UNIVERSITY OF BORÅS

System testing
Test av IT-system
7.5 credits

Ladok Code: C1TIIB
Version: 2.1
Established by: Committee for Education in Librarianship, Information, and IT 2025-10-30
Valid from: Autumn 2025

Education Cycle: First cycle
Main Field of Study (Progressive Specialisation): Informatics (G1F)
Disciplinary Domain: Natural sciences
Prerequisites: General entry requirements for university studies.
Completed course of at least 7.5 credits in programming, including knowledge of and skills in the C# programming language and system development process.
Subject Area: Informatics/Computer and Systems Sciences
Grading Scale: Seven-degree grading scale (A-F)

Content

This course deals with the testing of IT systems as part of the quality assurance work for IT systems. The content is oriented around how work with testing should be planned, implemented, followed-up on, and documented. For the testing area as a whole, testing, the testing process, testing techniques, and procedures for testing IT systems are addressed. The course aims to develop students' awareness of the importance of the testing of IT systems and the role of testing in the system development process, as well as the complexity of testing and the debugging of IT systems. The course involves the basic testing project of an IT system. It applies elements such as testing planning, the formation of the testing documentation, the design of the testing implementation, testing implementation, testing follow-up, and testing documentation. The course focuses on the following elements:

- Key concepts and theories in testing
- Testing process and phases: planning, implementation, and follow-up
- The role of testing in system development
- Requirements and testing cases
- Standards and guidelines in testing
- Testing levels: e.g. audit, unit testing, functional testing, integration testing, and system testing
- Testing techniques: e.g. black box and white box
- Testing methods
- Testing organisation, teams, and roles
- Documentation and reporting of testing activities
- Testing tools

Learning Outcomes

The overall goal of the course is for the student to acquire knowledge in the area of testing of IT systems, with a focus on the planning, implementation, and follow-up of testing, and an understanding of the role and importance of testing in the context of development and management of IT systems.

After completing the course, the student will be able to:

Knowledge and understanding
1.1 describe basic concepts in testing and testing methodology,
1.2 describe the main elements and phases of the testing process,
1.3 describe different methods for testing IT systems,
1.4 describe the role of testing in the system development process,

1.5 explain the relationship of testing to the functionality and quality of an IT system,
1.6 describe the organisation, roles, and skills needed in relation to testing,
1.7 explain the need for documentation, such as testing plans and reports,
1.8 describe different testing techniques and types,
1.9 explain the purpose, advantages, and disadvantages of using testing tools,

Competence and skills
2.1 select methods and techniques for planning, implementing, and documenting the testing of IT systems,
2.2 produce a testing project plan for implementing testing,
2.3 formulate basic testing cases, based on requirements and/or use cases,
2.4 perform basic testing of an IT system by following a testing plan; and
2.5 document the results of testing activities and carry out follow-up and reporting.

Judgement and approach
3.1 After completing the course, the student is expected to have developed an awareness and a personal approach to the importance of the testing of IT systems and the role of testing in the system development process, and developed an understanding of the complexity of testing and the troubleshooting of IT systems.

Forms of Teaching

The course consists of:
- lectures
- tutoring of project work

The language of instruction is English.

Forms of Examination

The course will be examined through the following examination elements:

Individual written examination
Learning outcomes: 1.1 - 1.9
Credits: 4.5
Gradingscale: Seven-degree grading scale (A-F)

Laboratory session: Testing project (group task)
Learning outcomes: 2.1 - 2.5, 3.1
Credits: 3
Gradingscale: Fail (U) or Pass (G)

For a passing grade (E-A) on the entire course, the grade E at a minimum is required on *Individual written examination* and Pass (G) on *Laboratory session: Testing project (group task).* A higher grade on the entire course is then determined by the grade on *Individual written examination.*

If the student has received a decision/recommendation regarding special pedagogical support from the University of Borås due to disability or special needs, the examiner has the right to make accommodations when it comes to examination. The examiner must, based on the objectives of the course syllabus, determine whether the examination can be adapted in accordance with the decision/recommendation.

Student rights and obligations at examination are in accordance with guidelines and rules for the University of Borås.

Literature and Other Teaching Materials

The course literature is in English.

Leloudas, Panagiotis (2023). Introduction to Software Testing. 1. edition, Berkeley: Apress [available digitally].

Scientific articles and lecture material may be added according to the teacher's instructions.

Student Influence and Evaluation

The course is evaluated in accordance with current guidelines for course evaluations at the University of Borås in which students' views are to be gathered. The course evaluation report is published and returned to participating and prospective students in accordance with the above-mentioned guidelines, and will be taken into consideration in the future development of

courses and education programmes. Course coordinators are responsible for ensuring that the evaluations are conducted as described above.

Miscellaneous

The course is given as a freestanding course.

This syllabus is a translation from the Swedish original.