

Information Bachelor Course System Design

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

e-mail: `gaudisite@gmail.com`

`www.gaudisite.nl`

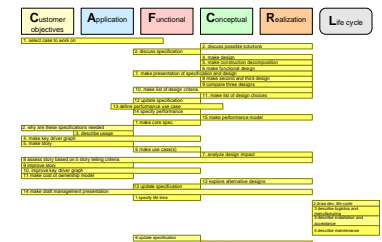
Abstract

The bachelor Course System Design is a course for third year students Mechanical Engineering at Buskerud University College. This document provides the program and exercises.

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.

August 16, 2025
status: draft
version: 0.4



Step 1, 2 half days

Multi-view system design based on CAFCR method;

Iteration and time boxing;

Functional, Conceptual and Realization view

Functional decomposition, construction decomposition
modelling

Step 2, 2 half days

Customer objectives and application view

Story telling

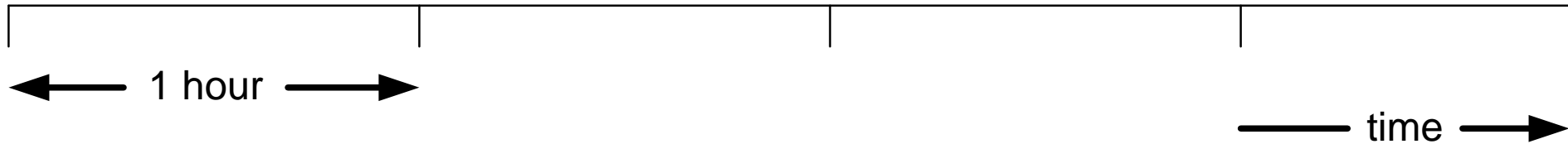
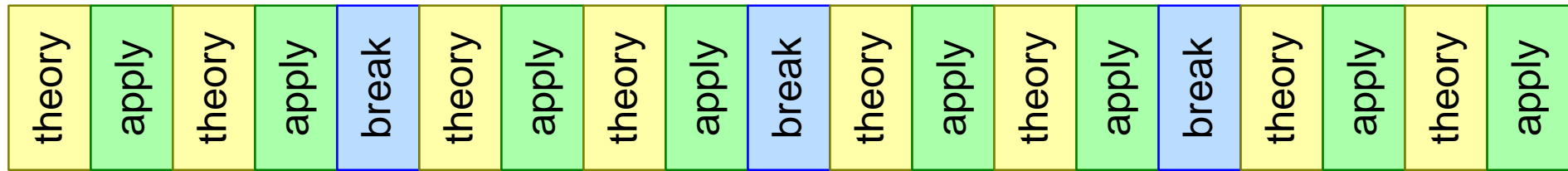
Use cases and scenarios

Step 3, half day (optional)

Life Cycle view

product creation process, manufacturing and logistics,
life cycle model

Didactic Model



time-box

A time-box is a fixed amount of time allocated to perform one activity.

iteration

We iterate many times over different viewpoints. Every viewpoint is addressed multiple times with new insights from other viewpoints

Tree Cutting Robot

background:

Less young people are willing to work in the wild and mountainous areas in Norway, Canada, or USA to cut trees for wood production.

product:

Robot that supports the cutting and processing of trees so that less people are needed

Explorer Inaccessible Spaces

background:

When renovating houses and buildings the builder needs to know the construction and the position of infrastructure

product:

Robot that is flexible and remotely operated that can explore inaccessible spaces in houses and buildings

Examples of cases

apple, tomato, or strawberry plucking robot

apple, tomato, or strawberry sorting robot

tree cutting robot

spinach or lettuce harvesting robot

robot that removes or kills lice, wasps, or mosquitos

communication device for elderly people (80+ years old)

automated loader for Electric Vehicle

robot to help builders to look in inaccessible places

robot to install cables in tunnels

device to assist elderly people (80+ years) with washing, clothing, eating, drinking, getting in and out bed

Home work instructions

Homework instructions

presentation

filename: BSEAR team<your teamnumber/name> homework<number>

e.g. BSEAR team1 homework1.ppt

all team members on front page

upload homework to Canvas

Questions email to: <gerrit . muller@ gmail . com>

from/cc: <all email addresses of team members>

Home work step 1

The homework for step 2 is to consolidate the work of the first step.

Make a presentation of specification and design, including a list of highlights and risks.

Note that this presentation is intended for the management team of your company.

Home work Step 2

The homework for step 3 is to consolidate the work of the second step. Make a presentation of customer context and product specification, including a list of conclusions and consequences for the design. Note that this presentation is intended for the management team of your company.