Title on 2 rows
Title on 1 row

First Name Last Name and First Name Last Name

DIVISION OF PRODUCT DEVELOPMENT | DEPARTMENT OF DESIGN SCIENCES
FACULTY OF ENGINEERING LTH | LUND UNIVERSITY
201X

MASTER THESIS OR EXAMENSARBETE

Company's logotype

Title of work

Subtitle

First Name Last Name and First Name Last Name

OR

Title of work

Subtitle

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Box 118, 221 00 Lund

Subject: Delete the inappropriate subjects! Aerosol Technology (MAMM05), Ergonomics for Engineers (MAMM10), Interaction Design (MAMM01), Packaging Logistics (MTTM10), Innovation Engineering (INTM01), Product Development (MMKM05), Rehabilitation Engineering (TNSM01), Technical Design (MMKM10)
Division:
Supervisor:
Co-supervisor:
Examiner:

Ämne: Radera ämnena som inte gäller! aerosolteknologi (MAMM05), ergonomi (MAM10), interaktionsdesign (MAMM01), förpackningslogistik (MTTM10), innovationsteknik (INTM01), produktutveckling (MMKM05), rehabiliteringsteknik (TNSM01), teknisk design (MMKM10)
Avdelning:
Huvudhandledare:
Bitr. handledare:
Examinator:

Abstract

About 250 words. Compulsory even for reports written in Swedish.

Keywords: about 5 keywords

Sammanfattning

About 250 words. Compulsory even for reports written in English. Exception: non Swedish-speaking students.

Sammanfattning and abstract should be identical.

Nyckelord: ca 5 nyckelord

Acknowledgments (or Preface) / Förord (eller Erkännanden)

Lund, month 20XX

First Name Last Name

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List of acronyms and abbreviations / Akronym- och förkortningslista

TP technical process

tech. proc. technical process

(has to be in alphabetical order, no capital unless it is a name, a nationality, etc.)

The first time the acronym appears in the text, it should still be preceded by the full expression, e.g.:

The technical process (TP) is defined as…

Note: the list of acronyms and abbreviations is only necessary if the number of acronyms and abbreviations is above 10-15.

1 Presentation of the template

This section presents the essential features of the template.

1.1 Using the template

1.1.1 **Background**

Lund University has developed a graphical profile that should be respected for reports that are produced under its good name. Moreover, it is important the department level to have a streamlined and coherent way of reporting scientific, academic or industrial results to the public. Hence this template.

1.1.2 **Use**

Most of the template elements are self-explanatory. Only a few things need to be highlighted to make its use easier and to prevent any mistake that would be time-consuming to correct.

It is important to follow the template right from the start. It is expected from you that the report submitted to your supervisor complies entirely with the template. It has taken in the past a large amount of time both for the supervisor and for the student to change the report if it is not done according to the template. The report will therefore not be examined if does not.

A few important preliminary instructions and notes:

- Use the template directly, do not re-create it.
- Section 1.2 presents the adaptations you need to make to the template before using it.
- Section 1.3: The information regarding the template format is for information only. It might be useful if your current document would no longer follow the template and would need some modifications.
- Section 1.4 helps you formatting the cover.

- Section 1.5 helps you formatting tables, figures and equations.
- Section 1.6 gives some information on the format of the appendices.
- Section 1.7 gives some recommendations on the conversion of the Word document into PDF.
- Chapter 2 shows how to format your references.

1.2 Customize your report

Before you begin to write your report:

- **Language:** the master thesis can be written in English or Swedish. This template has been developed for both languages.
    - For the reports written in Swedish, the only special adaptation to make is to select Swedish as the default language in the **Normal** style. As the other styles derive from the Normal style, this is a safe way to ensure that all text will be proofed in Swedish by Word's spelling and grammar check system. On the Home tab, click the Styles Dialog Box Launcher (see Figure **1.1**). In the Styles Pane, scroll until you find the Normal style. Right-click on the Normal style and, in the contextual menu, choose Modify… In the Modify Style window, click on the button Format, choose Language… and change the current language into Swedish.
- On the cover, write the appropriate name of the division under which you are doing your master thesis. The English and Swedish names are in Section 1.4.1.
- Several elements of the report template are highlighted (see before Chapter 1 and in the References chapter). Choose the appropriate elements.
- Remove the Appendices in English for reports in Swedish and "bilagorna" for reports in English. How to format the appendices is presented Section 1.6.

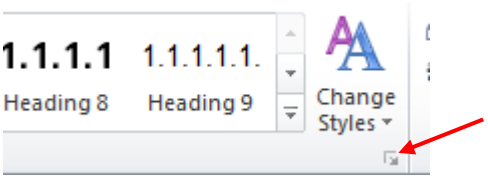


Figure 1.1 Styles Dialog Box Launcher.

1.3 Template format

Most of the following is given for information only, the template being already formatted. It may be useful however if some wrong manipulations have altered the format.

1.3.1 **Paper format**

The report is no longer printed, but in case the students or the company would want a hard copy, it is formatted to be printed in G5 format (16.9 × 23.9 cm), the same format as licentiate and PhD theses. The older format was the S5 format (17.8 × 25.2 cm). The format used in the Word template is A4. It allows for an easy printing of the report drafts. If the final version of the report is to be printed, the PDF version of the report can be cropped to a G5 format, or the report will be printed in A4 and then the sides will be cut down to G5.

Here are the margins for the A4 format:

Top: 4.9 cm

Bottom: 4.9 cm

Left: 4.05 cm

Right: 4.05 cm

This corresponds to the following margins in the G5 format:

Top: 2 cm

Bottom: 2 cm

Left: 2 cm

Right: 2 cm

The header and footer (for the page numbers) have been set to 4.15 cm (corresponding to 1.25 cm for the G5 format).

1.3.2 **Text format**

Master thesis and other student reports: the fonts used are Times New Roman and Arial. Arial can only be used in the cover and in figures (cf. Lund University's graphic profile).

Here are the most used text formats, or styles. In order to format your report with these formats, select the corresponding style in the Styles list:

Heading 1: 24 pt + left + 75 pt after

Heading 2: 16 pt + left + 30 pt before + 16 pt after

Heading 3: 12 pt + bold + left + 24 pt before + 12 pt after

Heading 4: 11 pt + italic + left + 12 pt before + 3 pt after

Heading 5: 11 pt + left + 12 pt before + 3 pt after

Preamble (ingress): text introducing a chapter. Style: Preamble (= Normal + Italics)

Body text. Style: Normal (Justified + 6 pt after each paragraph)

> *Quote: if a quote is larger than 40 words. Style Quote (= Normal+ 10 pt + Italics +Indentation left: 1 cm)*

Caption: for Figures and Tables (= Normal + 9 pt + Bold + Left + 6 pt before)

References_Harvard: In the References section. Style: References (= Normal + 10 pt + Left + 11 pt after)

[1] References_Vancouver: In the References section. Style: Normal + 10 pt + Left + 3 pt after

1.3.3 Formats of the main elements of the thesis

The functions of the main elements of a thesis have been explained elsewhere (guidelines for the master thesis) or should be known to the user of this template. Only the formats of some of the elements that usually trigger questions are mentioned here:

- Table of contents:
  - The elements before the table of contents and the table of contents itself are not listed in the table of contents.

- Let Microsoft Word create the table of contents. It eliminates the risk that the page numbering becomes incorrect when you make changes to your work. For instructions on how to do this, see the Word help files (Ctrl+A, Ctrl+F9 for updating the existing table of contents).
- The current table of contents shows three levels (chapter, sections and subsections). It is not necessary to show the contents for all three levels if the table of contents is large. In order to only show two levels, put the insertion point in the table of contents. Right-click and in the contextual menu, choose Toggle Field Codes. The table of contents should take the following form: { TOC \o "1-3" \u }. Change "3" into "2": { TOC \o "1-2" \u }. Right-click and in the contextual menu, choose Toggle Field Codes. Then type out Ctrl+A, Ctrl+F9, for updating the table of contents.

- List of acronyms and abbreviations:
  - Before Chapter 1
  - Should be in the table of contents
  - The acronyms and abbreviations title is not numbered
  - Must be in alphabetical order, no capital unless it is a name, a nationality, an organization…
  - Follow the format example given in the corresponding part of the template.
    - TP technical process
    - tech. proc. technical process
  - **Note 1:** a list of acronyms and abbreviations is only necessary if their number is so high (above 10-15) that the reader cannot remember them all. The reader can then go back to the acronyms and abbreviations section when needed.
  - **Note 2:** this does not relieve you from introducing the acronyms and abbreviations in the text the first time they appear.
- Chapters and appendices: only these parts have preamble. The preamble is not compulsory.
  - Sections in chapters and appendices. Do not add a line at the end of each section.
- References:
  - The References heading is not numbered.

1.4 Cover

1.4.1 **Official names of the divisions of the Department of Design Sciences**

It is important to give the correct names both in the cover and in the text. Lund University and the Faculty of Engineering LTH have given precise guidelines for that matter.

1.4.1.1 Swedish names

avdelningen för produktutveckling, institutionen för designvetenskaper, Lunds Tekniska Högskola, Lunds universitet

avdelningen för förpackningslogistik, institutionen för designvetenskaper, Lunds Tekniska Högskola, Lunds universitet

Certec, avdelningen för rehabiliteringsteknik, institutionen för designvetenskaper, Lunds Tekniska Högskola, Lunds universitet

avdelningen för ergonomi och aerosolteknologi, institutionen för designvetenskaper, Lunds Tekniska Högskola, Lunds universitet

avdelningen för innovationsteknik, institutionen för designvetenskaper, Lunds Tekniska Högskola, Lunds universitet

1.4.1.2 English names

Division of Product Development, Department of Design Sciences, Faculty of Engineering LTH, Lund University

Division of Packaging Logistics, Department of Design Sciences, Faculty of Engineering LTH, Lund University

Certec, Division of Rehabilitation Engineering Research, Department of Design Sciences, Faculty of Engineering LTH, Lund University

Division of Ergonomics and Aerosol Technology, Department of Design Sciences, Faculty of Engineering LTH, Lund University

Division of Innovation Engineering, Department of Design Sciences, Faculty of Engineering LTH, Lund University

1.4.2 **Colors**

The cover on the first page is for the PDF version of the report only.

The cover can be in one color, two colors (the colors authorized by Lund University are given Figure 1.2), white, and/or with an illustration (see examples Figure 1.3).

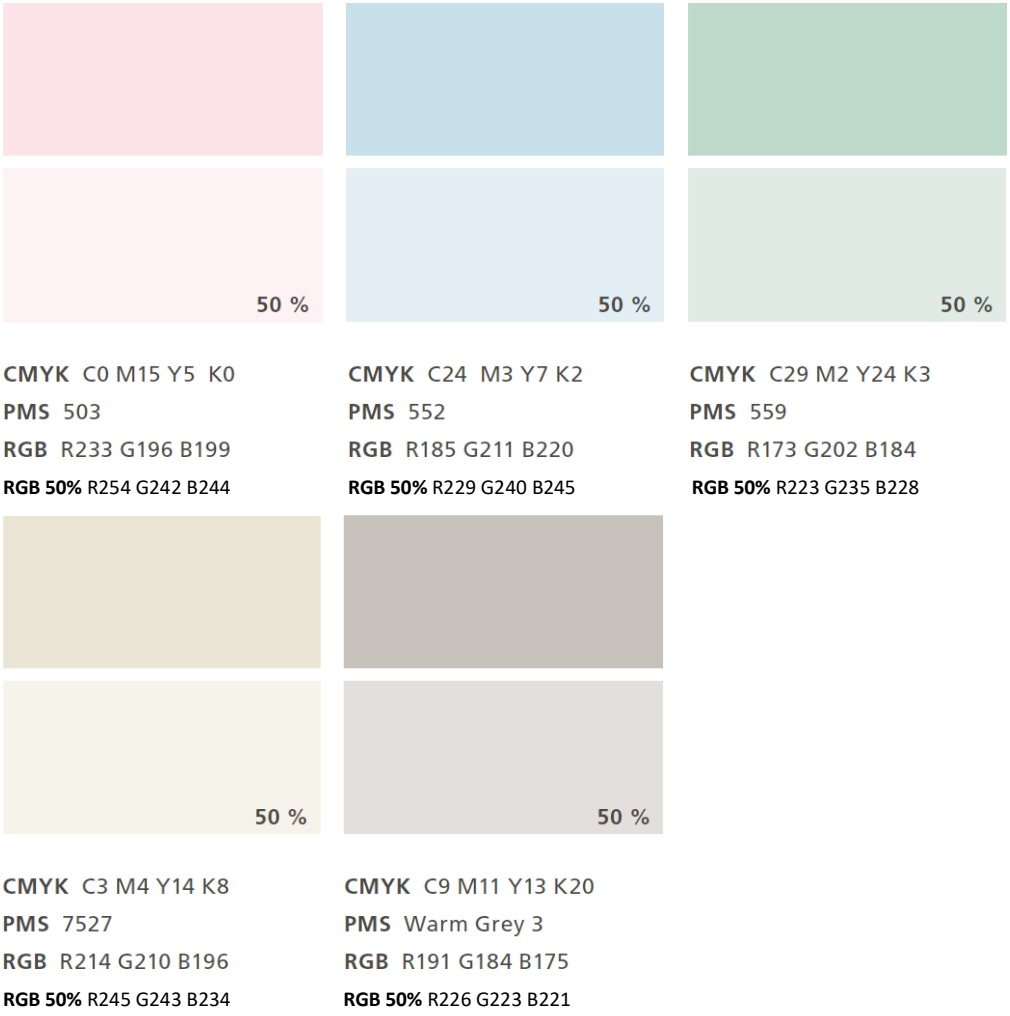


Figure 1.2 Colors for the report cover.

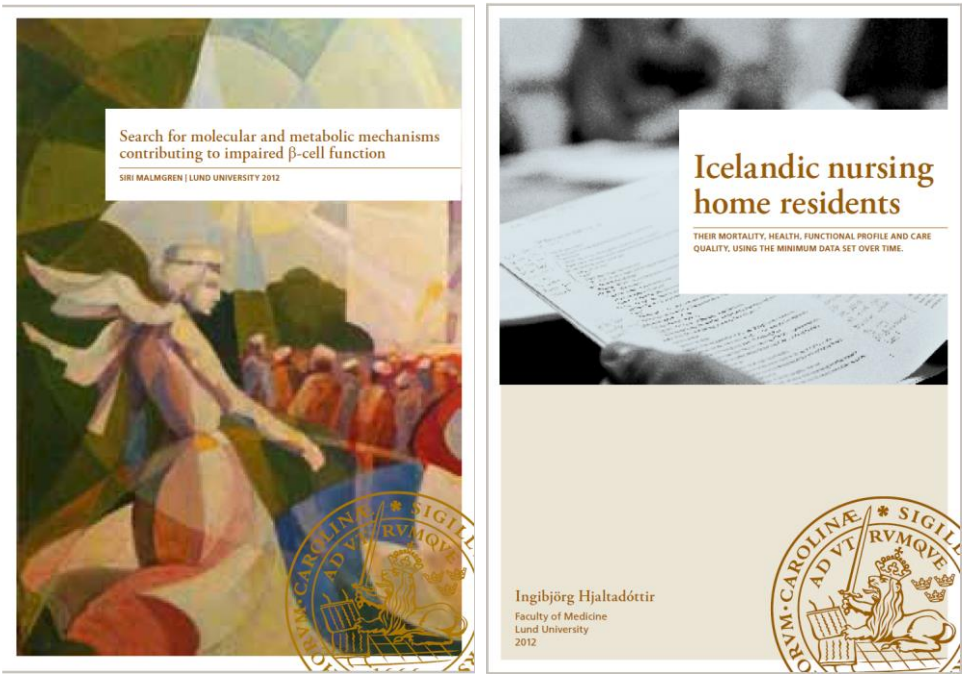


Figure 1.3 Example of covers (note: the layout of the text elements is slightly different).

1.5 Figures, tables, equations and footnotes

1.5.1 **Tables**

Use the caption style to create a table caption.

A table should not exceed the document margins. To ensure that the table has exactly the same length as the body text breadth, select the table, right-click, and in the contextual menu, choose Autofit, then Autofit to Window.

Table captions are always above the table. The text style in a table is **Text in Table** (Font: 9 pt, Space Before: 1 pt, After: 1 pt). For the table header, use the same style + bold and italics. The tables below are examples. Other layouts are possible depending on the information to be displayed.

Do not add a line before or after a table (unless it is to separate tables).

Table 1.1 Example 1.

	Specificities
Marketing	enable product adoption, communication of the value of the offering estimate the market growth, elaborate defense strategies against potential new entrants predict the future needs and usages
Design	go beyond known technologies and existing competencies get the right knowledge in a limited time find satisficing solutions proof of concept, proof of value, proof of innovation service development…
Strategy	Continuous strategy formulation product image, impacts on brands fit the radical innovation with the company's other activities…
Organization	organizational hurdles team building, trust building partnership building, networking tight link between Research, Design and Marketing

Table 1.2 Example 2.

Process step	***Frequency of the reported step***	***-1: step not understood***	***0: step understood***	***1: step assimilated***	***average***
Problem specification and decomposition	86.67%	0.00%	96.15%	3.85%	1.04
Specification of criteria	96.67%	3.33%	66.67%	30.00%	1.27
Solution searching					
Detail architecture principle	56.67%	5.88%	76.47%	17.65%	1.12
Detail embodiment principle	96.67%[a]	10.34%	44.83%	44.83%	1.34
Choice of material	90.00%	3.70%	62.96%	33.33%	1.30
Detail embodiment	96.67%	37.93%	10.34%	51.72%	1.14
Solution evaluation	93.33%	3.57%	42.86%	53.57%	1.50
Solution working-out	93.33%	0.00%	42.86%	57.14%	1.57
Whole Process	-	26.67%	36.67%	36.67%	1.10

Note: Note applying to the whole table (same style as the table).

[a] Note for a specific part of the table (space between notes, 1pt, space after the last note, 6pt).

1.5.2 **Figures**

Use the caption style to create a figure caption (same style as the table caption).

Text in the figure should be in Arial 8 or Arial 9. To that end, you can use the style **Text in Figure** if you create your figure in Word. If you import your illustration from another source, try to enlarge or decrease the figure size so that the text matches the font size of 8 or 9, as much as you can. This increases readability. The legend should be in the figure, not in the caption.

Figure 1.5 is an example of a vertically oriented figure. It is recommended to use page break before and after a vertically oriented figure. If you want such a picture in the correct format, just copy and paste Figure 1.5 together with the page breaks.

If you use another Microsoft software (such as PowerPoint or Excel), paste the figure as an enhanced metafile (in the Home tab, in the Clipboard group, click on the arrow below the Paste button, choose Paste Special, in the Paste Special window, select the Picture (Enhanced Metafile) option). It is worth the effort, see Figure 1.4. Try to have a figure as a vector graphic instead of a versus raster graphic (i.e. bitmap). The Lund University logotype is such a graphics. Note that it Word does not always render such graphics properly, but the PDF version will. Figure 1.5 is another example where the figure is not rendered correctly (it is an .eps picture), but is of good quality in the PDF version (with Adobe Acrobat).

If you have pictures or drawings, do not hesitate to make them **large**, especially if they are rich in details. Do not add a line before or after a figure.

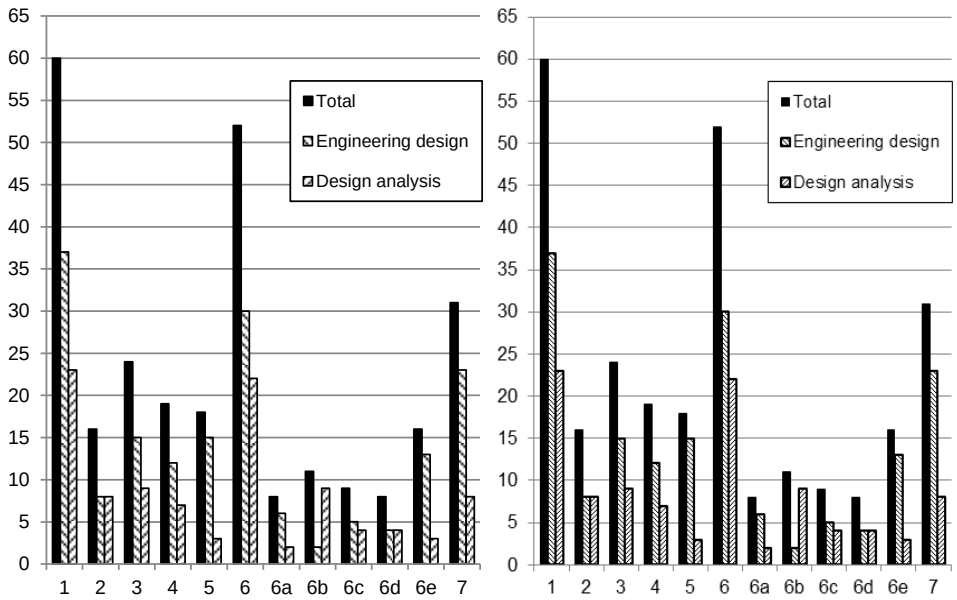


Figure 1.4 Difference between vector and raster graphics.

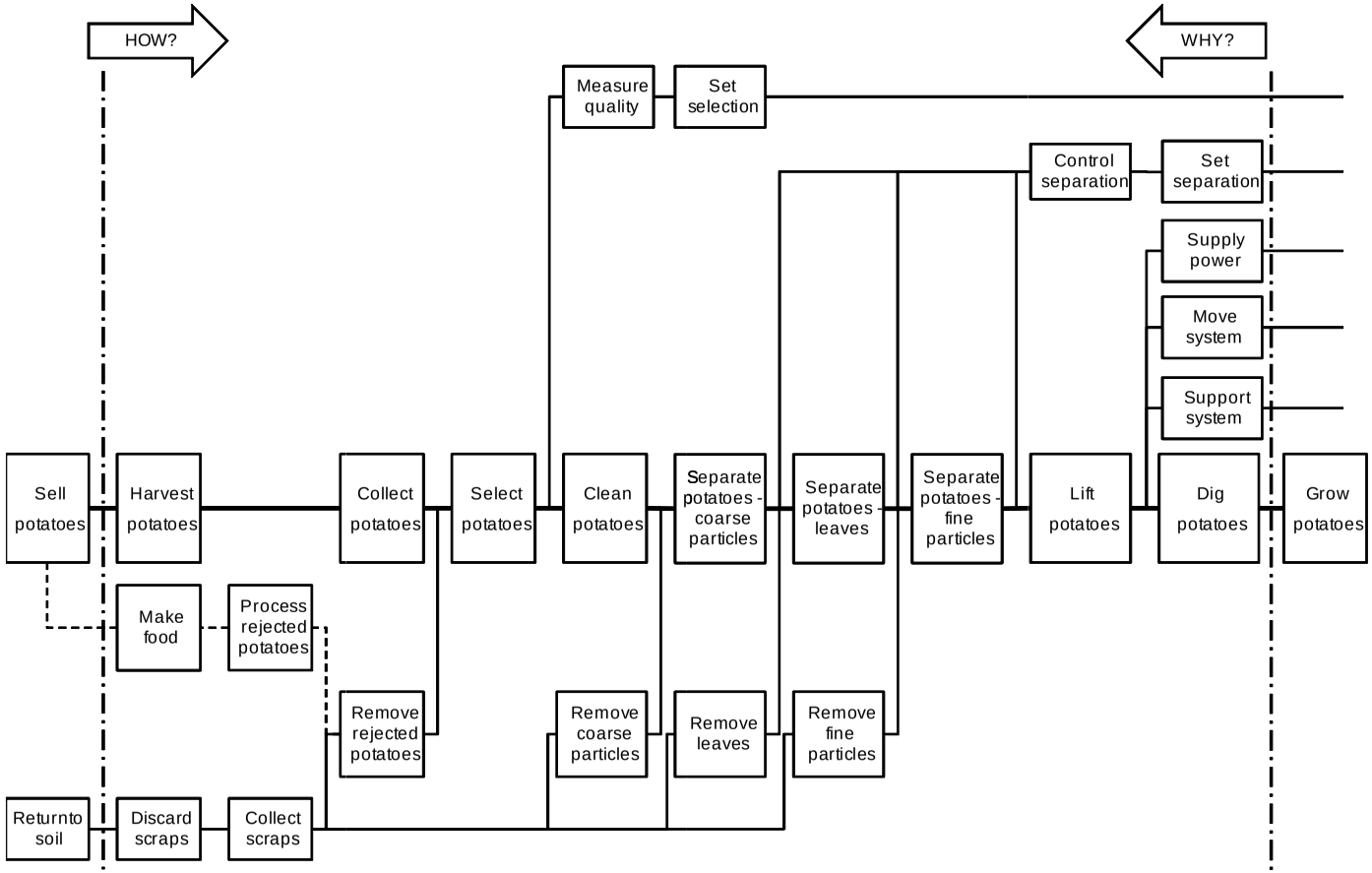


Figure 1.5. FAST diagram for the potato harvester example in Pahl and Beitz (2007a, pp. 176-177,184-185), modified from (Kardos 1988, Figure 1, p. 148).

1.5.3 **Equations**

To ensure a good formatting, just copy and paste this equation in your text, and change the equation accordingly. The equation should have the same font as the text.

$$c = n_1 \cdot n_2 \cdot \ldots \cdot n_i \cdot \ldots \cdot n_f \tag{1.1}$$

Do not add a line before or after an equation.

$$P(k,w,c) = 1 - \frac{c-w}{c} \cdot \frac{c-w-1}{c-1} \cdot \ldots \cdot \frac{c-w-k+1}{c-k+1} \tag{1.2}$$

$$P(k,w,c) = P(k,v,\infty) = 1-(1-v)^k, \forall c \tag{1.3}$$

Note:

- In mathematical formulations, letters are in italics but not figures.
- Exceptions:
  - The symbols for units are not in italics: m, Hz, C…
  - Neither are the functions: cos, sin…
  - The capital Greek letters should not be italicized either: Σ, Π, Δ, Φ, Γ, Ω…
- There should be **a space** between all elements of a mathematical formulation, see Equations (1.1) to (1.3).
- Follow the style given by Microsoft Equation Editor (for .doc-files or files in compatible mode) or the Equation Tools (for .docx-files). Do not forget to follow this style in the body text.

  Example: "Let $v = \frac{w}{c}$ be the proportion of targeted top solution principles (e.g. the top 5%)."

1.5.4 **Footnote**

Here is a footnote[1].

[1] Footnote.

1.6 Appendices

The format used for the appendices is the same as the body text of the report with the exception of the headings. Appendices are numbered with letters instead of figures, see below. The styles for appendices **in English** are labeled Appendix 1, Appendix 2, Appendix 3, Appendix 4, Appendix 5, respectively in the Styles list. The styles for appendices **in Swedish** are labeled Bilaga 1, Bilaga 2, Bilaga 3, Bilaga 4, Bilaga 5, respectively in the Styles list. If these styles are used, the appendices will be listed in the table of content.

Appendix/Bilaga A Title 1: 24 pt + left + 75 pt after

A.1 Title 2: 16 pt + left + 30 pt before + 16 pt after

A.1.1 Title 3: 12 pt + bold + left + 24 pt before + 12 pt after

A.1.1.1 Title 4: 11 pt + italic + left + 12 pt before + 3 pt after

A.1.1.1.1 Title 5: 11 pt + left + 12 pt before + 3 pt after

Figures in the appendices are numbered as follows: Figure A.1, Figure A.2, etc. There is unfortunately no simple way to automate the numbering. Figure numbers in the appendices must be written by hand.

1.7 Conversion to PDF

It is important to have good image quality in the resulting PDF document. Reading the PDF document is also easier if the headers of the Word document are bookmarked. Bookmarks are links in the PDF document that are visible in the navigation pane of the PDF reader and allow for quickly locating the chapters or sections of interest.

The recommended conversion tools are Adobe PDFMaker COM Addin and the MSOffice Toolbar Add-in 2012 from PDF-Xchange Standard 2012 but these are not always available on the campus computers. Alternatives are presented below.

Using Adobe PDFMaker COM Addin:

- On the Acrobat tab, in the Adobe PDF group, click the Preferences button.
- In the Preferences window, select the Bookmark tab:
    - Check "Convert Word Headings to Bookmarks."
    - Select the following styles Heading 1-5, Appendix 1-5 (or Bilaga 1-5), and Title.
- In the Preferences window, select now the Settings tab:
    - In the Default Settings menu, select the High Quality Print or Press Quality setting.
- Click OK.

Using MSOffice Toolbar Add-in 2012 from PDF-Xchange Standard 2012:

- On the PDX-Xchange 2012 tab, click the Settings button.
- In the Settings window, select the Bookmarks tab:
    - Check "Generate Bookmarks in Result PDF File."
    - Select the following styles Heading 1-5, Appendix 1-5 (or Bilaga 1-5), and Title.
- In the Settings window, select the Links tab:
    - Select the types of links you want in the resulting PDF file.
- In the Settings window, select the Settings tab:
    - In the Graphics option, Select No Downsampling and No Conversion, or select downsamplings and conversions similar to the High Quality Print or Press Quality settings of the Adobe PDF printer (see below).

If those tools are not present, it is possible to use the built-in PDF converter from Word. Black and white raster pictures such as scanned sketches can be of poor quality though:

- In Word, click the Save As button and select PDF in the Save as Type menu.
- Select Optimize for Standard alternative instead of Minimum size.
- Click the Options… button and select Create bookmarks using Headings.
- Click OK.

- Click Save.

Finally, if Adobe PDFMaker COM Addin and the MSOffice Toolbar Add-in 2012 from PDF-Xchange Standard 2012 are not available, and if the resulting PDF document from the Office built-in PDF converter tool is of poor quality, the Adobe PDF printer can be used. It does not allow for the creation of bookmarks.

- In Word, go to Print.
- Choose Adobe PDF as the printer.
- Click Printer Properties.
- On the Adobe PDF Settings tab, in the Default Settings menu, select the High Quality Print or Press Quality setting.

2 In-text citations and reference list

Two referencing systems have been adopted for the master theses at the Department of Design Sciences. These are described below.

2.1 The adopted referencing systems

The two referencing systems adopted are respectively:

- based on the so-called Vancouver system: The references are numbered according to the order they appear in the text. The reference is identified in the text body by its number; the full references are listed in the reference list in their order of appearance.
- and based on the so-called Harvard system: The authors' names and date of publication are cited in the body of the text. The full references are given in the reference list, in alphabetical order.

Within engineering the Vancouver system is the most common system and is used for example in the publications of the American Society of Mechanical Engineers (ASME), the Institute of Electrical and Electronics Engineers (IEEE) and the Association for Computing Machinery (ACM).

The Harvard system is used in other disciplines such as management or economics, but also in engineering, for example in the journal *Artificial Intelligence in Engineering, Design and Manufacturing* (*AIEDAM*), or in the *Proceedings of the International Conference on Engineering Design* (*ICED*).

The Harvard system allows an easier identification of the authors. Note however that the author name can precede the reference number in the Vancouver system. If one would adopt Ulrich and Eppinger's product development methodology, their names could be mentioned explicitly, and would then precede the reference number.

Example: "The approach for this project is inspired from the product development and design methodology developed by Ulrich and Eppinger [1] and by the Double Diamond methodology [2]."

2.2 In-text citations

2.2.1 **Vancouver system**

2.2.1.1 Master thesis written in English

Write the reference numbers in citation order! If more than two works are cited at once, write [1; 3; 5]. If works are cited following their order of appearance, write it this way: [1-4; 7] (it is equivalent to [1; 2; 3; 4; 7]).

With page numbers:

[1, p. 45]; [1, pp. 45, 52]; [1, pp. 44–48]

If the final page is not easily determined, write [1, pp. 45ff.]. Note that the symbol "pp." is used when referring to multiple pages.

With other information:

[3, Theorem 1]; [3, Lemma 2]; [3, Equation (2)]; [3, Figure 1]; [3, Appendix I]; [3, Heading 4.5]; [3, Chapter 2, pp. 5–10]; [3, Algorithm 5].

Authors' name:

As mentioned above, the authors' name can be given if this is useful for the reader. Example: "According to Ulrich and Eppinger [2]…"

If there are more than 2 authors, write the first author's name followed by "et al." (et alia, short for "and/with others"). Example: "According to Brown et al. [3]…"

If many arguments come from a single source, it is recommended to write it explicitly at the beginning of a paragraph or a section instead of repeating the source at the end of each sentence. For a whole paragraph, the source can be mentioned at the end (after the final period).

2.2.1.2 Examensarbete på svenska

Reglerna är samma som för den engelska varianten, förutom följande:

- Sidnumrering ifall man refererar till flera sidor är ”s.”. [1, s. 44-48], [1, s. 45ff]. Obs. att man inte använder symbolen ss. ifall man refererar till flera sidor (olikt den engelska stilen).
- Har man flera än 2 författare skriver man endast första författarnamnet följt med ”m.fl.” (med flera): ”Enligt Brown m.fl. [3]…”

2.2.2 **Harvard system**

2.2.2.1 Master thesis written in English

An example:

"… is surrounded by a grove of rich variation including psychology, computer science, pedagogy, social sciences and design science (Dix, Finlay, Abowd, & Beale, 1993; Gulliksen & Göransson, 2002; Sharp, Rogers, & Preece, 2002)…"

As you see, the references are written in a regular parentheses (), and the surnames of the authors are given, as well as the publication year. Different references are separated with ";" and authors with "," and "&". There are some special rules to this:

If the authors are more than 4, give the first author and add "et al." (short for "et alia" in Latin meaning "with others") to it:

"… (Wood et al., 2003)"

If you have more than one publication with the same set of authors the same year, the publications are referred to as "a," "b," etc.:

"(Rassmus-Gröhn, Magnusson, & Eftring, 2007a)"

"(Rassmus-Gröhn, Magnusson, & Eftring, 2007b)"

If you are mentioning the names of the authors more explicitly in text, you do this without the parentheses around the name(s), and only put the publication year in parenthesis:

"The importance of information transfer between users and developers has been described by von Hippel (2005), who characterizes information as being "sticky"…"

The basic set of the APA citation rules are reproduced Figure 2.1.

2.2.2.2 Examensarbete på svenska

Reglerna är samma som för den engelska varianten, förutom följande: Har man flera än 4 författare skriver man endast första författarnamnet följt med "m.fl." (med flera): "Enligt Brown m.fl. (2011)…"

Type of citation	First citation in text	Subsequent citations in text	Parenthetical format, first citation in text	Parenthetical format, subsequent citations in text
One work by one author	Walker (2007)	Walker (2007)	(Walker, 2007)	(Walker, 2007)
One work by two authors	Walker and Allen (2004)	Walker and Allen (2004)	(Walker & Allen, 2004)	(Walker & Allen, 2004)
One work by three authors	Bradley, Ramirez, and Soo (1999)	Bradley et al. (1999)	(Bradley, Ramirez, & Soo, 1999)	(Bradley et al., 1999)
One work by four authors	Bradley, Ramirez, Soo, and Walsh (2006)	Bradley et al. (2006)	(Bradley, Ramirez, Soo, & Walsh, 2006)	(Bradley et al., 2006)
One work by five authors	Walker, Allen, Bradley, Ramirez, and Soo (2008)	Walker et al. (2008)	(Walker, Allen, Bradley, Ramirez, & Soo, 2008)	(Walker et al., 2008)
One work by six or more authors	Wasserstein et al. (2005)	Wasserstein et al. (2005)	(Wasserstein et al.,2005)	(Wasserstein et al., 2005)
Groups (readily identified through abbreviation) as authors	National Institute of Mental Health (NIMH, 2003)	NIMH (2003)	(National Institute of Mental Health [NIMH], 2003)	(NIMH, 2003)
Groups (no abbreviation) as authors	University of Pittsburgh (2005)	University of Pittsburgh (2005)	(University of Pittsburgh, 2005)	(University of Pitts-burgh, 2005)

Figure 2.1 APA basic citation styles (APA, 2010)

2.3 Reference list

2.3.1 **The adopted reference style**

There are several variants, or styles, for the Vancouver and Harvard systems, that is, different ways of formatting the references in the reference list. In order to simplify the writing of the thesis, a common format is adopted. The only difference is that in the Vancouver system the reference list is numbered, while in the Harvard system the reference is ordered alphabetically. The chosen reference style is the

APA style (with some simplifications)[2]. The reason for choosing the APA style is that it is well documented:

- A complete description can be found in their manual: (APA, 2010).
- A Swedish digest has been edited the Institution of Psychology at Lund University: (Voog & Wångby, 2013).
- Further help can be found on the Internet at the APA homepage: http://www.apastyle.org/apa-style-help.aspx, in the association's blog http://blog.apastyle.org/ and at their Facebook address: https://www.facebook.com/APAStyle.

The rules below should cover most of the references usually used in a master thesis in engineering. If a specific type of reference is not in this document, look at the different sources mentioned, ask a question in APA's blog, etc. You should not need to ask your supervisor any question.

References:

American Psychological Association (APA). (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: American Psychological Association (APA).

Voog, H., & Wångby, M. (2013). *Hur skriver jag uppsats enligt APA, 6:e upplagan?* [How do I write theses and papers according to APA, 6th edition?]. Lund, Sweden: Samhällsvetenskapliga fakultetens bibliotek, Institutionen för psykologi, Lunds universitet. Retrieved November 11, 2014, from http://libguides.lub.lu.se/content.php?pid=128240&sid=1118173

Note: The lines after the first line of a reference are indented half an inch (1.27 cm) from the left margin and there is a double space between each reference. This is not necessary with the Vancouver system. For ensuring that the reference format is correct, use **References_Harvard** and **References_Vancouver** styles respectively.

2.3.2 How a reference is structured

The main purpose of a reference is to give the reader enough information to recognize the reference and to be able to find it.

[2] It is also possible for the student to follow exactly the APA style with help of the mentioned references.

Therefore, a reference consists in the authors' name (*who*), the date of publication (*when*), the title (*what*), possibly with supplementary information (*descr.*), the source (*where*), and other information if necessary (*misc.*). A classical reference has the following format:

Name, S. S. (date). *Title*. Source.

Or, if the reference is odd (e.g. a film on Youtube):

Name, S. S. (date). *Title* [supplementary information in square brackets or parenthesis, see examples in Section 2.3.3]. Source. (miscellaneous information within or without parenthesis)

Many scientific publications have now a so-called digital object identifier (DOI), a permanent identification number to electronic documents. This identifier gives a permanent link to the location of the document, even if the publisher moves the document into another homepage.

Some references such as reports or master theses do not have a DOI but are found in a homepage (such as LUP). In that case, indicate the address (or URL) with the **date of retrieval** (see examples in the next section). Internet links often become obsolete quite quickly, contents change, etc. and it is important to indicate precisely when the information was retrieved.

2.3.3 **Swedish and English reference examples**

This section gives examples of references grouped by categories. The Swedish examples are followed by the same examples in English. Note that the references in the report **shall not be regrouped by type**. In the Vancouver variant they should be put in **the order of their appearance** in the body of the report. In Harvard variant, they should be put in **alphabetical order according to the first authors' surname**.

2.3.3.1 Books

Write authors' names, year, title, location (city and country, except the USA), publisher, DOI or URL (ISBN not needed) in the following format:

[1] Ulrich, K. T. & Eppinger, S. D. (2012). *Product Design and Development* (5. uppl.). London, Storbritannien: McGraw-Hill.

[2] Ulrich, K. T. & Eppinger, S. D. (2014). *Produktutveckling – Konstruktion och design* (S. Bengtsson, övers.). Lund, Sverige: Studentlitteratur.

[3] Sorli, M. & Stokic, D. (2009). *Innovation in Product/Process Development* (vol. 2). London, Storbritannien: Springer. http://dx.doi.org/10.1007/978-1-84882-545-1_2

[4] Ulrich, K. T. & Eppinger, S. D. (2012). *Product Design and Development* (5th ed.). London, United Kingdom: McGraw-Hill.

[5] Pahl, G., Beitz, W., Feldhusen, J., & Grote, K.-H. (2007). *Engineering Design – A Systematic Approach* (K. Wallace, & L. Blessing, Trans. & Eds.) (3rd ed.). London, United Kingdom: Springer.

[6] Sorli, M. & Stokic, D. (2009). *Innovation in Product/Process Development* (Vol. 2). London, United Kingdom: Springer. http://dx.doi.org/10.1007/978-1-84882-545-1_2

2.3.3.2 Miscellaneous Internet documents

- **Homepage as a repository**: a homepage as such is considered as a place where a document is located, not as a document itself. It can be compared to a library or shelf in a library where documents can be found. For example, if one refers to the master thesis homepage of the Division of Product Development in order to find more information about these, the homepage is just mentioned in the body of the text. ”The last master thesis guidelines can be found at http://www.product.lth.se/education/master-thesis/.” If some information is extracted from this homepage, the homepage becomes a reference.

- **Homepage as a reference**: “According to [7], you should contact one of the following examiners before you start your master thesis in product development: Olaf Diegel, Damien Motte, or Giorgos Nikoleris.”

[7] Perlhagen, C. (2015). Master Thesis. Hämtad 10 november 2015 från http://www.product.lth.se/education/master-thesis/

[8] Perlhagen, C. (2015). Master Thesis. Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/

- **Homepage that is often updated**: Give if possible the exact date.

[9] Perlhagen, C. (2015, 6 november). Master Thesis. Hämtad 10 november 2015 från http://www.product.lth.se/education/master-thesis/

[10] Perlhagen, C. (2014, November 6). Master Thesis. Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/

- **Homepage as a reference: no author name**. The name is replaced by the title.

[11] Master Thesis. (2015). Hämtad 10 november 2015 från http://www.product.lth.se/education/master-thesis/

[12] Master Thesis. (2015). Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/

- **Homepage as a reference: no date**. Either you write that there is no date (n.d.) – svenska utan år (u.å) – or you try to find a probable date (the point being that the reader gets an idea about when the information was valid).

[13] Perlhagen, C. (u.å.). Master Thesis. Hämtad 10 november 2015 från http://www.product.lth.se/education/master-thesis/

[14] Perlhagen, C. [ca 2015]. Master Thesis. Hämtad 10 november 2015 från http://www.product.lth.se/education/master-thesis/

[15] Perlhagen, C. (n.d.). Master Thesis. Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/

[16] Perlhagen, C. [ca. 2015]. Master Thesis. Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/

- **Homepage as a reference: no title**. The context is described very shortly within square brackets.

[17] Perlhagen, C. (2015). [Hemsidan om riktlinjer för examensarbeten]. Hämtad 10 november 2015 från http://www.product.lth.se/education/master-thesis/

[18] Perlhagen, C. (2015). [Homepage on guidelines for master theses]. Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/

- **Homepage as a reference: several elements are missing**. The guidelines above are combined.

[19] [Hemsidan om riktlinjer för examensarbete] (u.å.). Hämtad 10 november 2015 från http://www.product.lth.se/education/master-thesis/

[20] [Homepage on guidelines for master theses]. (n.d.). Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/

- **Video (e.g. Youtube):** same guidelines as for a homepage. It is just necessary to add that the material is a video file. Both the full name and the user name of the person who posted the video should be given if they are available: Name [user name]. If only the user name is available, write it without brackets.

[21] Radinn. (2014, 9 september). Electric powered wakeboard by RADINN [videofil]. Hämtad 19 november 2014 från http://www.youtube.com/watch?v=82gFzJl4_k0

[22] Radinn. (2014, September 9). Electric powered wakeboard by RADINN [video file]. Retrieved November 19, 2014, from http://www.youtube.com/watch?v=82gFzJl4_k0

- **Other material from the Internet:** same guideline as for video material. The type of material is written within brackets [blog post, facebook page, tweet, etc.]. Both the full name and the user name of the person who posted the material should be given if they are available: Name [user name]. If only the user name is available, write it without brackets.

Table 2.1 summarizes the formatting of the in-text citation format for the Harvard system (cf. Figure 2.1) and the formatting of the full reference. The in-text citation

format of the Vancouver system is not affected by missing data (author or date) as the references are cited by the number of their order of appearance (e.g. [1-3]).

Table 2.1 Citation of online sources.

Type of electronic reference	***Citation in text (Harvard system)***	***Full reference (indent no shown)***
Homepage as a repository of document	Full URL http://www.product.lth.se/-education/master-thesis/	/
Homepage	(Perlhagen, 2015)	Perlhagen, C. (2015). Master Thesis. Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/
Homepage that is often updated	(Perlhagen, 2015)	Perlhagen, C. (2015). Master Thesis. Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/
no author name	("Master Thesis", 2015)[a]	Master Thesis. (2015, November 6). Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/
no date	(Perlhagen, n.d.) or (Perlhagen, [ca. 2015])	Perlhagen, C. (n.d.). Master Thesis. Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/ Perlhagen, C. [ca. 2015]. Master Thesis. Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/
no title	(Perlhagen, 2015)	Perlhagen, C. (2015). [Homepage on guidelines for master theses]. Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/
nothing	([Homepage on guidelines for master theses], n.d.)	[Homepage on guidelines for master theses]. (n.d.). Retrieved November 10, 2015, from http://www.product.lth.se/education/master-thesis/
Video or other material	Radinn (2014)	Radinn. (2014, September 9). Electric powered wakeboard by RADINN [video file]. Retrieved November 19, 2014, from http://www.youtube.com/watch?v=82gFzJl4_k0

[a] Citation quotes required in this case to indicate that this a title and not an author or organisation.

2.3.3.3 Personal communication (interviews, telephone communications, mail exchanges, etc.)

According the APA, elements that are not retrievable and thus cannot be verified, such as an oral communication, should not be in the reference list but direct in the text. This distinction is important for scientific articles, but less for master theses.

Moreover a student can get information from many different oral sources or from one source many times, and it is easier to have all sources available in a same location in the reports. Therefore the references to personal communications can be listed in the reference list.

Write the respondent name, position, working place, as well as the type of communication, and date.

[23] Carlqvist, O., universitetsadjunkt på avdelningen för maskinkonstruktion, institutionen för designvetenskaper, Lunds Tekniska Högskola, Lunds universitet, Lund, Sverige. Personligt samtal (2007, 11 mars).

[24] Carlqvist, O., lecturer at the Division of Machine Design, Department of Design Sciences LTH, Lund University, Lund, Sweden. Personal conversation (2007, 11 March).

2.3.3.4 Lecture material (e.g. PowerPoint presentation)

Write authors' names, year, title, type of material, location (city and country, except the USA), publisher, URL (do not indicate the URL if it comes from Live@Lund as only you can access it) in the following format:

[25] Bjärnemo, R. & Motte, D. (2014). Produktinnovation - Del 4-7 [PowerPoint-presentationer]. Avdelningen för maskinkonstruktion, institutionen för designvetenskaper, Lunds Tekniska Högskola, Lunds universitet, Lund, Sverige.

[26] Bjärnemo, R. & Motte, D. (2014). Produktinnovation - Del 4-7 [PowerPoint slides]. Division of Machine Design, Department of Design Sciences LTH, Lund University, Lund, Sweden.

2.3.3.5 Reports

Write authors' names, year, title, rapport number if any, location (city and country, except the USA), publisher, DOI or URL in the following format:

[27] Kirkwood, C. W. (2002). *Decision Tree Primer*. Tempe, AZ: Department of Supply Chain Management, Arizona State University.

[28] Visser, W. (2004). *Dynamic Aspects of Design Cognition: Elements for a Cognitive Model of Design* (Rapportnr 5144). Le Chesnay: INRIA. Hämtad 16 december 2005 från http://www.inria.fr/rrrt/rr-5144.html

[29] Kirkwood, C. W. (2002). *Decision Tree Primer*. Tempe, AZ: Department of Supply Chain Management, Arizona State University.

[30] Visser, W. (2004). *Dynamic Aspects of Design Cognition: Elements for a Cognitive Model of Design* (Report No. 5144). Le Chesnay: INRIA. Retrieved December 16, 2005, from http://www.inria.fr/rrrt/rr-5144.html

2.3.3.6 Patents

Write the **inventors'** names (not the applicants'), year (use "issued date" if several dates are given), title, country or region of the world the patent covers, patent or application number. This information is enough to retrieve the patent.

[31] Eriksson, G. A. & Wallengren, T. A. (2001). *A Method and a Plant for Assembly*. Patent WO 2001/094191.

[32] Sturdy, D. R., Marsh, R. L., Gallaher, J. D. & Olhoeft, P. F. (2006). *Intake manifold tuning valve actuator*. Patent U.S. 7,111,602.

[33] Eriksson, I. & Linderholm, D. (2014). *Energiupptagande stol*. Patent SE 536 954.

[34] Eriksson, G. A. & Wallengren, T. A. (2001). *A Method and a Plant for Assembly.* Patent WO 2001/094191.

[35] Sturdy, D. R., Marsh, R. L., Gallaher, J. D., & Olhoeft, P. F. (2006). *Intake manifold tuning valve actuator*. Patent U.S. 7,111,602.

[36] Eriksson, I. & Linderholm, D. (2014). *Energiupptagande stol* [Energy-Absorbing Car Seat]. Patent SE 536 954.

2.3.3.7 Standards

Write the full name of the organization followed by its abbreviation in parenthesis if wanted, year, title:

[37] International Organization for Standardization (ISO). (2000). *Quality Management Systems – Fundamentals and Vocabulary* (ISO 9000:2000). Genève, Schweiz: International Organization for Standardization (ISO).

[38] Swedish Standard Institute (SIS). (1992). *Toleranser - Generella toleranser - Del 2: Form- och lägetoleranser för element utan direkta toleransangivelser* (SS-ISO 2768-2). Stockholm, Sverige: Swedish Standard Institute (SIS).

[39] International Organization for Standardization (ISO). (2000). *Quality Management Systems – Fundamentals and Vocabulary* (ISO 9000:2000). Geneva, Switzerland: International Organization for Standardization (ISO).

[40] Swedish Standard Institute (SIS). (1992). Toleranser – Generella toleranser – Del 2: Form- och lägetoleranser för element utan direkta toleransangivelser (SS-ISO 2768-2) [Tolerances – General Tolerances – Part 2: Geometrical Tolerances for Features without Individual Tolerance Indications]. Stockholm, Sweden: Swedish Standard Institute (SIS).

2.3.3.8 Master and bachelor theses

Write authors' names, year, title, type of thesis, division, department, faculty, university, city, country (except the USA) in the following format:

[41] Carlsson, L. & Håkansson, A. (2014). *Optimized Day/Night Filter Mechanism* (Examensarbete, avdelningen för maskinkonstruktion, institution för designvetenskaper, Lunds Tekniska Högskola, Lunds universitet, Lund, Sverige).

[42] Westberg, J. (2014). *Proof-of-concept i produktutvecklingsprocessen* (Examensarbete, avdelningen för maskinkonstruktion, institution för designvetenskaper, Lunds Tekniska Högskola, Lunds universitet, Lund, Sverige). Hämtad 18 november 2014 från http://www.lu.se/lup/publication/4694141

[43] Carlsson, L. & Håkansson, A. (2014). *Optimized Day/Night Filter Mechanism* (Master Thesis, Division of Product Development, Department of Design Sciences LTH, Lund University, Lund, Sweden).

[44] Westberg, J. (2014). *Proof-of-concept i produktutvecklingsprocessen* [Proof of concept in the product development process] (Master Thesis, Division of Product Development, Department of Design Sciences LTH, Lund University, Lund, Sweden). Retrieved November 18, 2014, from http://www.lunduniversity.lu.se/lup/publication/4694141

2.3.3.9 Licentiate and PhD theses

These are listed in the same manner as master and bachelor theses:

[45] Nordin, A. (2012). *Transforming and strengthening the links between industrial design, engineering design and production* (Licentiatsuppsats, avdelningen för maskinkonstruktion, institution för designvetenskaper, Lunds Tekniska Högskola, Lunds universitet, Lund, Sverige).

[46] Cederqvist, L. (2011). *Friction Stir Welding of Copper Canisters Using Power and Temperature Control* (Doktorsavhandling, avdelningen för maskinkonstruktion, institution för designvetenskaper, Lunds Tekniska Högskola, Lunds universitet, Lund, Sverige). Hämtad från http://www.lunduniversity.lu.se/lup/publication/1961682

[47] Nordin, A. (2012). *Transforming and strengthening the links between industrial design, engineering design and production* (Licentiate Thesis, Division of Product Development, Department of Design Sciences LTH, Lund University, Lund, Sweden).

[48] Cederqvist, L. (2011). *Friction Stir Welding of Copper Canisters Using Power and Temperature Control* (PhD Thesis, Division of Product Development, Department of Design Sciences LTH, Lund University, Lund, Sweden). Retrieved from http://www.lunduniversity.lu.se/lup/publication/1961682

2.3.3.10 Book chapter

Use this type of reference only if the chapters are written by different authors (that is, the "authors" of the books are actually only editors). Otherwise, if the whole book is written by the same authors, refer to the chapter in the body of the text and give the whole book as a reference. Write authors' names, year, chapter title, editors' names, book title, page numbers, location (city and country, except the USA), publisher, DOI or URL (ISBN not needed) in the following format:

[49] Cross, N. & Clayburn Cross, A. (1998). Expert designers. I E. Frankenberger, P. Badke-Schaub & H. Birkhofer (red.), *Designers: The Key to Successful Product Development* (s. 71-84). London, Storbritanien: Springer.

[50] Koziolek, H. (2008). Goal, question, metric. I I. Eusgeld, F. Freiling & R. Reussner (red.), *Dependability Metrics* (s. 39-42). Berlin, Tyskland: Springer. http://dx.doi.org/10.1007/978-3-540-68947-8_6

[51] Cross, N. & Clayburn Cross, A. (1998). Expert designers. In E. Frankenberger, P. Badke-Schaub, & H. Birkhofer (Eds.), *Designers: The Key to Successful Product Development* (pp. 71-84). London, United Kingdom: Springer.

[52] Koziolek, H. (2008). Goal, question, metric. In I. Eusgeld, F. Freiling, & R. Reussner (Eds.), *Dependability Metrics* (pp. 39-42). Berlin, Germany: Springer. http://dx.doi.org/10.1007/978-3-540-68947-8_6

2.3.3.11 Articles in journals

Write authors' names, year, title, journal/magazine name, volume, issue, page numbers, DOI or URL in the following format:

[53] Ben Ahmed, W., Mekhilef, M., Yannou, B. & Bigand, M. (2010). Evaluation framework for the design of an engineering model. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing, 24*(1), 107-125. http://dx.doi.org/10.1017/S0890060409000171

[54] Nordin, A., Hopf, A., Motte, D., Bjärnemo, R. & Eckhardt, C.-C. (2011). An approach to constraint-based and mass-customizable product design. *Journal of Computing and Information Science in Engineering, 11*(011006). Hämtad den 18 november 2014 från http://lup.lub.lu.se/record/1788944

[55] Ben Ahmed, W., Mekhilef, M., Yannou, B., & Bigand, M. (2010). Evaluation framework for the design of an engineering model. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing, 24*(1), 107-125. http://dx.doi.org/10.1017/S0890060409000171

[56] Nordin, A., Hopf, A., Motte, D., Bjärnemo, R., & Eckhardt, C.-C. (2011). An approach to constraint-based and mass-customizable product design. *Journal of Computing and Information Science in Engineering, 11*(011006). Retrieved November 18, 2014, from http://lup.lub.lu.se/record/1788944

2.3.3.12 Papers in conference proceedings

Most of the time, conference proceedings are either published in form of a book or a journal (if they are published regularly). In the first case, use the book chapter format, in the second case, use the journal article format.

[57] Ang, M. C., Chau, H. H., McKay, A. & de Pennington, A. (2006). Combining evolutionary algorithms and shape grammars to generate branded product design. I J. S. Gero (Ed.), *2nd Design Computing and Cognition Conference DCC'06* (s. 521–539). Dordrecht, Nederländerna: Springer.

[58] Hatchuel, A., Le Masson, P. & Weil, B. (2001). From R&D to R-I-D: Design strategies and the management of "innovation fields". I O. A. M. Fischer & H. Boer (Eds.), *8th International Product Development Management Conference - IPDMC'01* (s. 415-430). Brussels, Belgien: The European Institute for Advanced Studies in

Management (EIASM). Hämtad 17 mars 2008 från http://www.cgs.ensmp.fr/publications/siteartic leconception1/HatchuelLeMassonWeil2001RID.pdf

[59] Wei, W., Liu, A., Lu, S. C. Y. & Wuest, T. (2015). Product requirement modeling and optimization method based on product configuration design. *Procedia CIRP - CIRP 25th Design Conference Innovative Product Creation*, 36, 1-5. http://dx.doi.org/10.1016/j.procir.2015.01.020

[60] Ang, M. C., Chau, H. H., McKay, A., & de Pennington, A. (2006). Combining evolutionary algorithms and shape grammars to generate branded product design. In J. S. Gero (Ed.), *2nd Design Computing and Cognition Conference DCC'06* (pp. 521–539). Dordrecht, The Netherlands: Springer.

[61] Hatchuel, A., Le Masson, P., & Weil, B. (2001). From R&D to R-I-D: Design strategies and the management of "innovation fields". In O. A. M. Fischer & H. Boer (Eds.), *8th International Product Development Management Conference - IPDMC'01* (pp. 415-430). Brussels, Belgium: The European Institute for Advanced Studies in Management (EIASM). Retrieved March 17, 2008, from http://www.cgs.ensmp.fr/publications/siteartic leconception1/HatchuelLeMassonWeil2001RID.pdf

[62] Wei, W., Liu, A., Lu, S. C. Y., & Wuest, T. (2015). Product requirement modeling and optimization method based on product configuration design. *Procedia CIRP - CIRP 25th Design Conference Innovative Product Creation*, 36, 1-5. http://dx.doi.org/10.1016/j.procir.2015.01.020

3 Chapter Header

This is the preamble (ingress) of the chapter.

3.1 Heading 2

3.1.1 **Heading 3**

3.1.1.1 Heading 4

3.1.1.1.1 Heading 5

References/Referenslista

The reference header is not numbered.

See the guidelines for more examples of references.

Harvard:

American Psychological Association (APA). (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: American Psychological Association (APA).

Voog, H., & Wångby, M. (2013). *Hur skriver jag uppsats enligt APA, 6:e upplagan?* [How do I write theses and papers according to APA, 6th edition?]. Lund, Sweden: Samhällsvetenskapliga fakultetens bibliotek, Institutionen för psykologi, Lunds universitet. Retrieved November 11, 2014, from http://libguides.lub.lu.se/content.php?pid=128240&sid=1118173

Vancouver:

[1] American Psychological Association (APA). (2010). Publication manual of the American Psychological Association (6th ed.). Washington, DC: American Psychological Association (APA).

[2] Voog, H., & Wångby, M. (2013). Hur skriver jag uppsats enligt APA, 6:e upplagan? [How do I write theses and papers according to APA, 6th edition?]. Lund, Sweden: Samhällsvetenskapliga fakultetens bibliotek, Institutionen för psykologi, Lunds universitet. Retrieved November 11, 2014, from http://libguides.lub.lu.se/content.php?pid=128240&sid=1118173

Appendix A Work distribution and time plan

According to the course syllabus for master theses, if the project has been performed by a group, the contribution of each student must be clearly discernible. The student(s) need also to demonstrate the ability to plan such a project and possibly reflect on the planning, execution and follow-up. This can be presented in the body of the document or in an appendix.

A.1 Work distribution

The work distribution among the students can be described in different ways, for example:

- If the students have performed different activities, these activities can be listed for each student. This can be the case if one student is from the specialization machine design and another from the specialization mechatronics.
- If the students have participated in all activities, the amount of work performed by each student for each activity can be given in the form of a percentage. This can be represented in a table.
- Both representations can be combined, etc.

It is important to show that both students have put the same amount of work in the project. This must consequently be considered already during the planning phase! It is generally sufficient to only report the work distribution for the main stages of the projects but it is also possible to be more detailed.

A.2 Project plan and outcome

You should give the planned project plan, the effective timeline of the performed activities, and comment the differences between both if necessary. A coarse project plan is generally enough. If a detailed plan is presented it should be easy to

understand for the reader. The timelines can be devised in MS Project but this not a requirement. The project plan and outcome can be represented one above the other (Figures A.1 and A.2) or in a single diagram (Figure A.3 or Figure A.4).

Large differences between both charts should be described.

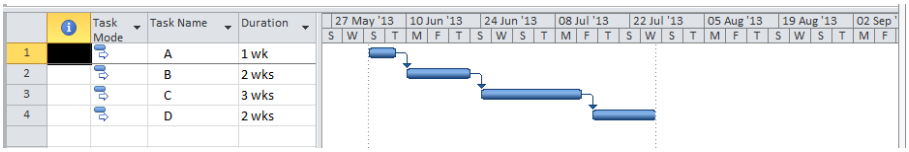


Figure A.1 Project plan.

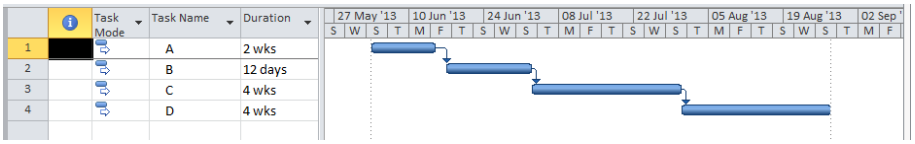


Figure A.2 Performed activities.

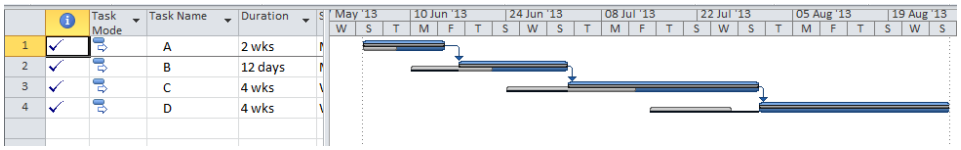
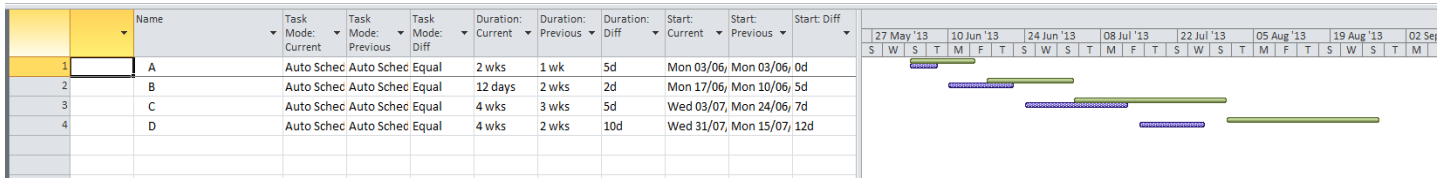


Figure A.3 Planned and performed activities.



	Name	Task Mode: Current	Task Mode: Previous	Task Mode: Diff	Duration: Current	Duration: Previous	Duration: Diff	Start: Current	Start: Previous	Start: Diff
1	A	Auto Sched	Auto Sched	Equal	2 wks	1 wk	5d	Mon 03/06/	Mon 03/06/	0d
2	B	Auto Sched	Auto Sched	Equal	12 days	2 wks	2d	Mon 17/06/	Mon 10/06/	5d
3	C	Auto Sched	Auto Sched	Equal	4 wks	3 wks	5d	Wed 03/07/	Mon 24/06/	7d
4	D	Auto Sched	Auto Sched	Equal	4 wks	2 wks	10d	Wed 31/07/	Mon 15/07/	12d

Figure A.4 Planned and performed activities.

Appendix B Chapter header (Style Appendix 1)

Preamble

B.1 Header (Style Appendix 2)

B.1.1 Header (Style Appendix 3)

B.1.1.1 Header (Style Appendix 4)

B.1.1.1.1 Header (Style Appendix 5)

Appendix C Chapter header

Preamble

C.1 Header

C.1.1 Header

C.1.1.1 Header

C.1.1.1.1 Header

Bilaga A Arbetsfördelning mellan examensarbetarna och tidplan

Enligt kursplanen för examensarbete ska, om arbetet gjorts i grupp, framgå vad var och en bidragit med. Studenten/-erna ska också kunna visa förmågan att planera sitt arbete och ev. reflektera över planeringen, utförande och uppföljningen. Detta kan redovisa i avhandlingen eller i en bilaga.

A.1 Arbetsfördelning mellan examensarbetarna

Arbetsfördelning kan beskrivas på olika sätt, exempelvis:

- Om studenterna har delat aktiviteterna med varandra kan man lista dessa för varje student. Det kan hända om en student är från specialiseringen produktutveckling och den andre/-a från specialiseringen mekatronik.
- Om studenterna har deltagit i stort sätt i alla aktiviteter kan man sammanfatta för varje aktivitet studenternas respektive insats i form av procentsats. Det anges med fördel i en tabell.
- Man kan kombinera båda sätt, osv.

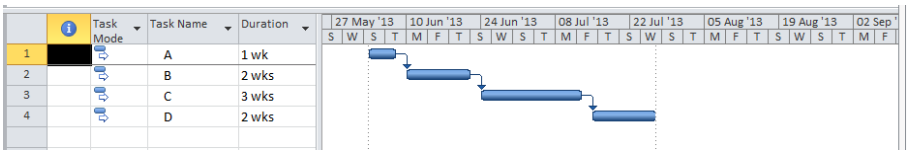
Det är viktigt att visa i arbetsfördelning att båda studenterna har sammanlagt lagt ner lika mycket arbete. Detta måste man således ta hänsyn till under planering av examensarbetet! Det kan vara lämpligt att endast redovisa arbetsfördelningen för huvudmomenten i arbete men man får vara mer detaljerad i sin beskrivning om så önskas.

A.2 Antagen tidplan och faktiskt utfall

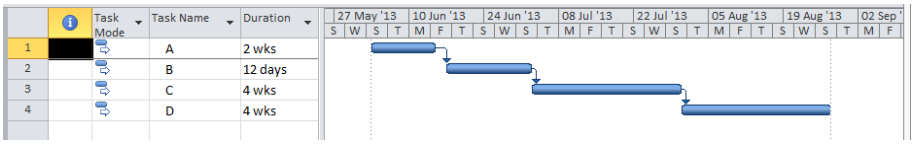
Ange här den planerade projektplanen och det faktiska utfallet samt kommentarer till skillnader mellan dessa. Det räcker med en överskådlig projektplan. Om en detaljerad har utförts kan denna gärna visas men den ska vara tydlig för läsaren. Projektplanen kan utformas i MS Project men det är inget krav. Projektplanen och

utfallet kan visas på ett av följande sätt: ovanpå varandra (Figurer A.1 och A.2) eller i ett enda diagram (Figur A.3 eller A.4).

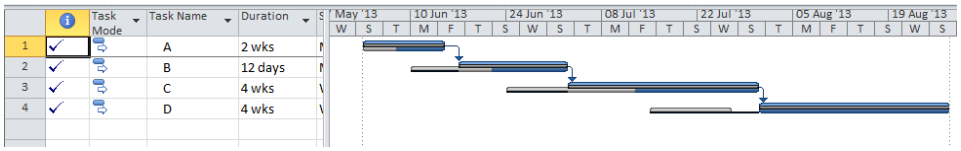
Stora skillnader mellan planerat och verkligt utfall bör beskrivas.



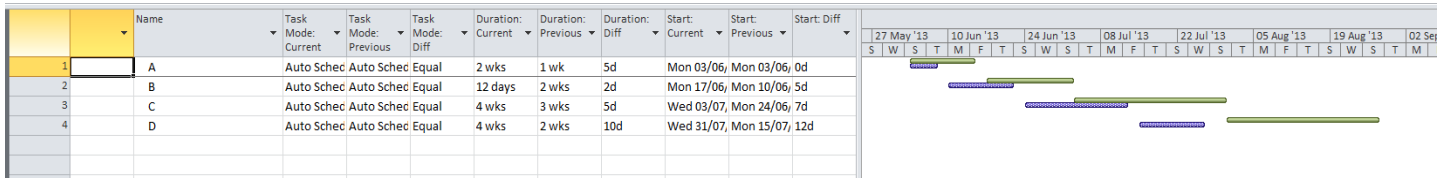
Figur A.1 Projektets tidplan.



Figur A.2 Faktiska utfallet.



Figur A.3 Antagen tidplan och faktiska utfallet.



		Name	Task Mode: Current	Task Mode: Previous	Task Mode: Diff	Duration: Current	Duration: Previous	Duration: Diff	Start: Current	Start: Previous	Start: Diff
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3		C	Auto Sched	Auto Sched	Equal	4 wks	3 wks	5d	Wed 03/07/	Mon 24/06/	7d
4		D	Auto Sched	Auto Sched	Equal	4 wks	2 wks	10d	Wed 31/07/	Mon 15/07/	12d

Figur A.4 Antagen tidplan och faktiska utfallet.

Bilaga B Rubrik (Stil Bilaga 1)

Ingress

B.1 Rubrik (Stil Bilaga 2)

B.1.1 Rubrik (Stil Bilaga 3)

B.1.1.1 Rubrik (Stil Bilaga 4)

B.1.1.1.1 Rubrik (Stil Bilaga 5)

Bilaga C Rubrik

Ingress

C.1 Rubrik

C.1.1 Rubrik

C.1.1.1 Rubrik

C.1.1.1.1 Rubrik