Course Descriptions

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TBD

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Introduction

This book bundles the descriptions of courses based on the Gaudí material. The most up to date version of the course descriptions can always be found at [18]. The same information can be found here in presentation format and all the course material also.

The descriptions can be read as autonomous units.

Chapter 1

SARCH Course System Architecture

1.1 Course Goals

The goal of this course is to enable system architects to mature faster, by giving a wide overview. For non system architects the objective is to improve the cooperation between the system architect and other roles, such as project leader, marketing manager and technology manager.

1.2 Program

The program purposefully alternates process, business and technology views. The timing of the program can be adapted to the amount of information and interaction that is needed per subject. However the alterations of subjects will be followed more strictly, because the change in viewpoint is essential for understanding the whole picture.

time	subject
day 1 Morning	Positioning the System Architecture Process, Product Creation Process
day 1 Afternoon	Role and Task of the System Architect
day 2 Morning	Requirements Capturing
day 2 Afternoon	System Architect Toolkit
day 3 Morning	Roadmapping
day 3 Afternoon	Product Families, generic developments
day 4 Morning	Documentation, reviewing and other supportive processes
day 4 Afternoon	The role of Software in complex products
day 5 Morning	Psycho Social side
day 5 Afternoon	Wrap up, Expectations, How to continue, Evaluation

The structure of the course is shown in figure 3.1. In other words the theory of the course is that theory, illustration and interaction will alternate.

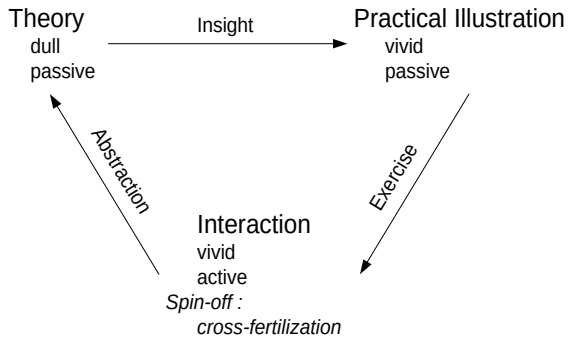

Figure 1.1: Alternation of theory, illustration and interaction will be used to maximize the educational effect

This alternation follows the general timing as presented in figure 3.2.

The first step is an interactive exploration of the subject. This exploration is followed by a "broadcast" lecture in which theory and illustration are given. The amount of illustration is "experimental", due to the Philips wide target group; Examples will be based on experience of the trainer, while it is hoped that during the interaction the attendants will bring forward illustrations from their own environment

The interaction is done in 2 steps: an interactive discussion with the entire class and a work session in smaller groups. The instruction for the group work is given

Figure 1.2: Timing per subject of the alternating theory, illustration and interaction

during the interactive discussion.

The entire subject is closed by a short collective session with conclusions and evaluation.

1.3 Rules during the course

The rules of the broadcast part are:

- Please write your questions/remarks/statements on yellow stickers and attach them at the end on the P-flip.

  These will be used in the interactive section for discussion and to increase insight.

- Short clarification questions are welcome,

  discussion will take place in the interactive part.

- Stupid questions don't exist. Learning is based on **safe** and **open** interaction.

  Very individual oriented questions can be referred to a break or after the session.

The rules of the interactive and the practice part are:

- Your contribution is essential.

- Don't monopolize the time, everyone also the quiet people should have the opportunity to contribute;

  The facilitator will intervene if the contribution is limited to a small group of participants.

- Respect the contribution of others;

  Opinions can't be wrong, difference of opinion is normal and called pluriformity.

- The course format is highly experimental and based on improvisation, constructive proposals are welcome;

  it is your course! Regular evaluations will give the opportunity to influence the rest of the course.

1.4 Evaluations

Basic part of learning is the evaluation of what has been done. The course will use 3 types of evaluations:

- Personal expectations
- Benefit and Concerns on a regular base
- The CTT evaluation form

The personal expectations are recorded at the very beginning of the course. At the end we look back at these initial expectations. This has a two-way evaluation effect:

Personal Did you start with the right expectation level? Was it realistic? Did you achieve the learning goals formulated in this expectation?

Trainer and CTT Did we communicate the right information to enable people to select this course? Do we apply the right selection criteria?

The benefit and concern evaluation method is based on the basic feedback method, which prescribes to start with formulating the strong points, before addressing the weaker issues. The idea is that improvement is based on building on the strong points and to change with respect to the weaker issues. A side effect is that everyone is forced to think also about the positive aspects, not only about the negative.

The benefit and concern evaluation is done regular, in the beginning with a high frequency, to be able to adapt the course directly.

The benefits and concerns are collected by a brainstorm or on yellow stickers. The rule is that one should always start with a benefit before mentioning a concern.

The benefit and concern method is widely used by CAP Gemini employees, often called B&C or Beer&Chips.

The CTT evaluation form is the "standard" CTT evaluation form which evaluates the different aspects of the course.

Chapter 2

Course System Architecting for Management Teams

2.1 Course Goals

The goal of this course is to enable managers and management teams to implement an effective system architecting activity by giving a wide overview of processes, architecting and the role and task of the system architect. The second objective is to improve the cooperation between the system architect and other roles, such as project leader, marketing manager and technology manager.

2.2 Program

The program purposefully alternates process, business and technology views. The timing of the program can be adapted to the amount of information and interaction that is needed per subject. However the alterations of subjects will be followed more strictly, because the change in viewpoint is essential for understanding the whole picture.

The structure of the course is shown in figure 3.1. In other words the theory of the course is that theory, illustration and interaction will alternate.

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The interaction is done in 2 steps: an interactive discussion with the entire class and a work session in smaller groups. The instruction for the group work is given during the interactive discussion.

session	subject
day 1 morning	positioning the System Architecture Process Product Creation Process
	product families, generic developments
day 1 afternoon	role and task of the system architect profile of the system architect
	documentation, reviewing and other supportive processes
day 2 morning	requirements capturing, roadmapping
day 2 afternoon	HRM aspects; selection, appraisal, career path, etcetera wrap up, expectations, how to continue, evaluation

Figure 2.1: Program of the condensed SARCH

The entire subject is closed by a short collective session with conclusions and evaluation.

2.3 Exercises

The exercises for the 4 sessions are:

- 1 Make a map of the operational organization, from portfolio down to components, with specific products, names and roles; Discuss the relations in one of the core teams.
- 2 Role play, marketing manager + projectleader + system architect + observer; prepare initial product definition (=business relevance+specification+critical design issues+plan indication)
- 3 Determine Requirements and key drivers and show the relationship
- 4 Show the roadmap as far as known now

2.4 Rules during the course

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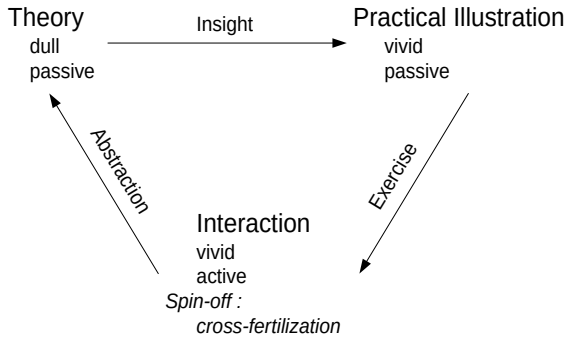

Figure 2.2: Alternation of theory, illustration and interaction will be used to maximize the educational effect

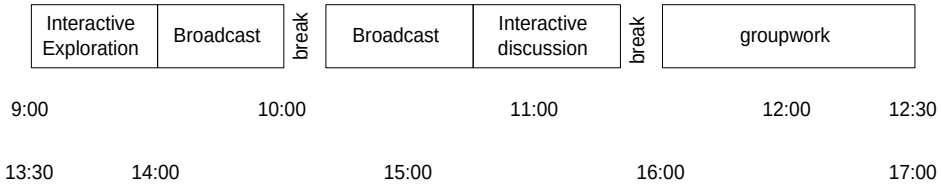

Figure 2.3: Timing per subject of the alternating theory, illustration and interaction

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Chapter 3

ESA Course, Stakeholders Part

3.1 Introduction

The Eindhoven Embedded Systems Institute, EESI, organizes an Embedded Systems Architecture Course, the so-called 4S course, see [5]. The 4 subjects of the course are: Silicon, Software, Systems and Stakeholders. This document describes the Stakeholder part of the 4S course.

3.2 Program

The program purposefully alternates process, business and technology views. The timing of the program can be adapted to the amount of information and interaction that is needed per subject. However the alterations of subjects will be followed more strictly, because the change in viewpoint is essential for understanding the whole picture.

Time	Subject
Session 1	Positioning product creation and system architecture in the business context
Session 2	Requirements capturing
Session 3	Role and task of the system architect; psycho-social side
Session 4	Product families and generic developments
Session 5	Roadmapping
Session 6	Documentation, reviewing, and other supporting processes; Wrap up

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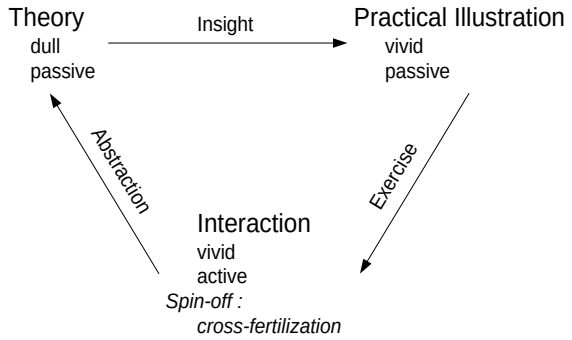

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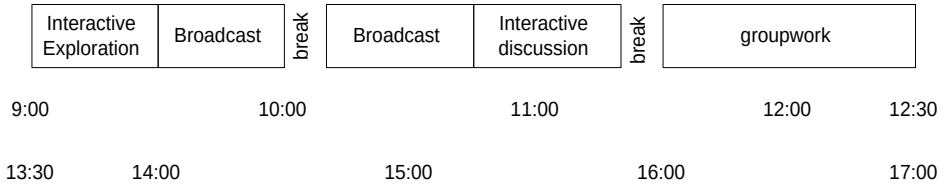

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Chapter 4

Lecture Requirements Engineering

4.1 Program

The lecture program is:

time	subject
Day 1 Morning	Requirements Engineering, Explanation of case
Day 2 Morning	Roadmapping
Day 5 Morning	Presentation of Cases

The time in between lectures is to be used to perform a case study. The case study will be explained on monday. Monday afternoon must be used to explore the case, Tuesday morning the status of the case will be discussed and clarifications will be given. Friday morning the case should be finished and the results will be presented and discussed. The course is closed by writing a summary of the case findings (per group) and lessons learned per individual, see section 4.3. Figure 4.1 shows the schedule of the course on a timeline.

4.2 Case Description

A chain of CD shops is planning to deliver music which can be loaded in a portable solid state based audio device, like a MP3 player. Figure 4.2 shows a typical shop.

4.3 Instruction for the case

The case is performed in 4 groups of 3..5 people, working together on the same problem. Instructions for the case:

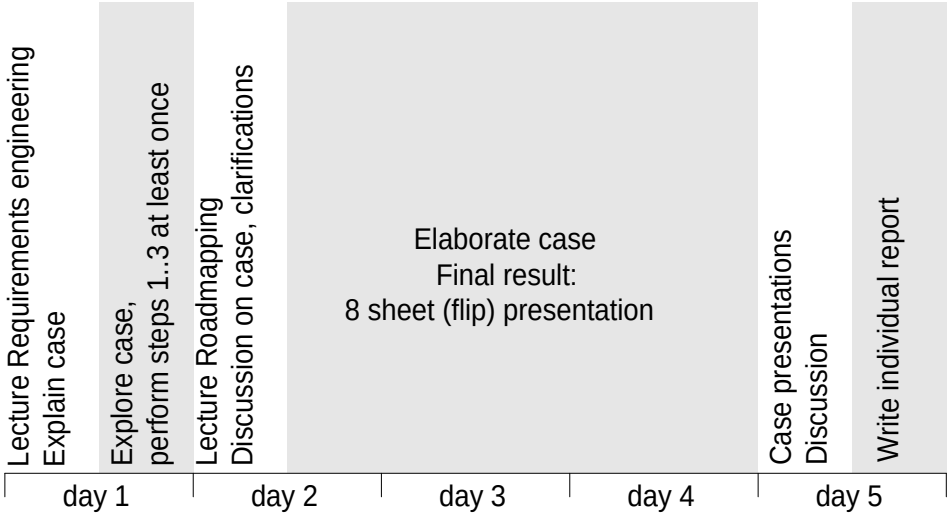

Figure 4.1: Schedule of the course

1. Make an initial requirements specification of the loading system in the CD shops
2. Make an initial requirements specification of the audio device
3. Prepare a presentation of maximum 8 slides

Recommended way of working:

1. Make some initial drafts and designs to explore the problem.
2. Look from all stakeholder points of view (shopowner, client, personel, manufacturer) towards the problem and identify what they need and what they expect.
3. Analyze the information obtained so far and extract the underlying requirements.
4. Make a simplified roadmap, position the requirements in time
5. Abstract the keydrivers behind the requirements.
6. Make a topdown description of the requirements.

Every group will present its findings on friday morning, followed by a short discussion.

Write an individual summary of the entire process, maximum 2 A4's, touching the following questions:

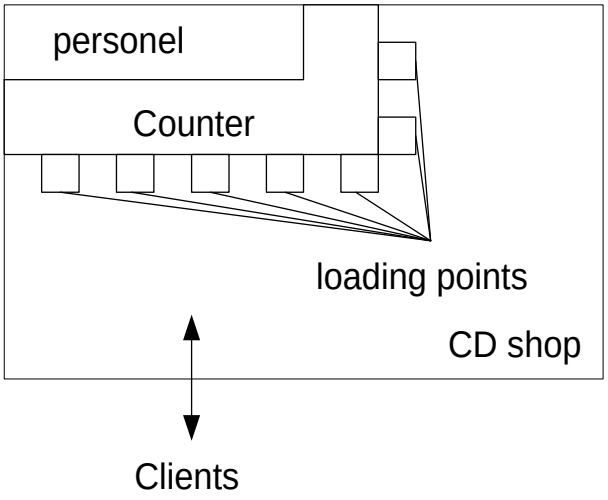

Figure 4.2: The CD shop with multiple loading points at the counter

- What are the most important lessons you learned from this exercise?
- Which roles did the members of the group play during the exercise?
- How would you approach such a problem the next time?
- Which stakeholders understand your group presentation? Are they happy with the presentation?

Don't answer all these questions perfectly, finish the summary in at most half a day.

4.4 Acknowledgements

The case used in this course is derived from the case defined by Sjir van Loo for use in the course SW architecture. The case defined by Sjir is further reduced in this course to stimulate the students in the requirements exploration, reflecting real-life situations which often start rather ill-defined.

I thank Sjir van Loo for providing his course material. I also thank Dieter Hammer and Harold Weffers for the initial discussions and for the suggestion to use this case.

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[25] Jan Gerben Wijnstra. Quality attributes and aspects of a medical product family. submitted to the Software Track of the HICSS-34, January 2001 URL: http://nlww.natlab.research.philips.com:8080/research/swa_group/wijnstra/ExternalPublications/hicss34/HICSSPaperJGW.pdf, 2000. This article describes the flow of non functional requirements to (software) implementation.

History

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- Created very preliminary bookstructure, no changelog yet