MTAT.03.094
Software Engineering

Lecture 01.1:
Course Organization

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Fall 2016
Course Information/Overview

- Level: Bachelor’s level (in English)
- Credits: 6 ECTS
- Pre-requisite: MTAT.03.130 Object-oriented Programming
- Work load (per individual student): 156 person-hours in total
  - Lectures: 14 x 2 = 28 ph
  - Lab work (incl. independent work): 14 x (2 + 5) = 98 ph
  - Exam preparation: 30 ph
- Assessment:
  - 7 Lab Assignments / Tasks (team work) – 70% of grade
  - 1 Exam (written) – 30% of grade
- Grade scale: A (90%+), B(80%+), C(70%+), D(60%+), E(50%+), F
**Letter Grades**

**A** - An **excellent performance**, clearly outstanding. The student demonstrates excellent judgement and a high degree of independent thinking.

**B** - A **very good performance**. The student demonstrates sound judgement and a very good degree of independent thinking.

**C** - A **good performance** in most areas. The candidate demonstrates a reasonable degree of judgement and independent thinking in the most important areas.

**D** - A satisfactory performance, but with significant shortcomings. The candidate demonstrates a limited degree of judgement and independent thinking.

**E** - A performance that meets the minimum criteria, but no more. The candidate demonstrates a very limited degree of judgement and independent thinking.

**F** - A performance that does not meet the minimum academic criteria. The candidate demonstrates a lack of both judgement and independent thinking.
Course Objectives

• To obtain basic knowledge in software engineering and primary skills for working at any stage of software development projects.

Required pre-requisite:

• **Compulsory:** MTAT.03.130 Object-oriented Programming (6 ECTS)

Related courses:

• Software Project (MTAT.03.138)
• Systems Modelling (MTAT.03.083)
• Information Systems (MTAT.03.139)
• Software Testing (MTAT.03.159)

That implies that we (I and the lab supervisors) take it for granted that you know the principles of object-oriented programming and how to program java code.
Learning Outcomes

• Upon successful completion of this course, you should be able to demonstrate basic knowledge of and skills in:
  • software engineering paradigms;
  • system analysis;
  • requirements analysis;
  • planning;
  • implementation;
  • quality assurance (verification and validation; testing);
  • maintenance (evolution);
  • project management;
  • software processes and methodology.
Schedule of Lectures (Tentative)

Week 01: Introduction to SE
Week 02: Requirements Engineering I
Week 03: Requirements Engineering II
Week 04: Analysis
Week 05: Development Infrastructure I
Week 06: Development Infrastructure II
Week 07: Architecture and Design
Week 08: Refactoring
Week 09: Verification and Validation I
Week 10: Verification and Validation II
Week 11: no lecture
Week 12: Software Quality Management
Week 13: Agile/Lean Methods
Week 14: Software Craftsmanship
Week 15: Measurement / Course wrap-up, review and exam preparation
Week 16: no lecture
Recommended Literature (Readings)


  • Chapters 1-6 (selective)

(more literature is listed on the course wiki)
Software Engineering 2016/17 fall

Software Engineering

- Lectures: Fridays 10:15-12:00, Liivi 2-111
- Coordinator and Lecturer: Dietmar Pfahl (dietmar.pfahl at ut dot ee)
- Lab Sessions & Supervisors: (Status: 26 Aug 2016)
  - Mondays 12:15-14:00, Liivi 2-205 (Lab Group 6: Kristiina Rahkema) - lab6-students (full / 7 teams)
  - Mondays 12:15-14:00, Liivi 2-402 (Lab Group 7: Svetlana Omelkova) - lab7-students (13 students / 4 or 5 teams)
  - Tuesdays 14:15-16:00, Liivi 2-203 (Lab Group 1: Kristiina Rahkema) - lab1-students (full / 7 teams)
  - Tuesdays 14:15-16:00, Liivi 2-205 (Lab Group 2: Svetlana Omelkova) - lab2-students (19 students / 6-7 teams)
  - Tuesdays 14:15-16:00, Liivi 2-403 (Lab Group 5: Margus Luik) - lab5-students (7 students / 2-3 teams)
  - Wednesdays 14:15-16:00, Liivi 2-224 (Lab Group 3: Kristiina Rahkema) - lab3-students (19 students / 6-7 teams)
  - Wednesdays 14:15-16:00, Liivi 2-004 (Lab Group 4: Margus Luik) - lab4-students (12 students / 4 teams)

- Course Outline: PDF (status: 10-Jul-2016)
- Exam Dates:
  - Exam 1: Friday, 06-Jan-2016 at 14:15-16:45, room J. Liivi 2-???
  - Exam 2: Friday, 13-Jan-2016 at 14:15-16:45, room J. Liivi 2-???
  - Re-take Exam: Friday, 20-Jan-2016 at 14:15-16:45, room J. Liivi 2-???

News

For latest news, please check the Message Board.

- Week 2 – The first week of lab sessions (beginning on Sep 5). Please make sure you know your lab group and go to the correct room. You must attend the first labs as it is there where you form/confirm your project teams and report team names and members to your lab assistants. It is highly recommended that you consult the list of enrolled students of your lab (posted above under 'Lab sessions') even before the first lab and try to contact students you know in order to form a project team. **Project teams shall have *three* members.** All team members must be enrolled in the same lab (group). 4-person groups may only be formed in case the total number of students in a lab group is not a multiple of 3.

Note: You are supposed to work with your own laptop. All students enrolled in the institute of computer science have the right to borrow an "IT Academy laptop" for free. The online form for requesting an IT Academy laptop is here:
Project Topic: POS System
(POS: Point-of-Sale)
Project Tasks (Labs)

- Week 01: no labs
- Weeks 02-03: Task 1: Requirements gathering
- Weeks 04-05: Task 2: Formalizing, modeling, planning
- Weeks 06-07: Task 3: Development infrastructure
- Weeks 08-09: Task 4: Realization - I
- Weeks 10-11: Task 5: Realization - II
- Weeks 12-13: Task 6: Automatic testing and refactoring
- Weeks 14-15: Task 7: Verification and validation

Details can be found on the course wiki
Difficulty (Labs)

High

Low

Lab Assignment

1 2 3 4 5 6 7
Project Set-Up

Within each lab group (1 to 7), students are divided into project teams of three.

Each project team has a permanent lab instructor and a fixed weekly lab time.

Each project team gets 7 tasks, each task equaling a maximum of 10 grading points.

Submission of task solutions has strict deadlines.

Penalties for late delivery are as follows:

- up to 24 h late: -10%
- up to 7x24h late: -50%
- > 7x24h late: -100%
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* = submit before midnight of the day before Lab
Project Rules (1)

• Teams must deliver their solutions to their lab assistant using course development environment via repository on Bitbucket.
  • You will get a brief intro on how to use Bitbucket in the first lab session.
• Intermediate solutions must be presented/explained to the lab assistant by a randomly selected team member during assessment sessions.
  • It is important for the solution presenter to know every aspect of the solution and be able to explain them. If he/she needs help from other team members, they may jump in and help.
  • Not being able to explain solution aspects or answer technical questions will lead to penalties.
• During the assessment session teams have to be present with ALL their team members.
  • If team members are missing without acceptable excuse (e.g., illness confirmed by a doctor's note), penalties apply.
  • Rule: You must be at least in 4 assessment labs to not receive a penalty on the total amount of lab scores of your team.
Project Rules (2)

• Each team must complete all tasks independently.
  • This does not mean that you are not allowed to talk to other teams and discuss solutions.
  • Communication is a good thing and we welcome it.
  • However, copying the work of others, i.e., copying of code, is considered plagiarism and strongly prohibited (we have special software for automatic checks).
  • According to University rules, if we find evidence of plagiarism, we must inform the head of Institute and formal steps will be taken.

• If something in a homework task assignment is not clear to you, then you should ask for clarifications from your lab assistant.
  • If you detect that a task is unclear only during the night before the assessment your lab supervisor is most probably not available for answering questions. Also lab supervisors have the right of a private life!
Lab Instructors

• **Kristiina Rahkema** (Kristiina.Rahkema@ut.ee):
  • Mondays 12:15-14:00, Liivi 2-205 (Lab Group 6)
  • Tuesdays 14:15-16:00, Liivi 2-203 (Lab Group 1)
  • Wednesdays 14:15-16:00, Liivi 2-224 (Lab Group 3)

• **Svetlana Omelkova** (Svetlana.Omelkova@ut.ee):
  • Mondays 12:15-14:00, Liivi 2-402 (Lab Group 7)
  • Tuesdays 14:15-16:00, Liivi 2-205 (Lab Group 2)

• **Margus Luik** (mar6luik@gmail.com):
  • Tuesdays 14:15-16:00, Liivi 2-403 (Lab Group 5)
  • Wednesdays 14:15-16:00, Liivi 2-004 (Lab Group 4)
Assessment (1)

• Labs – 70% of total grade
• Exam – 30% of total grade

• Rules:
  • All members in a team receive equal grades in labs
    • **BUT**: Exceptions from equal grade rule will be made, if individuals in a team don’t participate actively
  • Team penalties apply for late delivery and if the whole team doesn’t show up in an assessment lab.
  • Individual penalties apply for not attending assessment labs
  • Don’t plagiarize!

• Proposed Exam Dates:
  • Exam 1: Friday, 06-Jan-2017 at 14:15-16:45 (max. 75 students)
  • Exam 2: Friday, 13-Jan-2017 at 14:15-16:45 (max. 75 students)
  • Re-take Exam: Friday, 20-Jan-2017 at 14:15-16:45
Assessment (2)

Labs – Practical Assessment

10 points per lab session. Total = 70 points.

If you get less than 30 out of 70 points in the practical assessment, you will get a grade of 'F' in your first examination (i.e., exam 1 || 2).

In this case, you will be given a second chance to improve your practical assessment score.

If your score after the improvement is at least 30 out of 70, you will become eligible for a retake exam (korduseksam).

Exam – Conceptual Assessment

The Conceptual Assessment will consist of an exam worth 30 points.

Students who get less than 10 out of 30 in this exam, will get a grade of 'F', regardless of their Practical Assessment score.

This same rule will apply for the retake exam (korduseksam).
GO TO LABS !!!!!
FORM PROJECT
TEAMS!

Student lists:
https://courses.cs.ut.ee/2015/SE/fall/Main/HomePage
Communication Rules

➢ Message Board: Slack !!!

➢ Lab → Lab Instructors (Kristiina, Svetlana, Margus)
  ➢ If you encounter problems within a team (e.g., lack of communication or active participation of a team member) try to solve the problems first internally.
  ➢ If that doesn't work (i.e. the team member repeatedly does not cooperate despite your attempts), notify your lab assistant and ask him for help to get the team back on track.

➢ Lecture/Exam → Dietmar
ASK QUESTIONS

(I will try my best to give satisfactory answers)