Several different software engineering processes exist. They vary mainly in the frequency, role, and order of the application of the above-mentioned steps.

This course will cover the main principles of the most common software engineering processes, which are the means to represent, control, and measure the various development activities of software systems.

An overview of the main topics touched upon by the course includes:

- Software lifecycle
- The waterfall development model (as theoretical reference)

- RUP – Rational Unified Process
- Agile (and Scrum)
- Open-source software development
- DevOps
- Continuous Integration (CI) and Continuous Development (CD)
- Collaborative development (e.g., code reviews, version control systems)
- Other software engineering process models, and when they can be successfully applied.

Additional Information Teaching Methods

Lectures and seminars about the principles of the main software development processes. Guest lecture(s) from industry who will bring their case to show how the principles are applied in practice.

Method of Assessment

Assignment (group-based, 80%) and written exam (quiz, 20%).
Resit option: re-submission of the revised assignment and written exam.

Literature

The course material will be handed out by the lecturers and distributed online (Canvas).

Additional Information Target Audience

Bachelor Computer Science (Year 2).

Explanation Canvas

Further information for this course will be made available online (Canvas). All students must be enrolled in the course Canvas community. Group enrolment takes place in Canvas.

Recommended background knowledge

Requirements Engineering, Software Design.