

Course Outline (as of 31-Jan-2016)

Numerical course code	MTAT.03.159
Title	Software Testing
Faculty/Department	Faculty of Mathematics and Computer Science, Institute of Computer Science, Chair of Software Systems
Amount of credits (1 ECTS = 26 hours)	3 ECTS
Amount of credits (before 31-Aug-2009)	2 CP
CP*1.5 (before 31-Aug-2009)	3
Duration in semesters	1
Final assessment	Differentiated
Course responsible	Dietmar Pfahl
Course instructors	Dietmar Pfahl, Svetlana Omelkova, Yar Muhammad, Faiz Ali Shah
Course language	English
Study levels	Bachelor's studies
Forms of teaching and learning	Lectures (incl. practical work / labs): 32 hours Independent work (incl. e-learning): 46 hours
Study period	Weeks 24-39 First lecture: 11-February-2015 Last lecture: 05-May-2015 Labs (7 groups) start in week 25

Prerequisites

Compulsory:	MTAT.03.094 Software Engineering (6 ECTS, 4 CP)
Recommended:	MTAT.03.130 Object-oriented Programming (6 ECTS, 4 CP)

Curricula containing this course

Computer Science (2476)	bac.	2011/12	2012/13	2013/14	2014/15	2015/16
Information Technology (2477)	bac.	2011/12				
Software Engineering (100864)	mas.	2011/12	2012/13	2013/14		

Objectives

The course addresses the essential concepts of software quality control and testing and introduces various testing strategies and types of testing. It will also give an overview of different software defects, software defect management, and organizational aspects of software testing.

Learning outcomes

On successful completion of this course, students will be able to demonstrate knowledge of:

- The role of testing in the software development process
- Test planning and documentation
- Different types of testing techniques
- Static testing and defect estimation

Course elements

The course will cover:

1. Black-box testing and white-box testing techniques
2. Combinatorial testing
3. Usability testing

4. Certification testing
5. Exploratory testing
6. Reliability growth models
7. Inspections and reviews
8. Static code analysis
9. Test measures
10. Test Maturity Model (TMM)
11. Test organization
12. Test tools

Schedule (tentative – adjustments will be announced on the course wiki)

- Week 24: Introduction to Software Testing
- Week 26: Black-box test techniques
- Week 28: White-box test techniques
- Week 30: Static Testing (Inspection) and Defect Estimation
- Week 32: Lifecycle, Documentation, Organisation, Tools
- Week 34: Metrics and Test Process Improvement (Test Maturity Model)
- Week 36: Industry Guest Lecture & Exam Preparation
- Weeks 38 & 39: Exams

Assessment

- Labs and associated assignments/reports (homework) – work in pairs (60% of course grade)
- Written exam – individual (40% of course grade)