

TDDE41 Software Architectures

Course structure and outline

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Teaching Team

Course leader :

Lena Buffoni – First edition of the course
taking over from TDDD05

Course assistant:

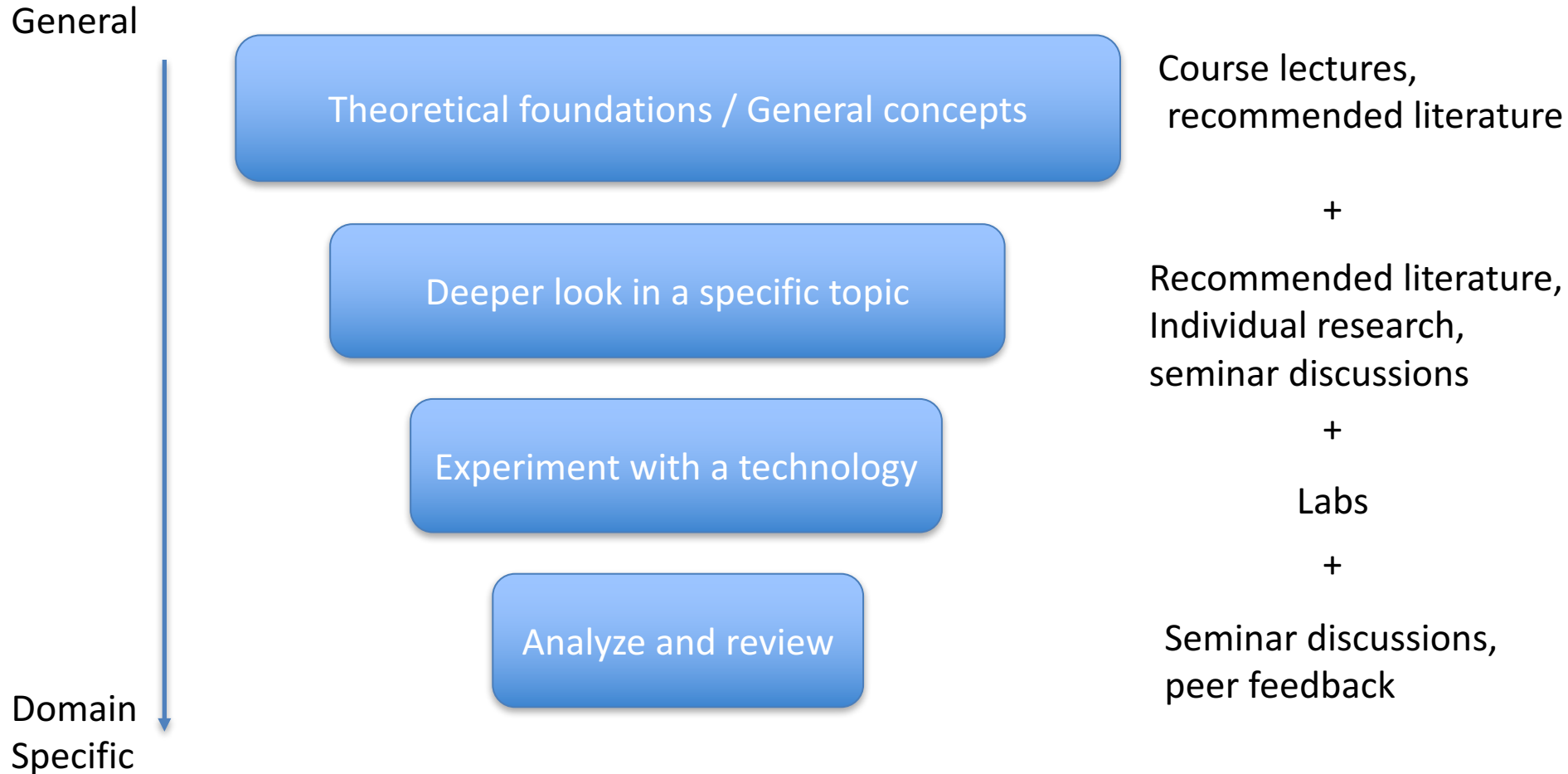
Henrik Henriksson

Felipe Boiera

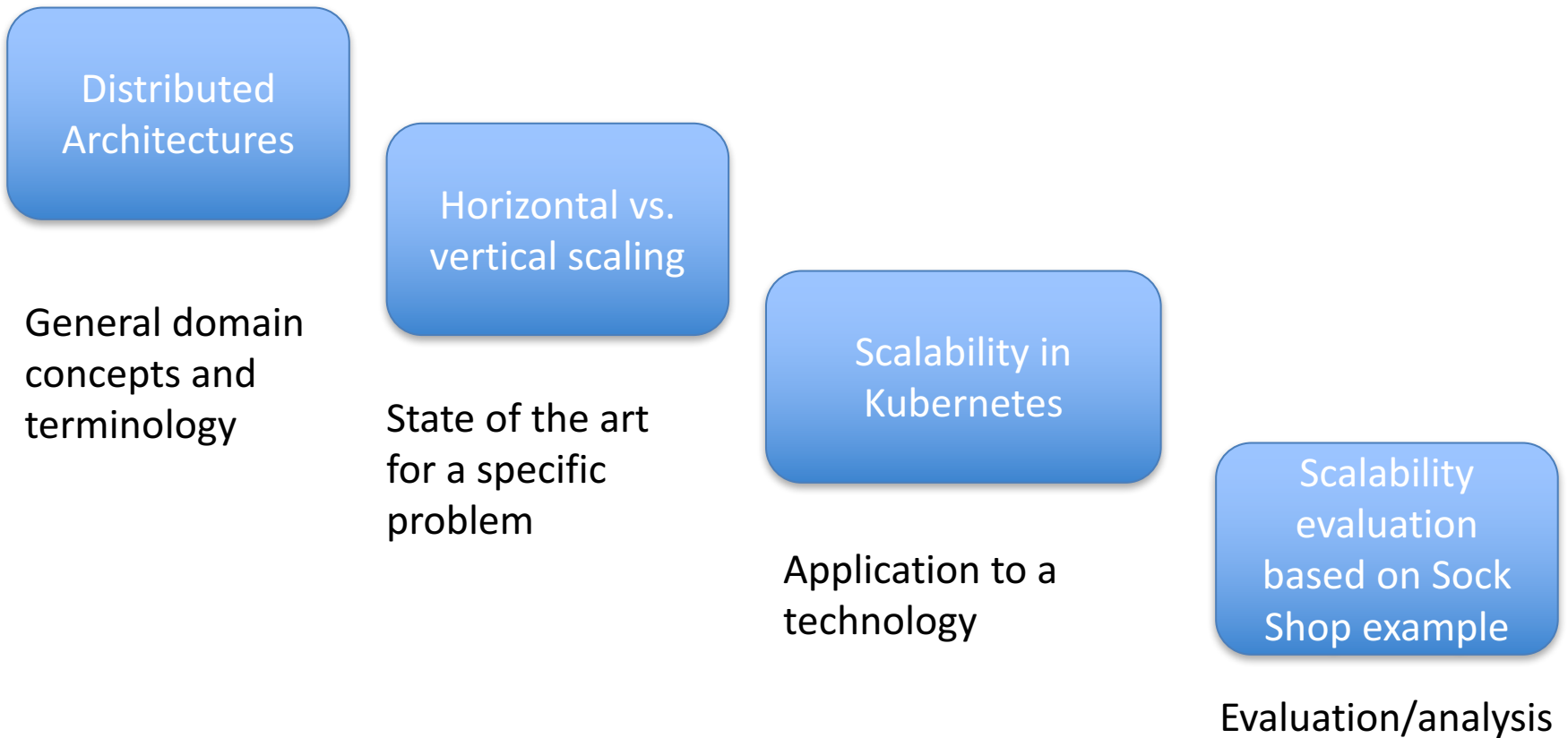
Course objectives

- 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

From theory to practice



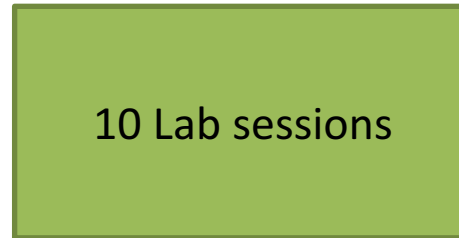
From theory to practice: an example



Course structure

Attendance at seminars is **mandatory**!

Overview the theory,
cover the main concepts
in architecture design



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

Formulate your
research question,
discuss 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
- Advanced topics: Product lines, Architecture in the cloud...

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)
- For seminars 1-4 we will split into discussion groups
- Attendance is mandatory!
- Deadlines for seminar assignments are **hard deadlines**

5 seminars

Seminar 1: Discuss the impact of design decisions based on a theoretical software architecture

Seminar 2: Technical discussion – present your technology 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

- Sign up in the group corresponding to the subject of your choice:

<https://www.ida.liu.se/~TDDE41/labs/topics.en.shtml>

- Discuss subject of lab 2 with lab assistant first
- Same groups for lab assignments and seminars

Work flow

Get an overview of the larger context and existing issues and solutions

Lectures

Understand the implications of a design choice

Seminar 1 : general problem solving

Seminar 2 : technical review

Lab 1 : Technical preparation for project

Use the feedback for a first poster draft

Choose a research question

Seminar 3 : sustainability

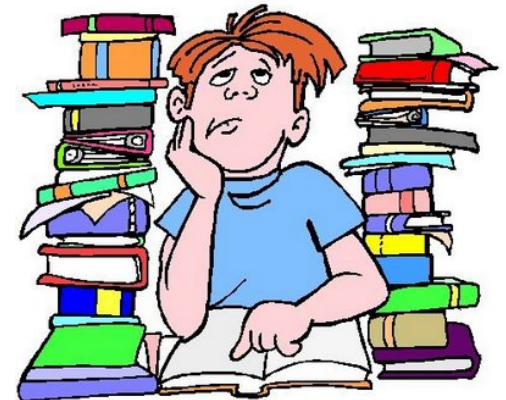
Lab 2 : Project

Seminar 4 : poster review

Seminar 5 : presentation

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

Graded from 1 to 3:

- Independence
- Technical Soundness
- Context
- Language and form
- Analysis

A majority of	=	Grade
1		Grade 3
2		Grade 4
3		Grade 5

The paper is written in pairs but the **grade is individual** – questions during seminars and presentation will ensure even contribution!

All assignments will be checked for plagiarism via Urkund

Detailed grid: <https://www.ida.liu.se/~TDDDo5/seminars/grading.en.shtml>

Evaluation criteria for labs: pass/fail

- Both labs (1 and 2) will be presented as a demo, for each group, to the corresponding lab assistant.
- A short written report will be submitted by each group to their lab assistant
- For each demo you will be expected to present the code, answer the corresponding lab questions, plus the extra questions that the lab assistant might have.

Registration & Submission procedures:

Register for the following units:

- <https://www.ida.liu.se/webreg3/TDDE41-2019-1/PRA1>
- <https://www.ida.liu.se/webreg3/TDDE41-2019-1/UPG1>
- The deadlines for each submission can be found on the course web page.
- Seminar assignments will be submitted via Lisam

Resources

- 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 databases)

Questions ?