

# Information Masters Course The Context of Embedded System Design

by *Gerrit Muller* University of South-Eastern Norway-NISE

e-mail: `gaudisite@gmail.com`

`www.gaudisite.nl`

## Abstract

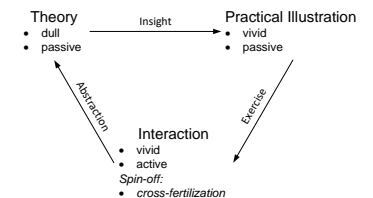
The Masters Course The Context of Embedded System Design is a course for students following the masters “Embedded Systems”. The course material is based on the SARCH course *Systems Architecting*. However, more and shorter exercises are added, and a common case is used throughout the course.

The course addresses a wide spectrum of issues in relation with system architecture, such as: processes, business, role and task of the system architect (team), generic Developments (re-use, platforms) requirements, roadmapping, and skills.

### Distribution

This article or presentation is written as part of the Gaudí project. The Gaudí project philosophy is to improve by obtaining frequent feedback. Frequent feedback is pursued by an open creation process. This document is published as intermediate or nearly mature version to get feedback. Further distribution is allowed as long as the document remains complete and unchanged.

September 6, 2020  
status: draft  
version: 0.1



# Program

---

session	subject
lecture 1	introduction, requirements capturing
lecture 2	story telling, customer views
lecture 3	product creation in business context
lecture 4	roles and tasks in product creation
lecture 5	how to: document, present
lecture 6	roadmapping
lecture 7	product families, platforms
lecture 8	presentation by teams

# Case: Intelligent Greenhouse

---

Teams of 3 to 5 students

Describe the context of the Intelligent Greenhouse,  
one subject/section per week.

Every lecture one subject will be discussed.

Send the resulting section within one week to the teacher.

Filename: Team<Teamnumber>Subject<subjectnumber>

Filesize <100 kB prevent mailbox overflow :-(

At the end: present an overview to the Management Team.

Send complete description within two weeks to the teachers:

[gerrit.muller@esi.nl](mailto:gerrit.muller@esi.nl); [joris.van.den.aker@esi.nl](mailto:joris.van.den.aker@esi.nl)

# Exercises Requirements

---

- 1 Describe a “Intelligent Greenhouse”: What does it look like, what can it do?
- 2 Identify Stakeholders and concerns
- 3 Discuss the technological opportunities and challenges
- 4 Make a key driver map

# Exercises Story Telling

---

- 1 Create a story
- 2 Improve the story, with the criteria for stories in mind
- 3 Derive a case description from the story
- 4 Make a design to satisfy the case description

# Exercises Product Creation

---

- 1 Identify the processes within your own company.
- 2 Make a design of the product
- 3 Make a work breakdown structure
- 4 Propose an organizational structure, quantify the size of the groups.

# Exercises Roles and Tasks

---

- 1 Determine the most critical system functions and performance aspects
- 2 Propose an integration plan
- 3 Perform a risk assessment
- 4 Improve the organizational structure

# Exercises Documentation and Presentation

---

- 1 Analyse the costs of the product creation, manufacturing and sales
- 2 Analyse the income
- 3 Make multi-year business forecast
- 4 Make a presentation outline for the presentation to the Board of Management



# Exercises Roadmapping

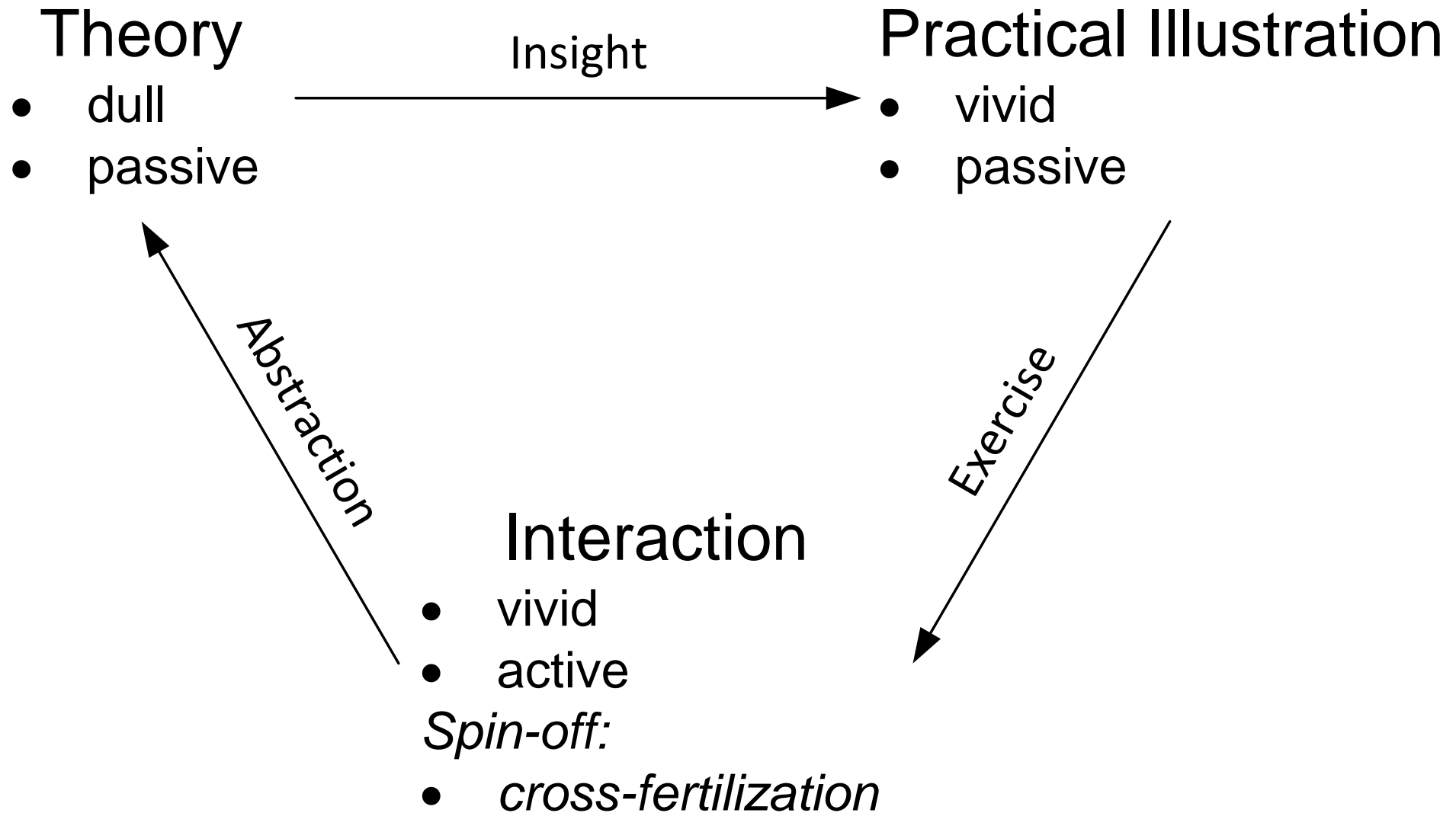
---

- 1 Identify Market trends
- 2 Identify Technology Trends
- 3 Make a product roadmap proposal
- 4 Integrate Market, products, technology into 1 roadmap and identify Process and People issues

# Exercises Product Families

---

- 1 Identify the members of the product family
- 2 Identify the synergy between the members of the family
- 3 Identify the member specific functionality
- 4 Propose a balanced product family approach



# Rules of the Interactive Parts

---

- 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 plurality.*
- 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.*

# Rules of the Broadcast Parts

---

- 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.*