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.
Program

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

We iterate many times over different viewpoints. Every viewpoint is addressed multiple times with new insights from other viewpoints.
Example Case: Tree Cutting Robot

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
Example Case: Explorer Inaccessible Spaces

**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 lices, 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: SESD team<your teamnumber> step<stepnumber>

e.g. SESD team1 step1.ppt

all team members on front page

e-mail to: <gerrit.muller@gmail.com>

subject: homework SESDteam<your teamnumber> step<stepnumber>

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

when: 72 hours before next lecture
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.