

# LTAT.05.003

# Software Engineering

## Lecture 01.1: Course Organization

Fall 2020



UNIVERSITY OF TARTU

INSTITUTE OF COMPUTER SCIENCE

Dietmar Pfahl

email: [dietmar.pfahl@ut.ee](mailto:dietmar.pfahl@ut.ee)

# 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:  $14 \times 2 = 28$  ph
  - Lab work (incl. independent work):  $14 \times (2 + 5) = 98$  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.

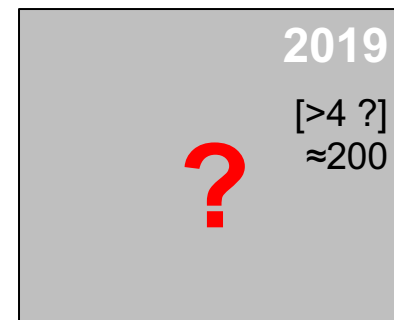
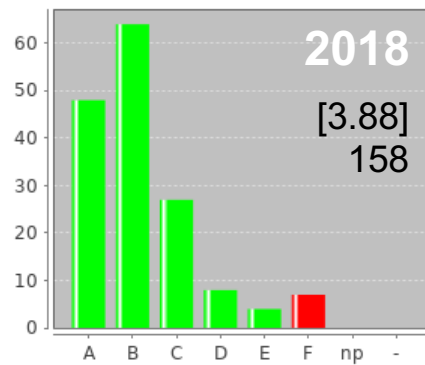
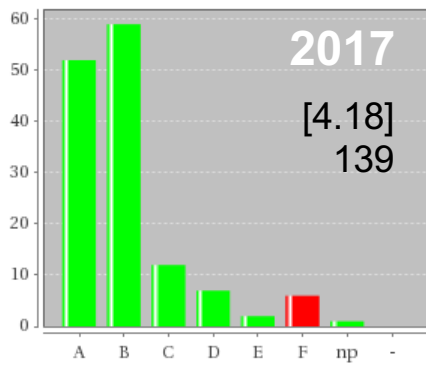
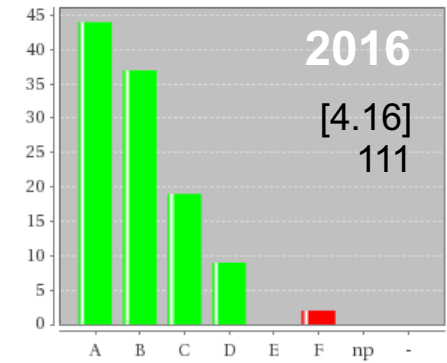
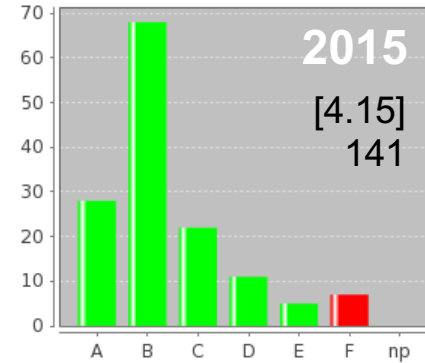
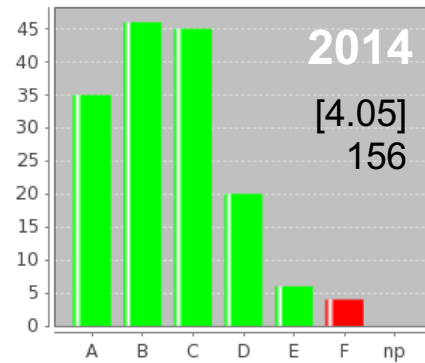
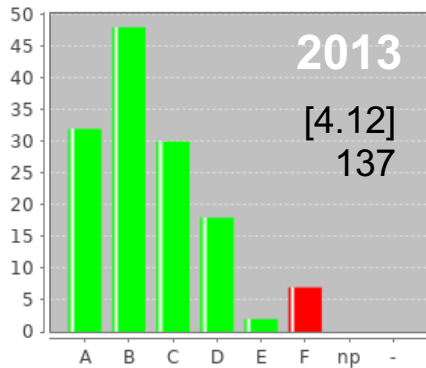
**C** - A good performance in most areas. The candidate demonstrates a reasonable degree of judgement and independent thinking in the most important areas.

**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.

# Student Feedback (until 2018)

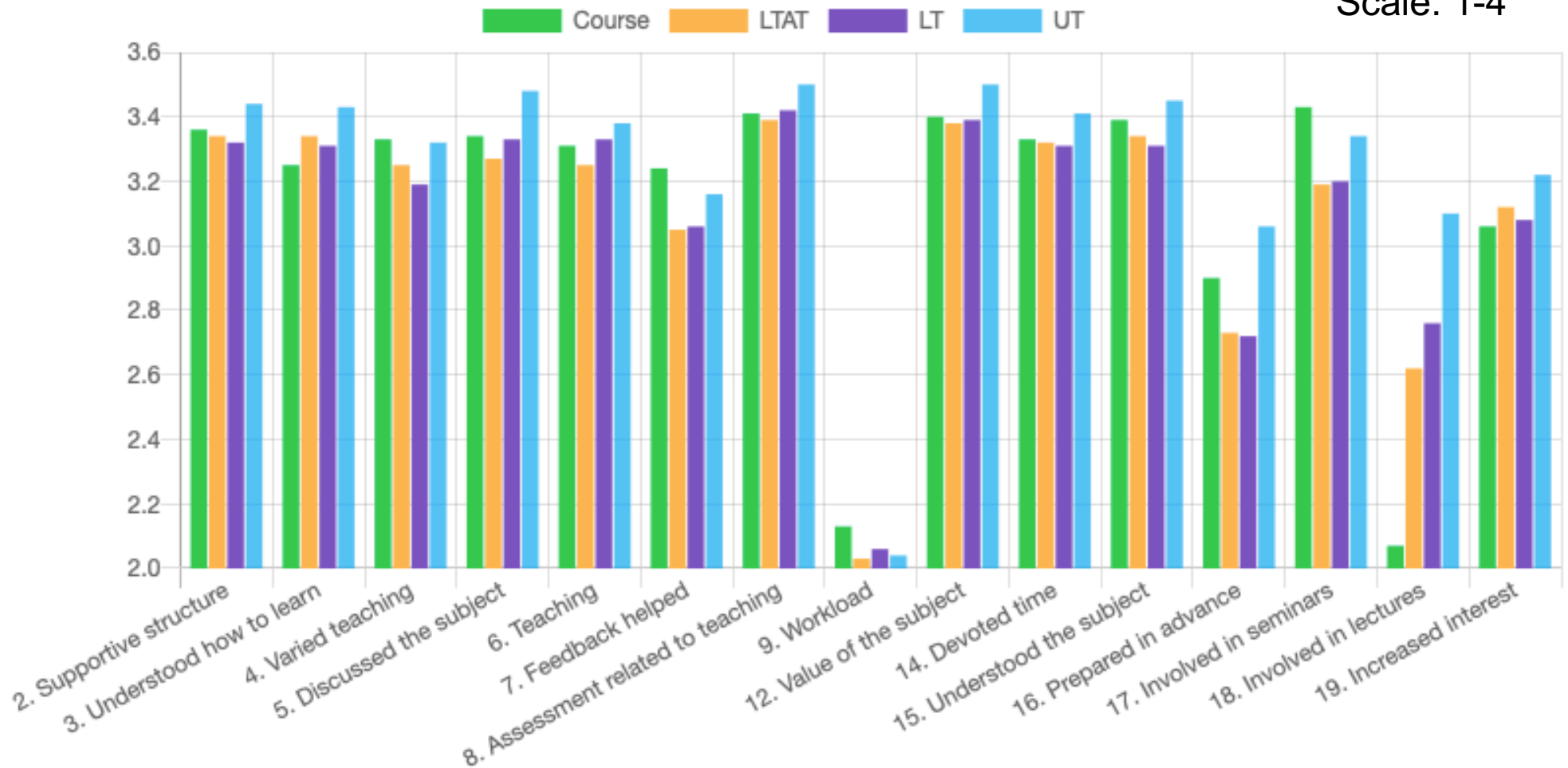


Scale: 1-5

# Student Feedback (2019)

143 Students  
Responded

Scale: 1-4



# 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: Object-oriented Programming (6 ECTS)

Related courses:

- Software Project (next year)
- Software Testing (next term)
- Web Application Development (in parallel)
- ...

*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.*

# Schedule of Lectures

Week 01: Introduction to SE

Week 02: Requirements Engineering I

Week 03: Requirements Engineering II

Week 04: Analysis

Week 05: *Development Infrastructure*

Week 06: *Continuous Development  
and Integration*

Week 07: Project Estimation /  
Architecture and Design I

Week 08: Architecture and Design II

Week 09: Verification and Validation I

Week 10: Verification and Validation II

Week 11: Refactoring (and TDD)

Week 12: Agile/Lean Methods

Week 13: *Industry Guest Lecture*

Week 14: Course wrap-up, review and  
exam preparation

Week 15: Reserve time slot (no lecture  
scheduled as of today)

# Course Wiki: <https://courses.cs.ut.ee/2020/SE2020/fall/Main/HomePage>



## Software Engineering 2020/21 fall

Manage this course ▼

Edit page ▼



Main

Message Board (Slack)

Lectures

Labs

Exams

Grading

Reading

Edit sidebar

## Software Engineering

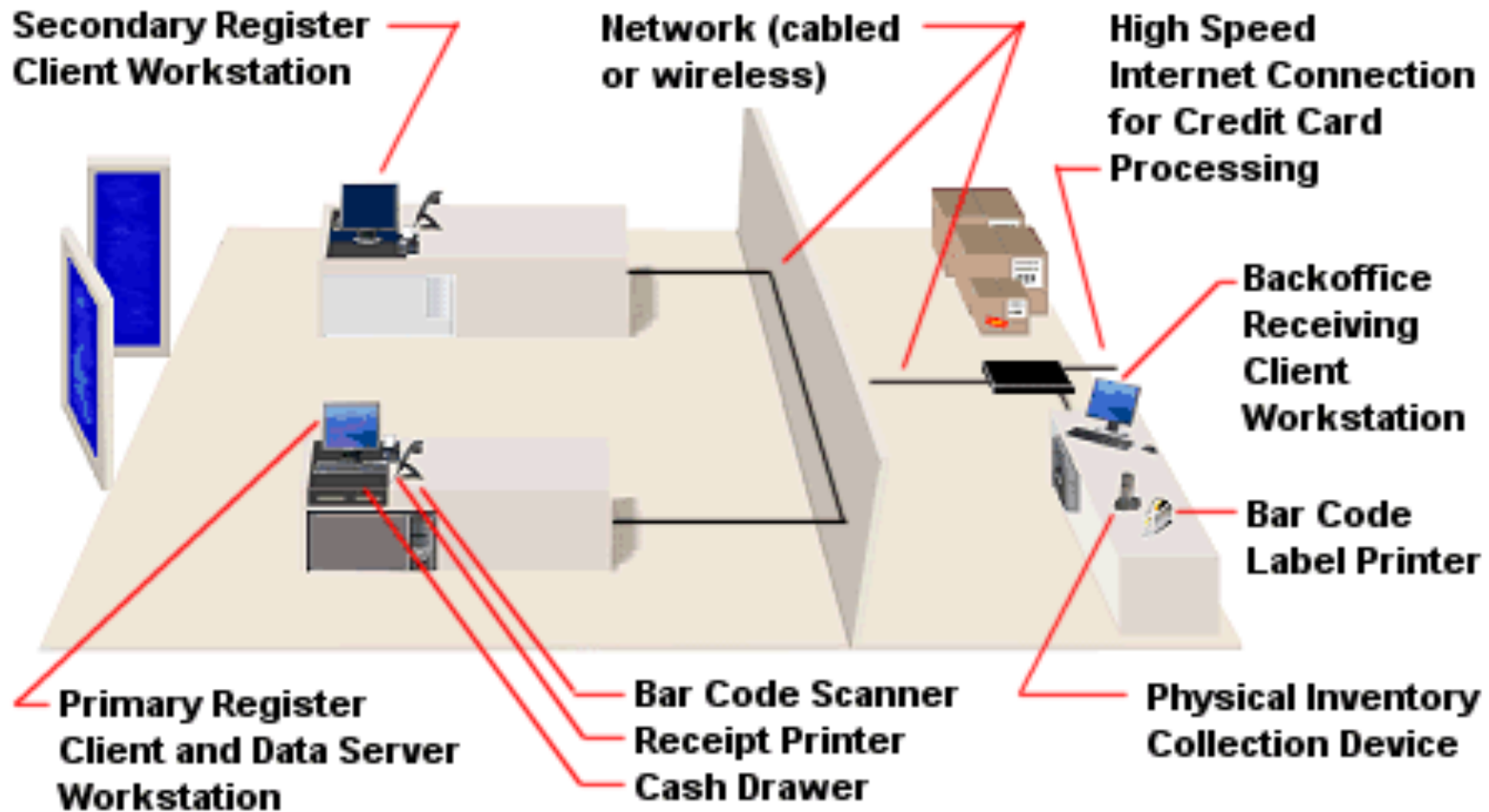
- Lectures: Fridays 10:15-12:00 – Lectures will be done online due to COVID19-pandemic regulations in the Delta building (we don't have a lecture hall that could hold twice as many students as have enrolled in the course).
- Coordinator and Lecturer: Dietmar Pfahl (dietmar.pfahl at ut dot ee)
- Lab Sessions & Supervisors: – Currently, we plan to have the lab sessions (at least partly) on-site. If this changes, you will be informed immediately. All students must register using this form each time they attend a class on-site (link to form: [cs.ut.ee/reg](https://cs.ut.ee/reg)).
  - Mondays 10:15-12:00, room 2010 (Lab Group 5: Ezequiel Scott)
  - Mondays 12:15-14:00, room 2010 (Lab Group 1: Ezequiel Scott)
  - Mondays 12:15-14:00, room 2034 (Lab Group 9: Karl Taal)
  - Tuesdays 10:15-12:00, room 2034 (Lab Group 2: Toomas Aleksander Veromann)
  - Tuesdays 10:15-12:00, room 2010 (Lab Group 7: Yar Muhammad)
  - Tuesdays 12:15-14:00, room 1022 (Lab Group 3: Toomas Aleksander Veromann)
  - Tuesdays 12:15-14:00, room 1008 (Lab Group 4: Aveli Klaos)
  - Thursdays 10:15-12:00, room 1008 (Lab Group 8: Karoliine Holter)
  - Thursdays 10:15-12:00, room1022 (Lab Group 10: Siim Tanel Laisaar)





# Project Topic: POS System

(POS: Point-of-Sale)



# Project Topic: POS System

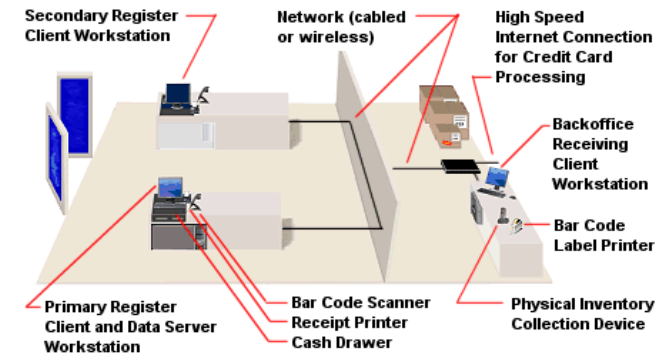
(POS: Point-of-Sale)

## Intro

- Congratulations, you are employed as an analyst by "Joostes Marss AS" company. During the first day at work you are informed that "Joostes Marss" got a new client who needs a new **POS system**. Your new boss is patting your shoulder and says that you are responsible for the project and become the lead analyst of the project.

## Customer

- Your customer is a BSC, a big supermarket chain. This company is mostly dealing with the management of supermarkets. Currently, the company has 22 stores in Estonia, Latvia, Lithuania and Poland. Your customer has ambitions to expand to 100 stores, and enter the markets of Finland, Sweden and Norway. Today, your customer is using a different POS software in their stores, which makes it expensive to maintain business processes across the company. The administration decided to replace their current POS software by a new software solution developed specifically for their needs.



# Project = Team Work



# Project Tasks (Labs)



- Week 01: no labs
- Weeks 02-03: Task 1: Requirements Gathering
- Weeks 04-05: Task 2: Requirements Specification, Modeling, Planning
- Weeks 06-07: Task 3: Development Environment
- Weeks 08-09: Task 4: Development - Phase I
- Weeks 10-11: Task 5: Development - Phase II
- Weeks 12-13: Task 6: Automatic Unit Tests, Refactoring & Functional Test Planning
- Weeks 14-15: Task 7: Functional and Non-Functional Testing

Details can be found on the course wiki:

<https://courses.cs.ut.ee/2020/SE2020/fall/Main/Labs>

# Project Tasks (Labs)

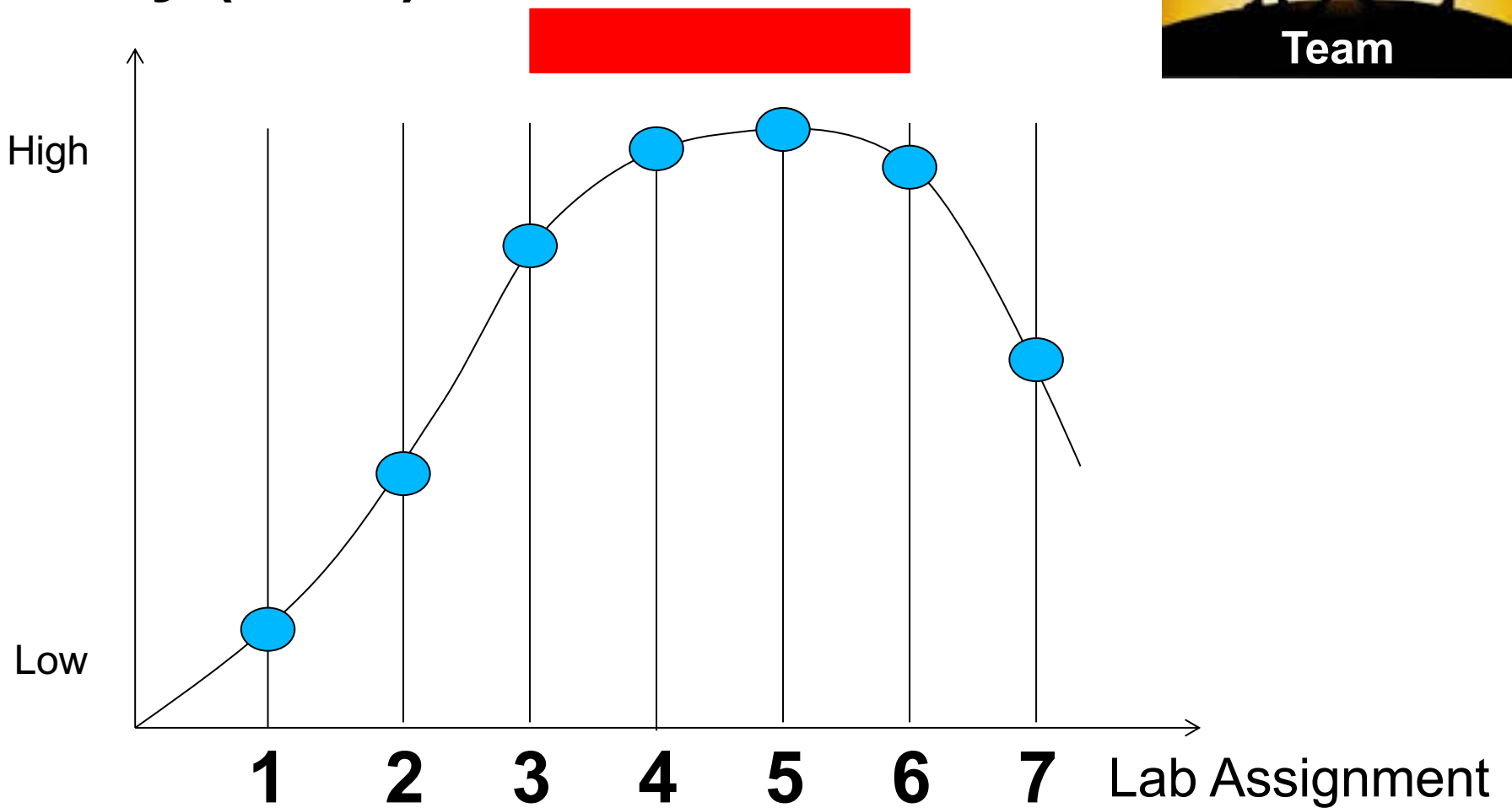


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# Difficulty (Labs)



# Project Set-Up

Within each lab group, 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%

Week	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Task 7	
2	Assigned							
3	<b>Assess</b>							
4	<i>Submit*</i>	Assigned						
5	Feedback	<b>Assess</b>						
6		<i>Submit*</i>	Assigned					
7		Feedback	<b>Assess</b>					
8			<i>Submit*</i>	Assigned				
9			Feedback	<b>Assess</b>				
10				<i>Submit*</i>	Assigned			
11				Feedback	<b>Assess</b>			
12					<i>Submit*</i>	Assigned		
13					Feedback	<b>Assess</b>		
14						<i>Submit*</i>	Assigned	
15						Feedback	<b>Assess</b>	
16	* = submit before midnight of the day before Lab							<i>Submit*</i> / Feedback

# Project Schedule



# Project Rules (1)

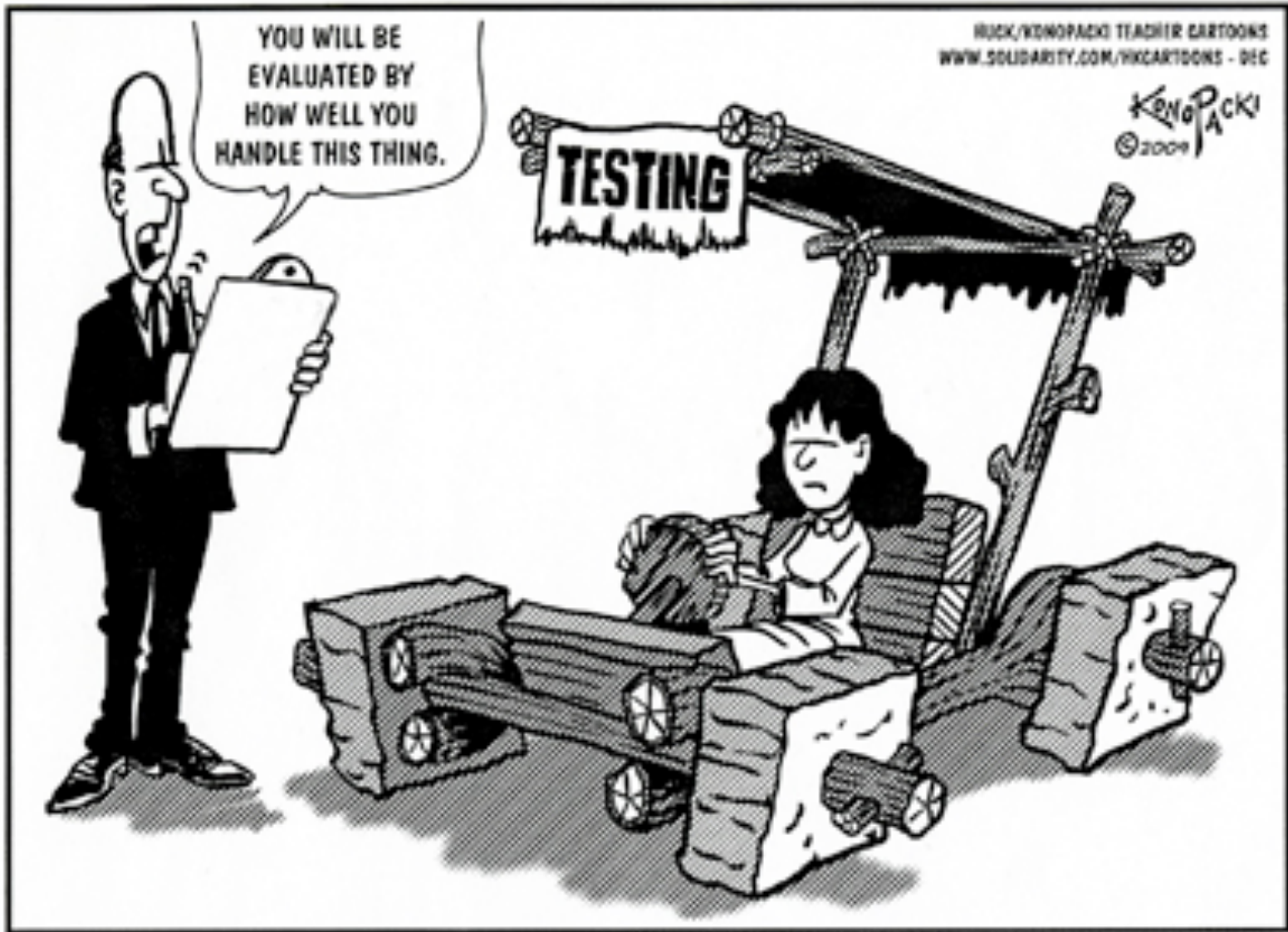


- Teams must deliver their solutions to their lab assistant using course development environment via repository on Bitbucket.
- Intermediate solutions must be presented/explained to the lab assistant by a randomly selected team member during assessment sessions.
  - It is important for the solution presenter 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.
- During the assessment session teams have to **be present with ALL their team members.**
  - Rule 1: If no team member shows up, the team will get 0 marks for the homework assignment – no matter what is submitted in the end.
  - Rule 2: If team members appear but not sufficient work has been done, up to 30% penalty applies.
  - Rule 3: You must be at least in 5 assessment labs to not receive an individual penalty on the total amount of lab scores of your team.

# Project Rules (2)

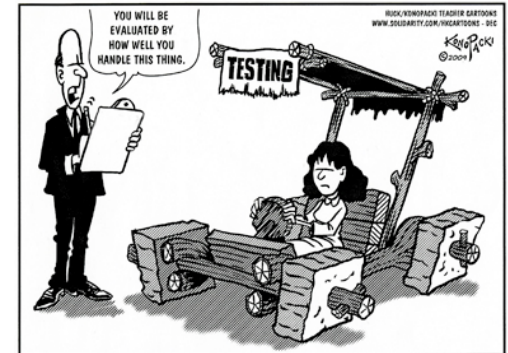


- Each team must complete all tasks independently.
  - This does not mean that you are not allowed to talk to other teams and discuss solutions.
  - Communication is a good thing and we welcome it.
  - However, copying the work of others, i.e., copying of code, is considered plagiarism and strongly prohibited (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!



# 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. → see course wiki for details
  - Individual penalties apply for not attending assessment labs
  - Don't plagiarize!
- Proposed Exam Dates:
  - Exam 1: Friday, 08-Jan-2020 at 10:15-12:45 (limit: 130 students)
  - Exam 2: Tuesday, 12-Jan-2020 at 14:15-16:45 (limit: 130 students)
  - Re-take Exam: Tuesday, 26-Jan-2020 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!

# Sign up to SLACK

**(use the link distributed via email)**



# Online vs. In-Class Teaching: Lectures

- Lectures: will be done online due to COVID19 regulations applied in Delta
  - First lecture: Will be done online using Zoom -> Go to the Course Moodle page and click the Zoom link to the lecture
    - The first lecture will be recorded and a link posted in the course wiki
  - There are also pre-recorded Panopto videos of the first and following lectures (partly taken from last year)
  - Last lecture (in Dec. -> Exam preparation): Will be done online using Zoom (like the first lecture)
  - Lecture time slots after first & before last lecture will be online office hours
    - for questions about the lecture, the exams, and general course-related questions
    - Direct questions about the lab assignments to your respective lab supervisor
  - More info: <https://courses.cs.ut.ee/2020/SE2020/fall>

# Online vs. In-Class Teaching: Practice Sessions (Labs)

- Practice Sessions (Labs):
  - in weeks 2, 4, 6, 8, 10, 12, and 14: on-site
    - that is, physically in the classroom
    - Exception: Practice Group 7 (TA: Yar Muhammad) will be fully online
  - in weeks 3, 5, 7, 9, 11, 13, and 15 online (Zoom link in Moodle)
    - The labs in odd weeks are the so-called “assessment labs”
    - It is mandatory for all team members to be present (online with video)
  - More info: <https://courses.cs.ut.ee/2020/SE2020/fall>

# Communication Rules

- Message Board: Slack !!!
- Lab → Lab Instructors (Ezequiel, Yar, Toomas, Karoliine, Aveli, Karl, Siim)
  - 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)**