Practices to create and write exercise work reports etc.

**Learning outcomes:** how to use MTG or MTWI (Master’s Thesis Guide or Master’s Thesis Writing Instruction) and **Template** to create and write exercise work reports, and how to use references AND how to study

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For Example:
Wireless Communications I
Laboratory work 2016

- You MUST follow the Master’s (Diploma) Thesis Writing Instructions = MASTER’S THESIS GUIDE
  - http://www.oulu.fi/eeng/node/6987
  - www.oulu.fi/cwc/node/16411
  - [(Diplomityön teko-ohjeen (http://www.oulu.fi/ee/opiskelu/dippa)].

- Concentrate especially:
  - If you have a figure or a table, use numbering, and all of these need to be referenced to in the text body also
  - Every equation must have a number and it should be a part of complete sentence (such as figures and tables also)
  - References markings (citations) inside the text body must be used (this is important), as that is one of the most fundamental principles of scientific writing.
Other important aspect is the completeness of your report, i.e. it should be possible to read and understand your report as such without reading the instruction paper.

The extent of your report will naturally be narrower than thesis, put practicing before real Diploma (Master) thesis writing is important.

- **Evaluation**
  - **Pass**: The Report needs to demonstrate (= you have written theory enough and explain to results through the course theory), that you have understood most of the mechanisms behind the result, you have answered all the tasks (=questions), **AND you have followed MTWI**
  - **Fail**: If your report fails to answer the required questions of instruction paper or there are significant misunderstandings or you have not followed MTWI precise enough
For Example:
Mobile Telecommunication Systems
Laboratory work (project) 2016

- In your report apply the thesis writing instructions
  - The extent of your report will naturally be narrower than thesis, put practicing before real Diploma thesis writing is important
- So, for example, already in this report it’s important to use correct citations (*reference markings*), as that is one of the most fundamental principles of scientific writing
- Other important aspect is the completeness of your report, i.e. it should be possible to read and understand your report as such without reading the instructions of the work
For Example:
Mobile Telecommunication Systems
 Laboratory work (project) 2016

• Pass
  – … AND you have followed Master’s (Diploma) Thesis Writing Instructions (MTWI). Concentrate especially:
    • If you have a figure or a table use numbering, and all of these need to be referenced to in the text body also
    • Every equation must have a number and it should be a part of complete sentence (such as figures and tables also)
    • References markings (citations) inside the text body must be used (this is important)

• Fail
  – … or you have not followed MTWI precise enough …
For Example:
Broadband Communications Systems
Laboratory exercise 2016

• Reports should be returned in official Thesis format
  – You can use Word template.doc or Latex template (read Latex help.txt)

• At least the following chapters should be included in the reports are: Cover letter, abstract, table of contents, abbreviations, actual content of the report and the reference list

• Use the right format when referring to sources (for example course material) or figures
  – All the necessary instructions are provided in the Thesis instructions (Diplomityöohje.pdf)
Goal for using the Thesis template is to get familiarized with formal technical reporting from early on

Pay attention to your writing format

Dull technical writing is preferred

AND SO ON…
Practice makes perfect!

- More or less every Report has to be written by using the same rules (MTWI)
- And finally you will write your **REAL Thesis** by using the same rules
  - Of course the instructions must be followed even more closely then
- Ë You need to know how to use (correct) Template and you need to **READ and UNDERSTAND** Master’s Thesis Guide before that
- And may be you want the continue as a researcher Ë you need to know how to write technical articles and so on
Master’s Thesis Guide – some of the most important issues

- Master’s Thesis Guide is right now in the updating process (also Finnish version)
  - But all the issues dealing with for example Typography and The Literary Structure of a Master’s Thesis are correct
    - You can write your Reports “correctly”

- We have a good Template
  - Latest 2016 Word Template for Master’s Thesis Writing
List of abbreviations and symbols

• All abbreviations and symbols used in the thesis have to be listed on this page

• You also have to explain all abbreviations and symbols when they first appear in the text

• You should first explain all abbreviations, then mathematical (and other similar) symbols, so that Latin, Greek, etc. letters are all grouped separately

• Example page in Master’s Thesis Guide is like that, but explanation on page 20 is not similar
  – This will be solved out later, but before that, write abbreviations at first
The Linguistic Style

• The aim is a clear and well-structured thesis, without unnecessary excessive use of words – a thesis usually has 40-100 pages

• The language (English/Finnish/Swedish) should be fluent and readable, and it should adhere to the conventions and recommendations applied in a particular language
Typography

- A lot of rules **USE TEMPLATE**
  - Then Font, Paragraph settings, Spacing, and so on will be right
  - On the other hand: **DO NOT change anything**!
    - Font: Times New Roman
    - Paragraph settings:
      - Left indentation: 4,5 cm
      - Right indentation: 2,0 cm
      - Right indentation: 2,5 cm
      - Lower margin: 3,0 cm
    - Spacing:
      - Before a heading: 2 empty rows
      - After a heading: 1 empty row
      - Between two headings: 1 empty row
Typography

• Line spacing: the default value for each font size, which is usually the font size +
  2 pts
• 1 empty row should be left between chapters. The 1st paragraph after a heading
  should not be indented
• Subsequent paragraphs should be indented by 0.5 cm (not 0.4 cm)
• 1 empty row should be left between text and caption text
• Table structure and the different fonts used in different instances are explained
  in Table 1 (look at the Guide)
• In tables, the table heading has to be placed above the table
• The table heading should not end in a full stop
• The figure caption text is situated underneath the figure and the caption
  text ends in a full stop
• There should be no references in a caption text
• The first page number to be printed on the page is after the title Introduction
  – Numbering is by Arabic numerals, page numbers are placed at the top right hand
    corner of the page
• AND some other rules (look at the Guide)
Formatting the figure captions

- Figures, tables and appendices are a part of the written presentation.
- All these need to be referenced to in the text body, preferably before the figure is placed in the text – i.e., first the referring text, then the figure or table.
- Figures and tables have a running number through the document – or chapter wise, if there are plenty of figures.
- According to the copyright enactments, you must always have the permission of the publisher to display a figure from its origin.
  - The writer should grow towards to mainly using figures of his own in the thesis.
  - In the Report this is not critical (it will be seen only the Teacher).
Write simply

• The first sentence of a paragraph should define its contents
  – The following sentences clarify the issue

• Reports:
  – Answer all the questions
  – Write only the theory you will need and use (or it is asked)
  – Use your own words!
  – Less is more!
  – But if you have to calculate something, just an equation and final answer is not enough
    Ë you should mark “your thinking visible”
Write simply

- However, you should avoid unnecessary writing-up, i.e., the theory you present should be closely linked to the focus of your thesis (or the tasks of the Report).

- You should also notice that many thesis do not have a separate theory section at all.

- Hence you do not have to include a theory in your thesis, unless the theory fits directly into your overall research goal(s) or is needed in the work.
Equations

• The are a lot of instructions in the Guide (read those at least before real Thesis)
  – For example: The mathematic variables and symbols used in equations should be italicized. Vectors should be italicized in bold. Numbers, units, and sub-indices or subscripts should not be italicized (sub-indices or subscripts that include symbols of equations should all be italicized). Greek letters should not be italicized.

• Every equation should be a part of complete sentence

• Equations should be numbered by applying running numbering, from the beginning to the end of the thesis

• The numbering should take place at the right side of the equation in parentheses
Equations

• You should refer to the equation in the text by referring to the number of the equation, e.g.: "As seen in Equation (1), the..."

• An example: In steady movement, speed \( v \) is

\[
v = \frac{s}{t}, \tag{1}
\]

where \( t \) is the amount of time required by the movement, and \( s \) is the distance [x].

– Remember also reference markings, unless you have derived the equation yourself
References

- The literature survey should be close to exhaustive, and this means that most of the information you present is taken from references.
- If a piece of information is not derived or devised by you, it is borrowed, and the origin of the information must be stated.
- Presenting somebody else’s finding as your own is a scientific theft (plagiarism) that has serious consequences.
- You should refer to original sources of the data – for example, to a book and not the handouts made based on the book.
  - It is not so important in Reports – you are just practicing.
- Be careful when referencing: the things you state really need to be found from the reference.
References

• The references are mostly cited in your own words, and direct quoting is used only if you want to emphasize the source.

• In this case you place the quote in hyphens, for example saying that the exact phrasing of Moore’s law is of form
  
  – “The complexity for minimum component costs has increased at a rate of roughly a factor of two per year.” [x].

• You should apply a running numbering for referencing and present your reference sources in your bibliography in the order in which they appear in the text.
References

- The last name of the author should be written first, followed by the initials of the author's first names.
- **Reference in the text should be indicated with a reference number**, e.g., [1] or [1, 2, 5].
- **When a reference or quote applies to the single sentence**, the reference is placed at the end of the sentence before the full stop.
- **If the reference supports the entire paragraph**, the cite is placed at the end of the paragraph, after the last full stop.
- Acronyms should be written in capital letters, irrespective of how it is written in full.
- Abbreviations should be indicated with a full stop at the end.
- Names of publications in the bibliography should be written out in the language of the publication.
- The way in which you present your references in the bibliography can best be exemplified by the examples which you can find from the Guide.
Example: BPSK

X. REFERENCES


• Write only the theory you will need (or it is asked)
• **DO NOT USE COPY and PASTE!**
• Write what you need (and only that) by using your own words
  – YOU WILL LEARN!
• Don’t copy and paste equations; if you really need one, write it for yourself
  – Remember that you have to explain all the symbols when they first appear in the text AND
  – All symbols used have to be listed and explained on the page “List of Abbreviations and Symbols”
• Mark the reference in the Text [X] and the References page (look at slide 21 and the top of the this slide)
  – Template
• Be **prepared** well **in advance**!
  – check out the material in advance
  – read and practice
  – **follow teaching, make notes**
  – read and practice
  – **read and practice**
  – use the help of your friends (study together)

• **Be on time at right place!**

• **Plan your time!**
  • How many hours per week you have to study?

• **TEE OPPIMISTEKOJA!** <= what is this?
• Thursday 12th October, 16.15-18.00, L1: Planning your UniOulu studies: Time management and learning, UO education services, see more: http://www.oulu.fi/university/improving-study-skills-competences

• Friday 13th October, 8.15-10.15, TS127: How to study at CWC: How to prepare for university exams, UO exam practices, How to write exercise work report based on master's thesis writing instructions, Timo Kokkonen

• Thursday 19th October, 14.15-16.00, PR101: Finnish work life coaching: Labour unions in Finland, Introduction to Finnish labour market issues for foreigners, unemployment etc. benefits, Ms. Saara Moisanen and Dr. Daniel Valtakari from TEK labour union for Academic Engineers and Architects in Finland, Coffee & tea & coffeecake offered by TEK, see more about TEK labour union's activities: https://www.tek.fi/en

• Thursday 19th October, 16.15-18.00, L1: From student to professional: Identifying your competences and career planning, see more: http://www.oulu.fi/university/improving-study-skills-competences