Lecture 13: Industry Guest Lecture II – Exam Preparation

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Spring 2019
Industry Guest Lectures – in May

Guest Lecture 1 (09 May):
• Modern Testing Principles by Risko Ruus, Rush Street Interactive

Guest Lecture 2 (16 May):
• Security Testing of Mobile Applications by Kristiina Rahkema, Nestri Solutions OÜ
Lectures (J. Liivi 2-111)

- Lecture 1 (14.02) – Introduction to Software Testing
- Lecture 2 (21.02) – Basic Black-Box Testing Techniques
- Lecture 3 (28.02) – BBT advanced: Combinatorial Testing
- Lecture 4 (07.03) – Basic White-Box Testing Techniques
- Lecture 5 (14.03) – Test Lifecycle, Test Tools, Test Automation
- Lecture 7 (28.03) – BBT advanced: State-Transition Testing & Exploratory Testing
- Lecture 8 (04.04) – BBT advanced: Security, Usability and A/B Testing
- Lecture 9 (11.04) – WBT advanced: Data-Flow Testing / Mutation Testing
- Lecture 11 (25.04) – Quality Estimation / Test Documentation, Organisation and Process Improvement (Test Maturity Model)
- 02.05 - no lecture (and no labs)
- Lecture 12 (09.05) – Industry Guest Lecture 1 – Risko Ruus
Exam Dates

• Exam 1: Tue 21-May, 8:15-9:55, rooms 403/405 – max. 65 stud.
• Exam 2: Fri 24-May, 14:15-15:55, rooms 404/405 – max. 65 stud.

You must receive
… at least 33 marks (out of 100) from the homework assignments to qualify for the exam and
… at least 10 marks in the exam to not fail the course.
In total, you need at least 50 marks to not fail the course.

• Retake Exam (resit): 13-June, 10:15-11:55 (J. Liivi 2-611)
  – Please note that you must register for the retake exam at the latest 3 days before the exam date
Exam Dates

• Exam 1: Tue 21-May, 8:15-9:55, rooms 403/405 – max. 65 stud.
• Exam 2: Fri 24-May, 14:15-15:55, rooms 404/405 – max. 65 stud.

Exam Dates

You must register for one of the exams (either Ex. 1 or Ex. 2) to be admitted.

The “or” is exclusive → Exam 1 xor Exam 2

• Retake Exam (resit): 13-June, 10:15-11:55 (J. Liivi 2-611)
  – Please note that you must register for the retake exam at the latest 3 days before the exam date

... at least 20 marks from the homework assignments to qualify for the exam

... at least 10 marks in the exam to not fail the course.

In total, you need at least 50 marks to not fail the course.
Exam Dates

• Exam 1: Tue 21-May, 8:15-9:55, rooms 403/405 – max. 65 stud.
• Exam 2: Fri 24-May, 14:15-15:55, rooms 404/405 – max. 65 stud.

... at least 20 marks from the homework assignments to qualify for the exam and
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• Retake Exam (resit): 13-June, 10:15-11:55 (J. Liivi 2-611)
  – Please note that you must register for the retake exam at the latest 3 days before the exam date.

Study Regulation: “If the student is not present at the exam, mark ‘F’ (fail) should be inserted into SIS. If the students was sick, he/she should present medical certificate to Ülle Holm or Heili Kase who will cancel the result.”
Questions?
Final Exam – Format

- Written exam (30% = 30 marks)
  - Based on textbook, lectures and lab sessions
  - Open book
  - 100 min
- 2 Parts:
  - Part 1 – Multiple-Choice (8 marks)
  - Part 2 – Constructive Tasks (22 marks)
    - Answers might require some technical work & calculation

Example exams from 2014 to 2018 are posted on the course wiki under tab ’Assessment and Grades’
Questions ?
Final Exam – Content/Topics Overview

• Introduction to Software Testing
• Basic Black-Box Testing Techniques
• Advanced Black-Box Testing Techniques:
  – Combinatorial Testing
  – State-Transition Testing & Exploratory Testing
  – Security, Usability and A/B Testing
• Basic White-Box Testing Techniques
• Advanced White-Box Testing Techniques:
  – Data-Flow Testing / Mutation Testing
• Test Lifecycle / Test Tools / Test Automation / Test Levels / BDD & Behavior Testing / GUI Testing / Visual Testing
• Quality Estimation / Test Documentation, Organisation and Process Improvement (Test Maturity Model)
Final Exam – Content/Topics Overview

Introduction to Software Testing:
• Know the basic terminology
  – Software Testing & Software Quality
  – Verification & Validation
  – Error – Fault – Failure
    • NB: Two competing definitions of 'Error'
  – Test Case – Test Suite – Test Oracle ...
  – Test Levels
  – Debugging
Final Exam – Content/Topics Overview

Black-Box Testing Techniques:
• Difference between Black-Box and White-Box Testing
  – Strengths & Weaknesses of each
• Know various BBT Techniques:
  – Equivalence Class Partitioning
  – Boundary Value Testing
  – Combinatorial Testing
  – State-Transition-Testing
  – Exploratory Testing
  – Security, Usability, and A/B Testing
Final Exam – Content/Topics Overview

White-Box Testing Techniques:
• Difference between Black-Box and White-Box Testing
  – Strengths & Weaknesses of each
• Control-Flow Testing
  – Know how to construct a Control-Flow-Graph
  – Know different coverage criteria:
    • Statement/Block, Decision/Branch, Condition, Linearly Independent Paths, etc.
• Data-Flow Testing
• Mutation Testing
Final Exam – Content/Topics Overview

Static Testing (Reviews & Inspections):

• Document Reviews (Inspections)
  – Why needed?
  – What variants exist?

• Static Code Analysis
  – What are false positives?

• Symbolic Execution
  – What is the main idea?
  – How does it work (-> example)?
Final Exam – Content/Topics Overview

Test Lifecycle:
- Agile Testing
- Specifics of Testing OO Code
  - Intra-Class Testing (’Stack’ Example)
  - Inter-Class Testing
- System versus Unit Testing
- Regression Testing
- Behaviour Testing
  - Gherkin
Final Exam – Content/Topics Overview

Quality Estimation:

- Types of estimation models
- Capture-Recapture models
  - How does it work (-> examples)?
- Reliability Growth models
  - What is the main idea?
Questions ?
Fall 2019: Course “Hands-on Software Testing” (MTAT.03.294)

Teachers are experts from industry (Estonian companies)
Limit: 25 students (first come first serve)

Coordinator: Oliver Vilson
(oliver.vilson@hannas.ee)
Fall 2019: Course “Hands-on Software Testing” (MTAT.03.294)

Schedule:
• 20.09.2019 Session 1. Introduction to testing. Oracles, heuristics and their limitations.
  – Attendance of this session is compulsory.
• 11.10.2019 Session 3. Test Design.
• 25.10.2019 Session 4. Introduction to Automation.
• 08.11.2019 Session 5. Bug Advocacy and Reporting.
• 06.12.2019 Session 7. Presentations of work done. Conclusive exercise which covers all topics of previous sessions.
  – Attendance of this session is compulsory.
Thank You!