TDDE41 Software Architectures
Course structure and outline

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Teaching Team

Course leader :

Lena Buffoni

- 5th edition of the course

- taking over from TDDD05

- updated labs to mini project in 2020

- updated seminars in 2022 and this year

- new mini project topic every year

Course assistants:
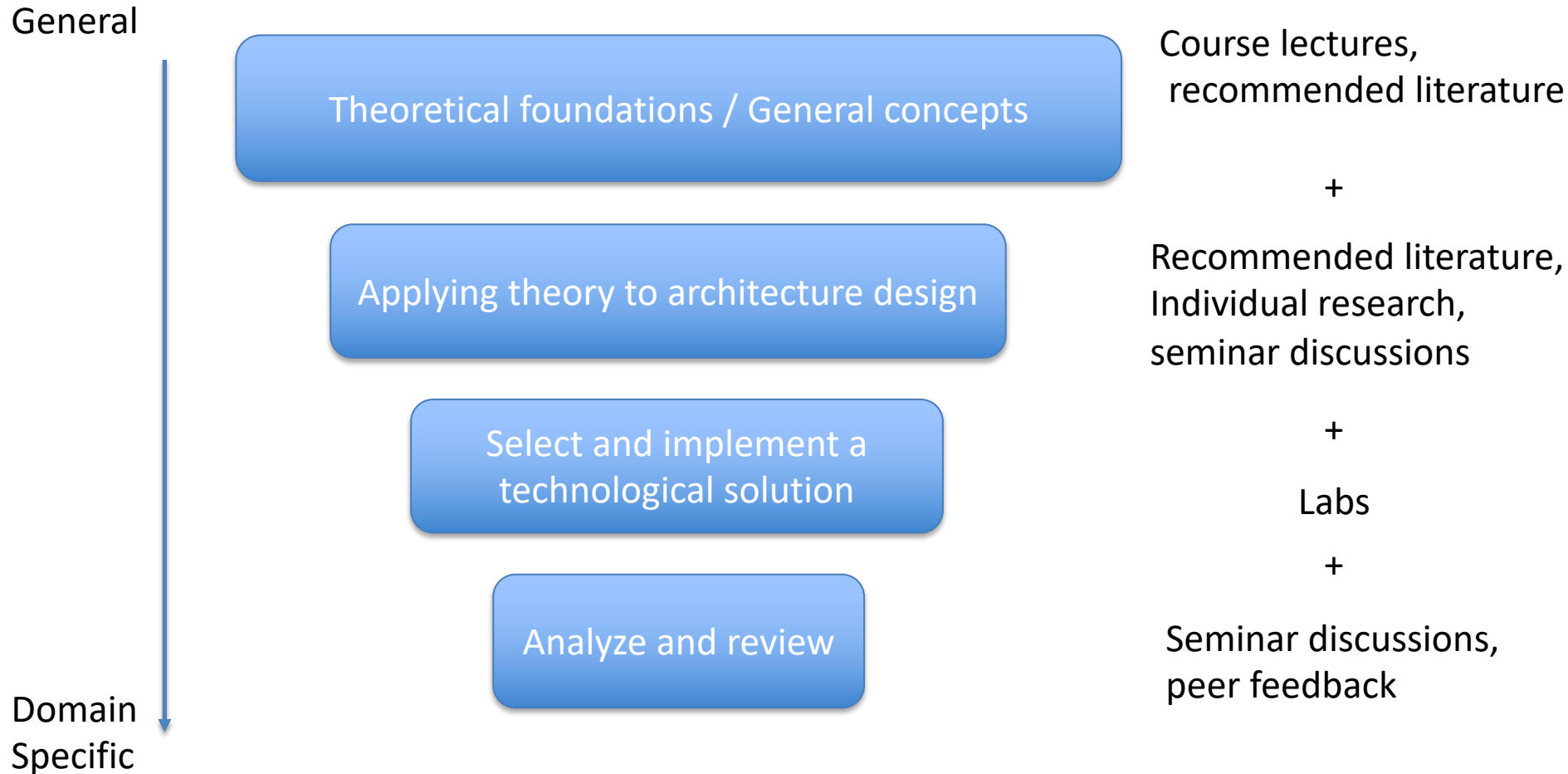
Abdelazim Hussien <abdelazim.hussien@liu.se>

Yiran Wang <yiran.wang@liu.se>

Course objectives

- Understand the role of architecture and architect
- Understand the impact of different design alternatives on the software product
- Learn about different architectural and design paradigms
- Reflect on the different attributes and quality of the architecture
- Learn to apply the skills and communicate and plan an architecture design by implementing a project

From theory to practice

General

Theoretical foundations / General concepts

Course lectures, recommended literature

+

Applying theory to architecture design

Recommended literature, Individual research, seminar discussions

+

Select and implement a technological solution

+

Labs

+

Analyze and review

Seminar discussions, peer feedback

Domain Specific

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The project this year
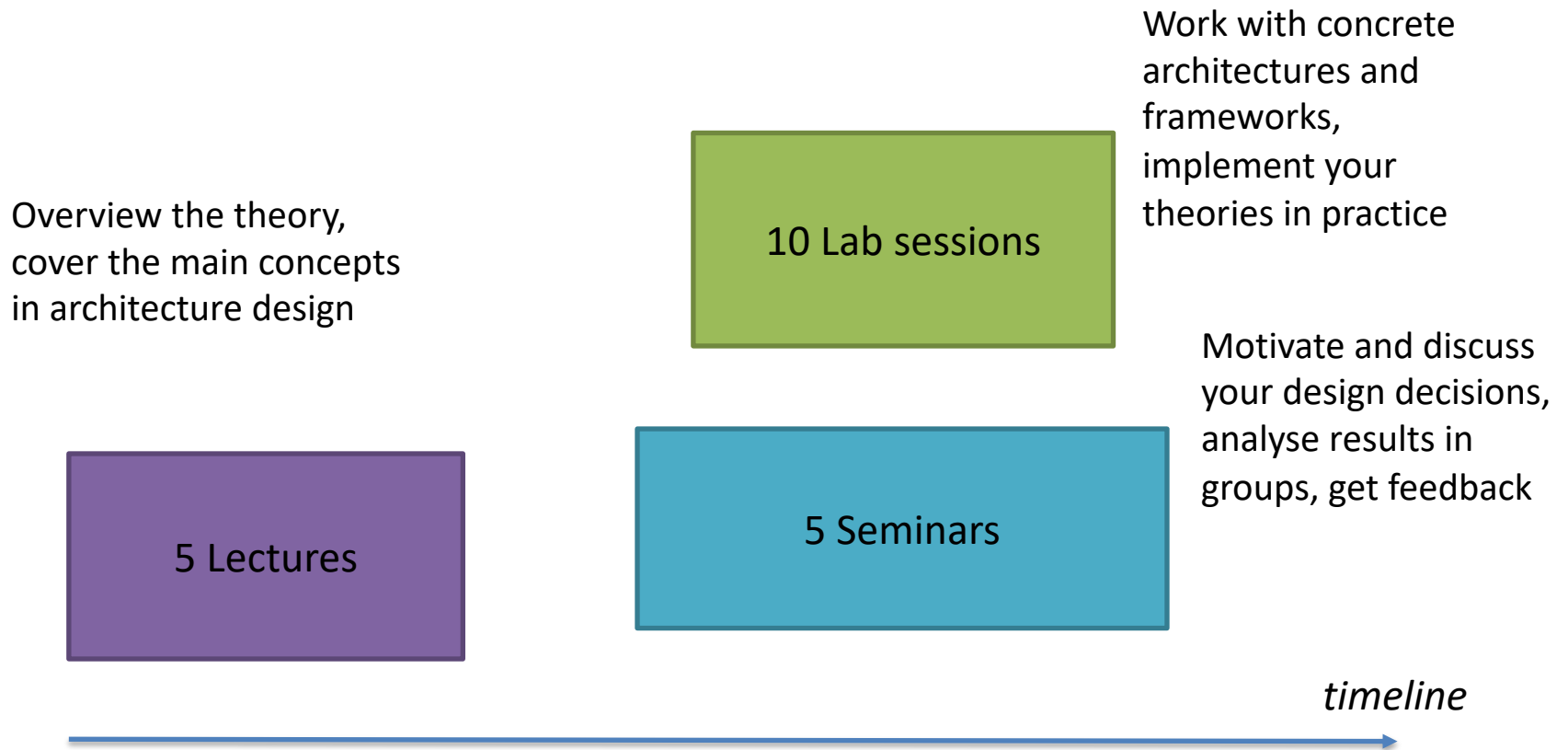
- An application for emotion identfication on images

- 3 modules – groups of 2 people/module

- Each module has specific architectural requirements

- Develop a solution using appropriate tooling/framework

- Compromise/negociate with other module developers

- Compose modules together

Run the demo!

Showcase your solution

Attendance at seminars is **mandatory**!

Course structure

Overview the theory, cover the main concepts in architecture design

10 Lab sessions

Work with concrete architectures and frameworks, implement your theories in practice

5 Lectures

5 Seminars

Motivate and discuss your design decisions, analyse results in groups, get feedback

timeline

Teaching sessions

- General definitions and role of architect
- Design and visualization of architectures
- Architectural styles
- Designing for non functional properties
- Standards in architecture
- Guest lecture on Security

The teaching sessions are there to provide you with the basic concepts, you will need to complete them with further reading!

Lectures concentrate on general paradigms rather than particular technology applications.

Seminar organization

- Work in pairs (same pairs as for labs)

- Collaborate between pairs – in project groups, or in groups working on the same module

- For seminars 1-4 we will split into discussion groups

- Attendance is mandatory!

- A missed seminar = compensation assignment, maximum 1 seminar

- Deadlines for seminar assignments are **hard deadlines**

5 seminars

Seminar 1: A game based seminar to learn about the impact of design decisions and negotiating trade-offs

Seminar 2: Technical discussion – present your technical solution and position it in the global context

Seminar 3: Designing sustainable architectures – group discussion on what sustainability means in the architectural context and how it can be achieved

Seminar 4: Discussion in groups, review and discuss the first version of the final poster

Seminar 5: Mini symposium - presentation of posters

Lab organization

- Webgreg groups will open today for labs and seminars, you need to sign up to **both**

- The group # in webreg will correspond to your module #

- **Same pairs** for lab assignments and seminars

- Same group # for UPG2 and Lisam sign-up sheet
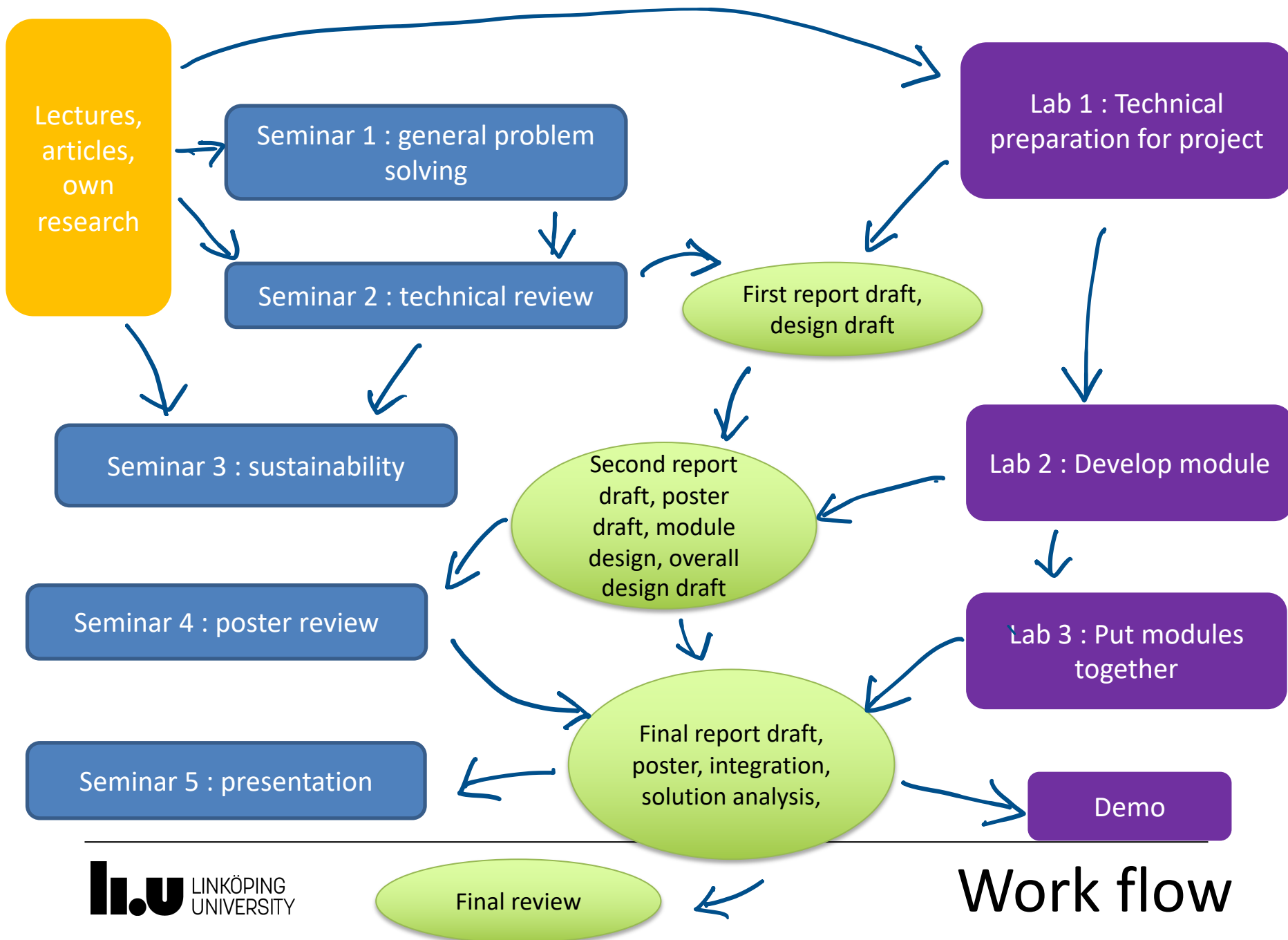
How to achieve the best results?

- Read the recommended literature

- Read the instructions carefully

- Come prepared to the seminars

- Do the labs and assignments on time

- Participate in discussions

- Don't hesitate to ask for help
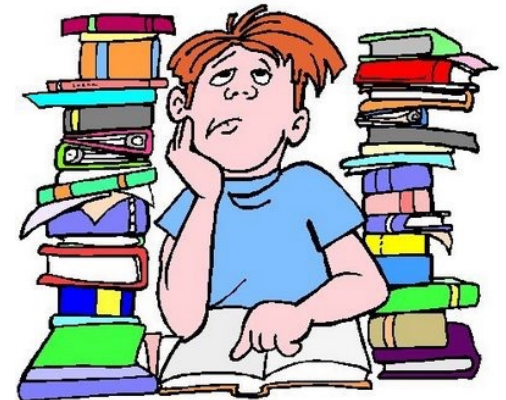
Evaluation criteria for posters and reports

Graded from 1 to 3:

Report

- Language and form
- Context
- Architectural soundness
- Architecture analysis
- Integration Deployment

Poster

- Language and form
- Contents

Level	Grade
min 1 point in each category	Grade 3
min 11 points (at least 1 point in each category)	Grade 4
min 18 points (at least 1 point in each category)	Grade 5

- ✓ The report is written in pairs and the poster is written as a group
- ✓ BUT the **grade is individual** – questions during seminars and presentation will ensure even contribution!
- ✓ All assignments will be checked for plagiarism
- ✓ Detailed grading grid: https://www.ida.liu.se/~TDDE41/exam/grading.en.shtml

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Evaluation criteria for labs: pass/fail

- For each of the 3 labs, you should have a short discussion to present your solution to your lab assistant and answer any questions.

- During the lab discussions you will be expected to present the code, explain your solution, plus the extra questions that the lab assistant might have.

- Draft and final versions of the project report will be submitted by each group to their lab assistant and to the seminar groups via Lisam

- The final demo requires an integration of all the modules, if you do not succeed with the integration, you will be required to add an explanatory section to your report

Registration & Submission procedures:

Register for the following units:

- *PRA1 and UPG1 – links on Lisam and course page will open today*

- The deadlines for each submission con be found on the course web page

- Seminar assignments will be submitted via Lisam in 2 places, detailed instructions are provided for each seminar.

  – In the collaboration folders for seminar discussions

  – In the Lisam assignement section for grading and feedback

Resources

- Updated lecture slides will be uploaded after each lecture

- The reference: *Richard N. Taylor, Nenad Medvidovic, Eric M. Dashofy. Software Architecture - Foundations, Theory & Practice, John Wiley & Sons, 2010*

- Lists of suggested literature is available on the course site

- Independent research (library, electronic paper data-bases)

Questions ?