

SPR/FPR A21

Lesson 7

Group/ Supervisor overview

The Project description

Info Search preparation

For today:

1. Do a mind map defining relevant areas that might be relevant for your project
2. Define Purpose
3. Define a minimum of 5 subjects areas where you need additional info in order to get the necessary insight for doing your project. To be used when visiting the Library on September 29

To be mailed to
AES@via.dk at the end
of today's Lesson!

Group/ Topic Overview now uploaded in ItsLearning

- See General Course Info

The screenshot shows the ItsLearning interface for course ENG-SPRPM-A21. The 'Planner' section is active, displaying a list of lessons. The 'General Course Info' section is expanded, showing a table with course details.

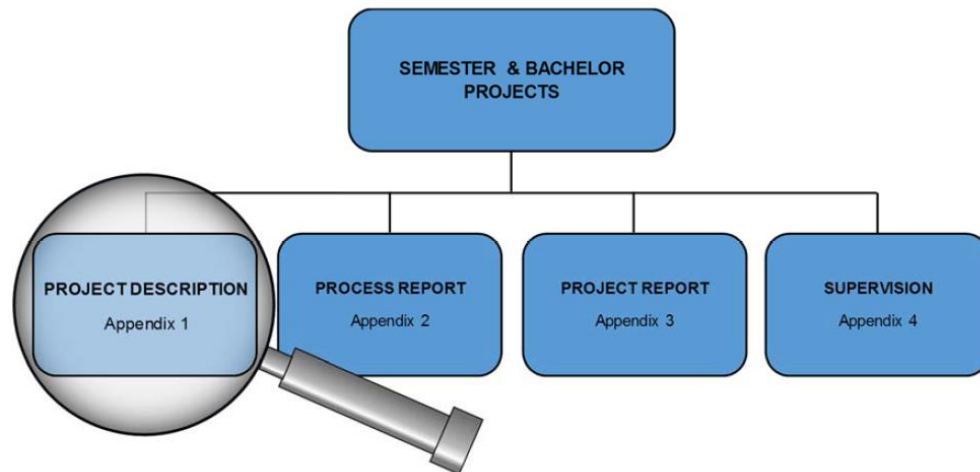
Plan	Dato	Beskrivelse	Ressourcer og aktiviteter
Group formation requirements	Tilføj dato	Klik for at tilføje tekst	Forming of Project Groups.pdf Tilføj
Group / Topic/ Supervisor Overview	Tilføj dato	Klik for at tilføje tekst	PR_FPR_A21 - Projekter og vejledere - V 27-9-21.pdf Tilføj

Doing the Project Description: Appendix 1 + Project Description Template

APPENDIX 1

Project Description

VIA ENGINEERING GUIDELINES



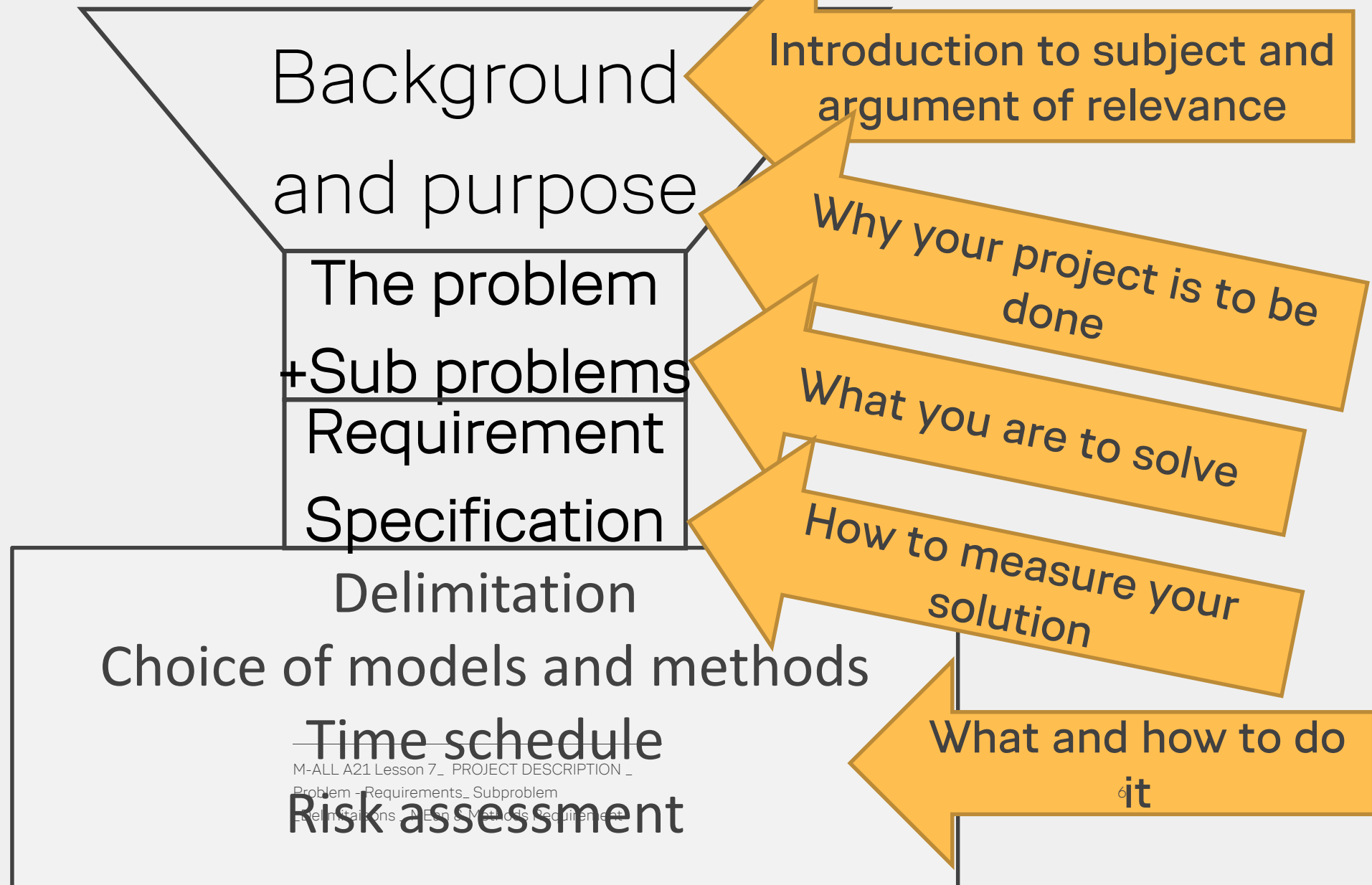
Content of the Project Description

- 1. Background description
- 2. Definition of purpose
- 3. Problem statement
 - Requirement specification
 - Sub problems
- 4. Delimitation
- 5. Choice of models and methods
- 6. Time schedule
- 7. Risk assessment
- 8. Sources of information

In **Appendix** to Project Description:

- Group Contract
- Analyse Phase Content (Mind map, Info search etc)

The Project Description



M-ALL A21 Lesson 7_ PROJECT DESCRIPTION _

Problem - Requirements_ Subproblem

Delimitations_ Needs_ Methods_ Requirement

Background - Purpose -Problem:

Background: Setting the stage

Purpose: Why something needs to be solved

Problem: What to solve

Use the purpose as the tool for ensuring consensus in the group AND for validating the value of your solution to the problem throughout the execution of the project!

Problem statement

- The problem statement must consist of one - and only one - overall problem statement.
- The problem statement must be described in a manner that it can form the basis for.....**a product requirement specification**
- To the overall problem statement, a group of sub- and sub-sub problems can be defined and attached. In this way, the problem statement defines all the (unresolved) problems that need to be addressed in order to obtain a useable solution.

Defining Requirements:

<https://www.ppi-int.com/resources/systems-engineering-faq/q-difference-requirements-specifications/>

Answered by Robert Halligan

In new product design, a requirements specification for the product would normally drive that design. Once design of the product is implemented, verification of the product will be carried out against the requirements specified in the requirements specification.

Constraints vs Specifications

E.g. Design a page turner for the disabled.

Problem statement

Requirement specification

Constraints	Performance Specification
1. Easy to use by the disabled	Turn pages of a hardback or paper-back book as big as A4 size and as small as B5 size, up to 2 cm thick, not heavier than 3kg, back and forth, one single page at a time.
2. Selling price no more than 500DKK.	Cost price – including investment max: 200 DKK
3. Safe to use	Safe according to ISO standard xxx.
4. Portable	Max dimension: 20cm x 10cm x 10cm. Max weight: 5kg. Run on battery with battery life to be minimum of 50 min.

An Example



Purpose

To become a top three sub supplier on our main markets when requirements are delivery time, quality and cost.

Problem Statement

How can we physically automate a production line of a product X in a way that reduces manufacturing errors to 1% while maintaining a production time of 60 seconds per sensor with a breakeven after sales of 150.000 sensors?

Requirements

Time consumption of producing a batch size of 1000 sensors is based on a target production time of 60 seconds per sensor. This equals to 17 hours of continuous production for 1000 sensors - Service after 10.000 units or every 6 months

Max area for the production setup 3x3m Max weight 200kg

Max price for the production setup including robot(s), machines, tools, and installation is 350.000DKK

Already existing machines should be used in the production setup ("Ingun Fixture", "Laser Robot", "Glue Robot")

Max time for setup of a new production line is two-month calendar time

Defining performance attributes – through the Inverted brainstorm method:

On basis of your purpose and problem statement:

First:

List overall parameters that would make your product a total disaster in terms of:

Business – Functionality – Sustainability & Ethics

E.g:

User experience

Maintenance

Risk

Storage

Environment

Business

Manufacturing

Sustainability

.....



Second:

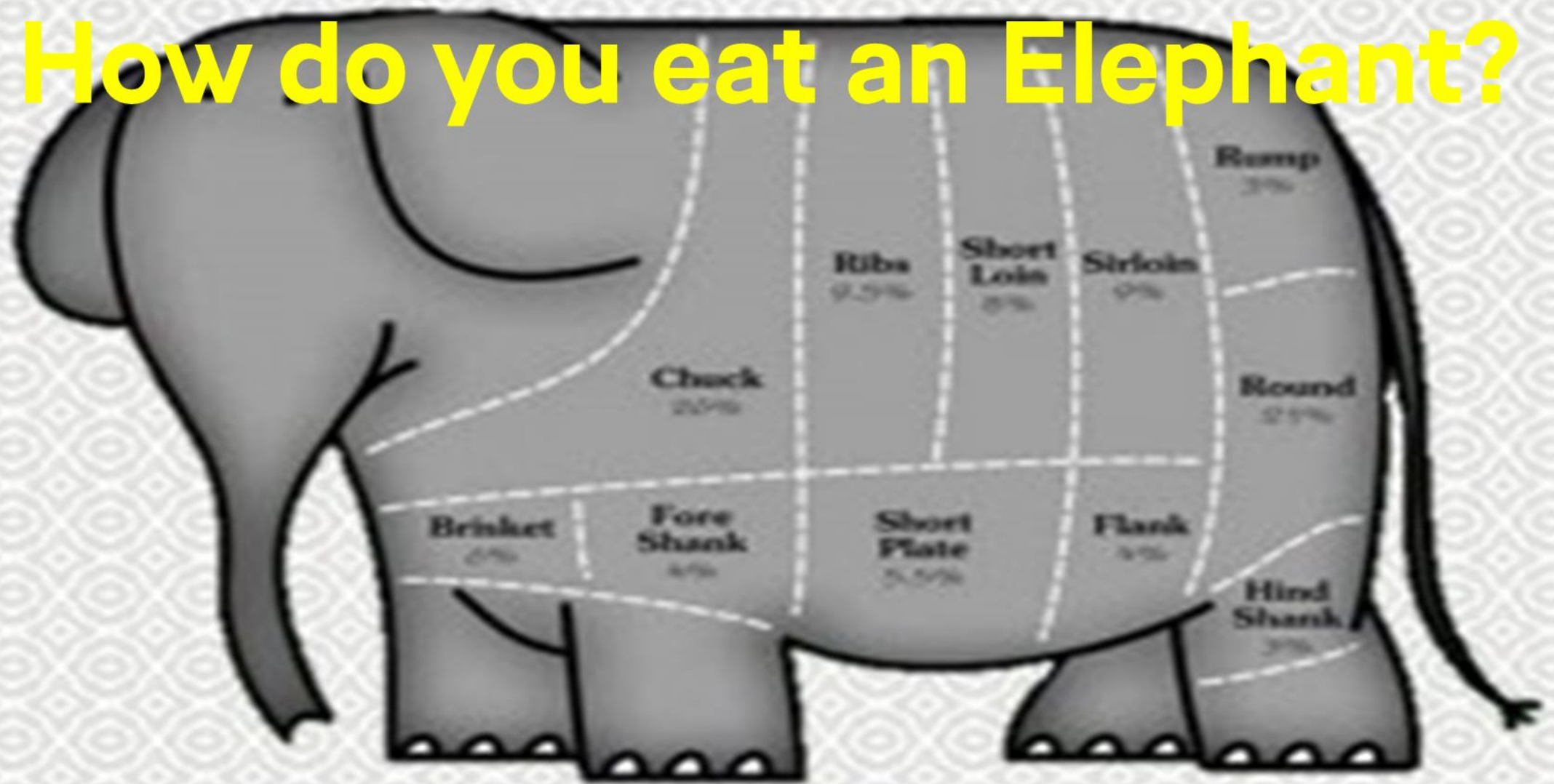
1. Invert the parameters into relevant attributes and group them
2. Divide between "Need to have" and "Nice to have" and focus only the "Need to Have"
3. Define performance parameters for each attribute
4. Ensure that the performance parameters are SMART (Specific, Measurable, Achievable, Relevant, Timely)
5. Enclose the requirements in the Project Description

In the Groups – 30 minutes

Define

- Problem Statement
- Requirements
- For your project

How do you eat an Elephant?



one bite at a time.

Sub problems (Considering what to look into)



Sub problem 1:

Design a process that covers the following:

1. Pick up a PCB
2. Place PCB in the test station
3. Pick up a capsule (bottom)
4. Move the capsule to the serial engraver
5. The tested PCB is placed in the engraved capsule (bottom)
6. Attach a battery to the PCB
7. Move the sensor to storage

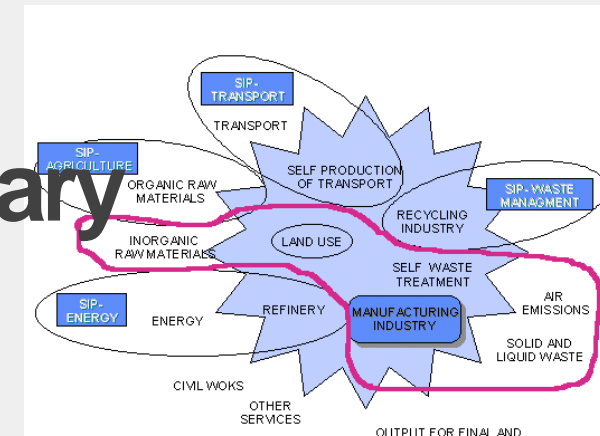
In the Groups – 20 minutes

List **ALL** the subproblems embedded in your project

(Don't panic – you don't have to do them all)

Hint: Use a mind map

Delimitation (the action of fixing the boundary or limits of something)



- Defines the expected outcome level / What will not be included
- The delimitations must be in line with the problem formulation and sub problems
- Relevant and well argued
- Not an escape from professionally difficult parts of the problem(s).

Group assignment: (Homework)

Discuss expected Outcome level of your Semester project and define areas for delimitation

If you don't have the needed info for doing this for every sub problem – find a way to achieve it.

5. Choice of method and model

Defining solution level and approach for each sub problem

- Useful planning tool: EACH sub (or sub-sub) problem are to be addressed (Problems from delimitations excluded)

What	Why	Which	Which	Who	When
Partial problem	- do we wish to study this problem – related to the purpose of the project.	- depth should our study of the problem have. (Level of outcome)	- methods/ models / theories will we use	- in the group is the main responsible person for this point	- is the deadline and what is the estimated workload (hours)

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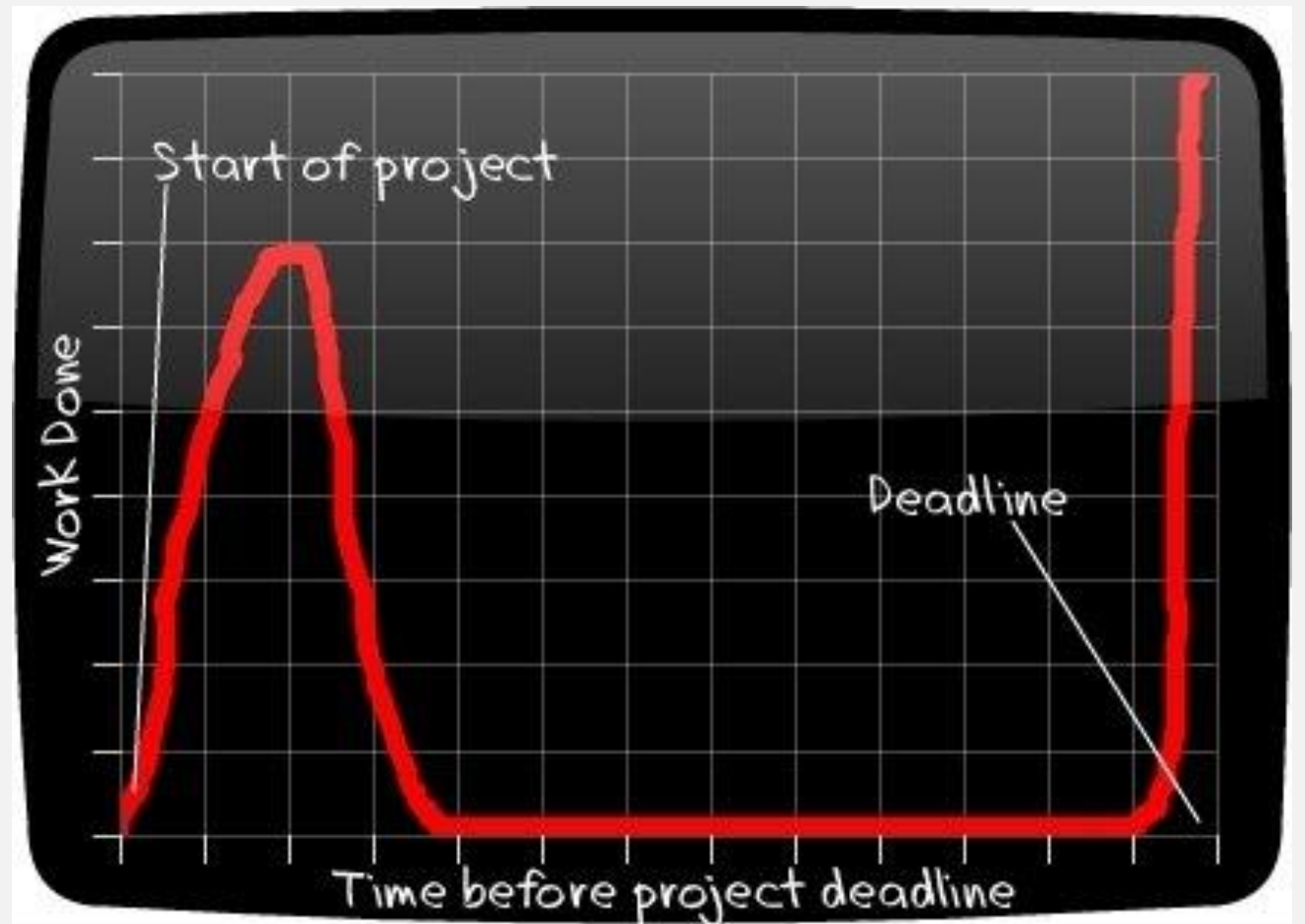
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Group assignment - 15 minutes

1. Try to fill out the form together for one of your Sub problems
2. Divide the Sub problem tasks between you.
3. Agree on how to fill out the form for your entire project for Friday

What	Why	Which	Which	Who	When
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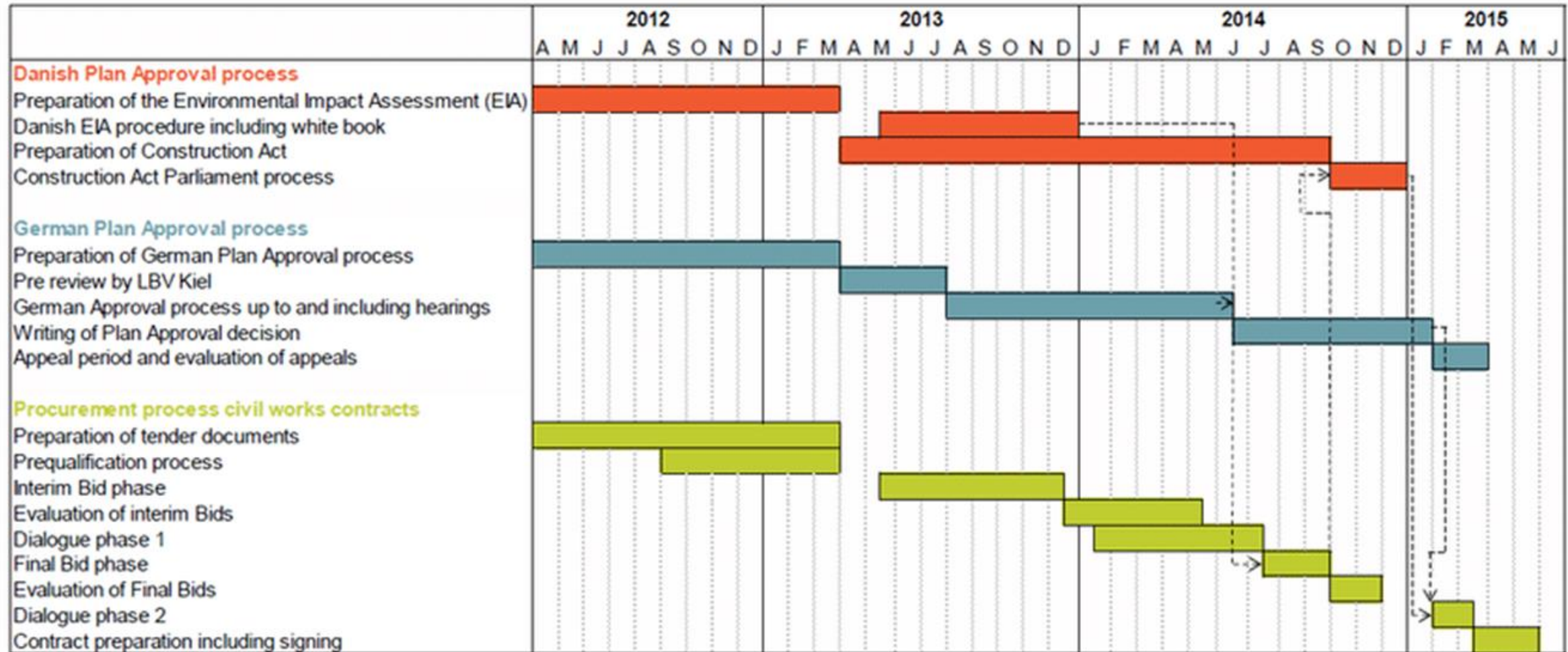
Time planning



Time planning is your predicted budget for the time needed for the different tasks, The dependencies between the tasks and a plan for when to do the tasks.

Time planning is a tool for monitoring progress and define “work arounds” when needed in order to meet deadlines.

Time schedule for the planning of the Fehmarnbelt Fixed Link

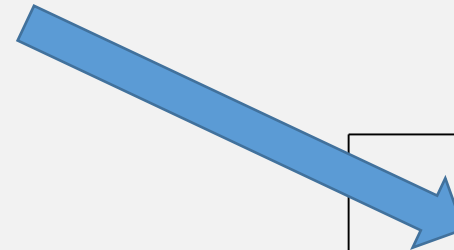


Expected opening: End of 2021.

https://www.researchgate.net/figure/Figure-C6-9-Planned-time-schedule-for-the-Fehmarn-Belt-Fixed-Link-project_fig4_259363943

Structure of tasks and time

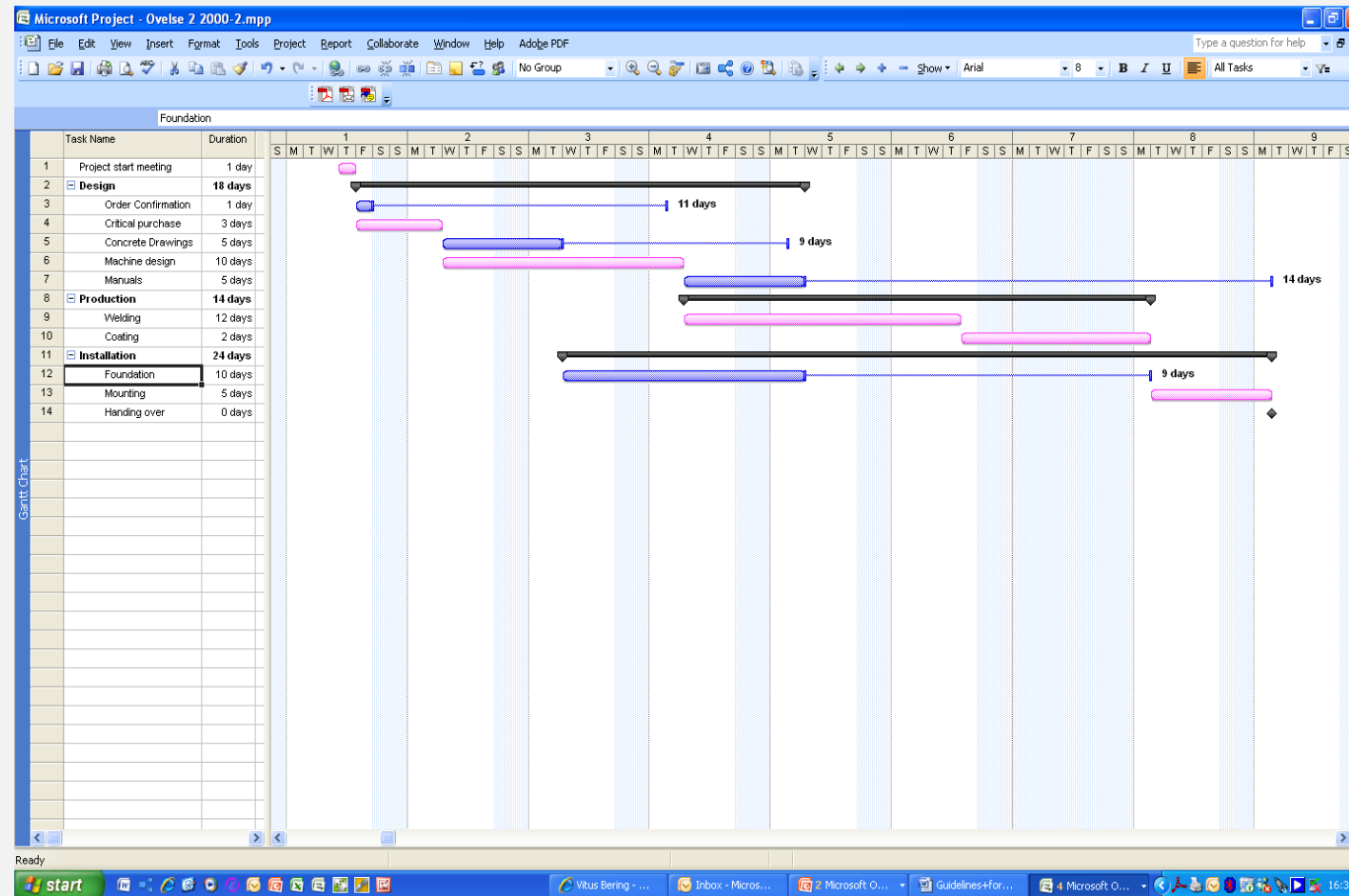
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Time

Tasks (assignments)

6. Time-schedule (Gantt) / Plan



Group (Home) assignment

Do a time schedule for the completion and handing in of the first draft of your Project Description to Supervisors.

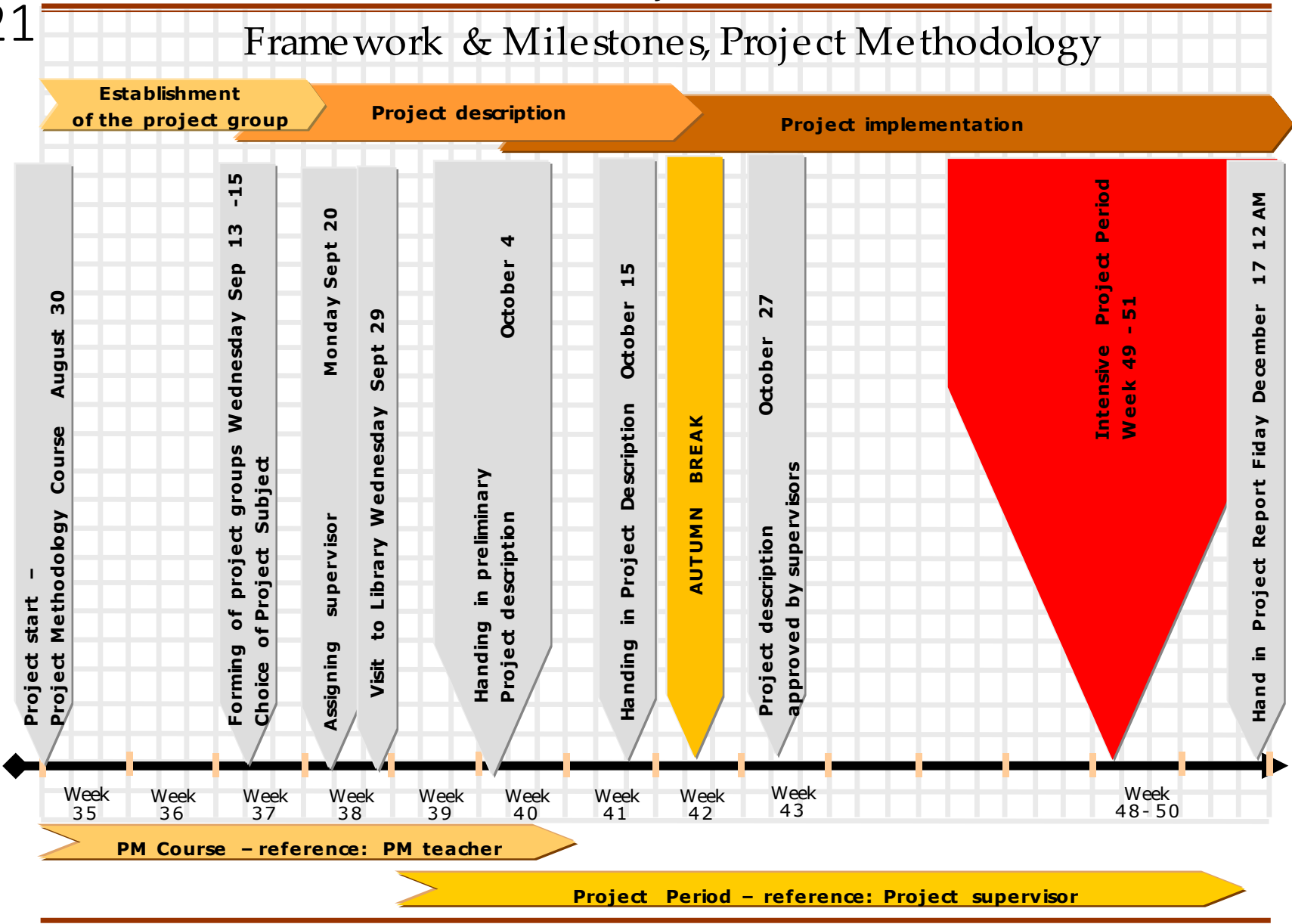
Deadline: October 4

Include: Tasks, budgeted hours, dependencies and responsible(s).

Please note: A Project Description is approximately 8-12 pages long (however this is your first draft so you don't have to complete in total – focus on the overall findings and expectations).

Setting expectations (when) -
Important dates PM A21

Projects



To do:



- Make a plan for doing a first draft of your Project Description
All parts – minus RISK assessment
- To be uploaded to your Group folder
- Supervisor overview will be released Tuesday (28/9 (hopefully)
- (re)read appendix 1 – Project Description for Monday (October 4)
- Info search request to be mailed to AES@via.dk - NOW