KU LEUVEN

Technology campus Gent
Master thesis ELICT

T. Wauters
L. Van der Perre
C. Naessens

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Faculteit Industriële Ingenieurswetenschappen

Master thesis: learning objectives

Students need to prove that they can autonomously (possibly in team of 2) thoroughly deepen a problem.

It is thereby essential that the students make a sufficiently relevant own contribution based on a critical scientific attitude to the realization of the assignment.

In text and presentation: show your readers– public that you succeeded in the above mission!

Approach: our recommendations

- Maintain a regular working intensity

  (20 SP=500-600 hours, hence min. 17h/week during 30 weeks

  – defense in EP1 ‘full-time job’ – next chance in EP**3**)

- At the beginning spend sufficient effort to:
  - Gather relevant information regarding the assignment and subject (literature study, experts...)
  - Plan the work and define milestones

- Critically assess the information you gather as well as your own work

- Adopt a proactive attitude

Evaluation of the master thesis

- Process (40%) – by advisors/supervisors
  - Process – working attitude (15/40)

    Approach and planning, Punctuality, Taking initiative and autonomy, Communication, Functioning in team, Effort and motivation
  - Process – methodology & result (25/40)

    Analysis of the assignment, Gather and process information, attention to the broader context, quality of the working method, quality of the end-result, critical analysis, personal contribution

- Thesis text (30%) – by advisors/supervisors/reading committee
  - Text – formal (1/3)
  - Text – content & product (2/3)

- Presentation (30%) – by jury members
  - Presentation & defense - form (1/3)
  - Presentation & defense – content & product (2/3)

Guidance

https://iiw.kuleuven.be/studenten/masterproef

- Coaching and supporting
- Clear agreements: student's responsibility, keep us posted!
  suggestion: to update per Email every 1-2 weeks
- Student to become the 'specialist'
- Each supervisor can apply a preferred follow-up system
- Link Master thesis tips and tricks: https://dramco-edu.github.io/Thesis-Tips-and-Tricks/
- Link LaTex: https://github.com/dramco-edu/LaTex

Administration – insurance for master thesis out of KU Leuven

Fill in and print 3 copies of the applicable form:

- 1 for the company,
- 1 for the student,
- 1 for KU Leuven – Master thesis coordinator

Key deadlines:
Defense in June (January)

- First planning: within first month of the semester (Oct.)
- Description of the assignment: November 9th (October 29th)

Second information session: March (date to be announced) 2022

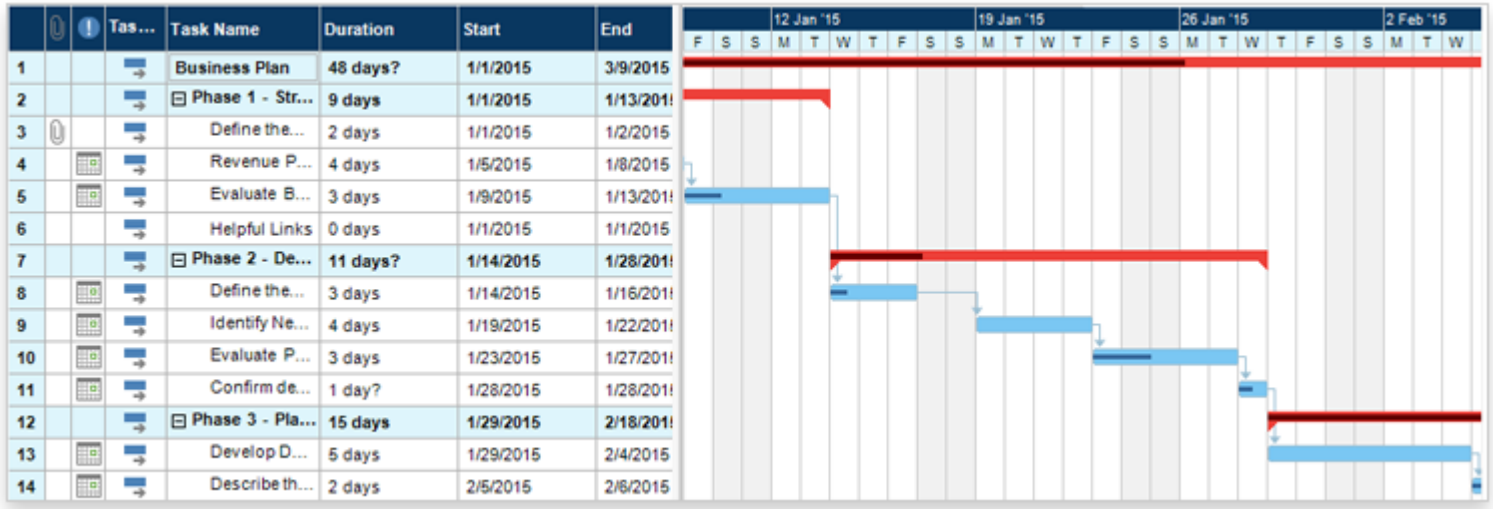
- Poster + abstract and title: 2nd May 2022 (December 10th 2021)
- Submit the thesis - digital: Monday May 26th 2021 (January 27th 2022)
- Defense: end June 2022 (end Jan./begin Feb. 2022)

Description of the assignment (‘opdrachtomschrijving’)

- In the description of your master thesis you summarize on **one page** the following elements:
  - Positioning of the thesis. Sketch the *context* and the *problem statement* in an appealing manner, such that it can also attract interest from non-experts.
  - Formulation of the objectives. You formulate a few very concrete objectives you want to realise in your thesis. This can be a list-format..
  - Planning. Make a work plan. Divide your work in work packages and define a few key milestones. Take into account dependencies between tasks.
- Discuss this description with your supervisors. Note: you may have other tasks ~deadline and for sure your supervisor(s) do -> plan!
- **Submission:**
  - Via Toledo in your Master-thesis community.

Planning visualisation: Gantt chart

Wikipedia: A **Gantt chart** is a **bar chart** that illustrates a project schedule, named after its popularizer, Henry Gantt (1861–1919). Modern Gantt charts also show the dependency relationships between activities (& the current schedule status).



	Tas...	Task Name	Duration	Start	End
1		Business Plan	48 days?	1/1/2015	3/9/2015
2		⊟ Phase 1 - Str...	9 days	1/1/2015	1/13/201
3		Define the...	2 days	1/1/2015	1/2/2015
4		Revenue P...	4 days	1/5/2015	1/8/2015
5		Evaluate B...	3 days	1/9/2015	1/13/201
6		Helpful Links	0 days	1/1/2015	1/1/2015
7		⊟ Phase 2 - De...	11 days?	1/14/2015	1/28/201
8		Define the...	3 days	1/14/2015	1/16/201
9		Identify Ne...	4 days	1/19/2015	1/22/201
10		Evaluate P...	3 days	1/23/2015	1/27/201
11		Confirm de...	1 day?	1/28/2015	1/28/201
12		⊟ Phase 3 - Pla...	15 days	1/29/2015	2/18/201
13		Develop D...	5 days	1/29/2015	2/4/2015
14		Describe th...	2 days	2/5/2015	2/6/2015

© Gantt.com

Left: list of the activities , Top: suitable time scale. Each activity is represented by a bar; the position and length of the bar reflects the start date, duration and end date of the activity.

Result: you can see what you have achieved/where you are in the project, and what you're up to

Creating the Gantt chart for your thesis

1. List your tasks (e.g. Literature study, architecture design, poster creation, …) **and** how long you expect tasks to take

2. Lists the interdependencies (e.g. PCB processing can only start after design)

3. Note the important milestones and deadlines, **and** periods that you will not be able to work on the thesis

4. Schedule! Plan, reconsider/iterate if needed

5. Manage: update according to actual status, replan if needed, reconsider scope (**discuss** with supervisors)

Documents to submit + deadlines

Poster (EP2: 2nd May 2022, EP1: 10th Dec. 2021): Deliver to the secretariat (A3-format) printed
(EP3: unless explicitly requested EP2 poster, if missed submit with text)

Text including scientific article (EP2: May 26th 2022, EP1: Jan. 27th 2022, *EP3 1st Sep 2022*)

Note: deadline is midnight submitted, avoid traffic jam and/or problem with long upload, system closes on time automatically

- Digital submission via KU Loket is obligatory (control on plagiarism!)
- Printed books:
  - 1 printed copy to deliver to the secretariat within one week of the electronic submission
  - Agree with your supervisor(s) on extra printed copies
- Take into account X (>1) weeks to get the text reviewed by supervisor/advisor

  (X = function (student, advisor) -> in agreement)
- Start the writing on time

Presentation

Per individual master thesis: 20 min. presentation + 15 min questions by the jury (30 min + 20 min for duo-thesis)

Content:

- Objective/research question + problem positioning
- Approach/method
- Results achieved
- Conclusion (focus own contribution) and future R&D

    - Check your presentation for language/spelling mistakes
    - Train you presentation – not too long, neither too short
    - In case of demonstration, consider making a movie as a back up

Luck is where opportunity meets preparation

Seneca

Best of luck!

Extra information on text and presentation – for students with EP1 exam

What to consider ~beginning of December?

1. Revisit your planning, adapt if needed.

2. Master-thesis = **your** project and **your** responsibility to meet the targets and comply with the guidelines. Take initiative, keep your supervisors informed, find/ask for help on time.

3. Text: Foresee sufficient time for writing and getting early feedback

4. Presentation: Prepare professionally and practice

Effective communication: 3 basic laws

© www.principiae.be

1. Adapt to your audience
2. Maximize the signal-to-noise ratio
3. Use effective redundancy

Your thesis = Scientific text

- Correct both concerning content in all the specifics and from introduction to conclusions, and written correctly (spelling, grammar). Clear: well structured and logic order
- Correct referencing, minimize ‘reuse’ from other sources and be a perfectionist in referring meticulously!
- Focus on your own results and main findings. Guideline ‘main’ text max. 70p, code/designs/details/lengthy context can go in appendix .
- Should not read like a diary or a travel report

- Templates and guidelines (found in these templates) online, Include a scientific article in your thesis

https://iiw.kuleuven.be/studenten/masterproef

Make sure to provide a correct biography and specific and consistent references

- Strict rules apply!
- Note that ‘pure’ translations and copy of pictures/graphs without clear reference ‘on the spot’ is also plagiarism
- Failing to refer correctly constitutes an ‘irregularity’

- Need help?
  - Eef.soete@kuleuven.be
  - Toledo community IIW Bibliotheek Gent/Aalst
  - (Online) thesis café: helping you with processing of information, academic writing, motivation and planning

Plagiarism is not about a ‘%’ found by a tool, it is about a correctness in formulation and in attitude

- A ‘google translated’ copy is still a copy.
- A text with few words adapted/deleted, order of sub-sentences changed, …: suspicion of attempt to manipulate the tool.
- The tool does not recognize tables, figures, … but your master thesis coordinator does – can see more than the tool/actively checks links.
- A reference to a document ‘somewhere’ in the text does not cover for relying on that document on other places.
- A literal quote should be “literally quoted”.
- If you don’t know where information comes from or how to refer correctly: search and if you can not find: ask help or decide not to trust/use.

Example of how it should (not) be done

(note: exact copy of text & figure, example does not show full context)

Due to the increased periods of sitting at work or home, improper sitting posture is related to numerous health disorders of the musculoskeletal system [1].

A typical IPMS architecture is shown in Figure 1.

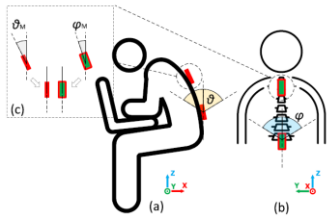


Figure 1: IPMS architecture

[1] Wearable Smart Health Advisors: An IMU-Enabled Posture Monitor

A recent study reports [1] “due to the increased periods of sitting at work or home, improper sitting posture is related to numerous health disorders of the musculoskeletal system.”

A typical IPMS architecture is shown in Figure 1.

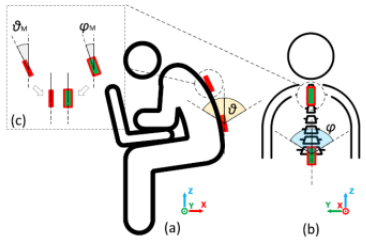


Figure 1: IPMS architecture [1]

[1] A. Petropoulos, D. Sikeridis and T. Antonakopoulos, "Wearable Smart Health Advisors: An IMU-Enabled Posture Monitor," in *IEEE Consumer Electronics Magazine*, vol. 9, no. 5, pp. 20-27, 1 Sept. 2020, doi: 10.1109/MCE.2019.2956205.

Pay attention to correct and clear charts and graphs

- Which insight do you want to show/illustrated with the graph? Design it in this view.
- Name axes correctly.
- Do not forget the legend.
- Provide a meaningful caption.
- Add explicit interpretation in your text.

Presentation: what to prepare?

Per individual master thesis: 20 min. presentation + 15 min questions by the jury (30 min + 20 min for duo-thesis)

Should contain:

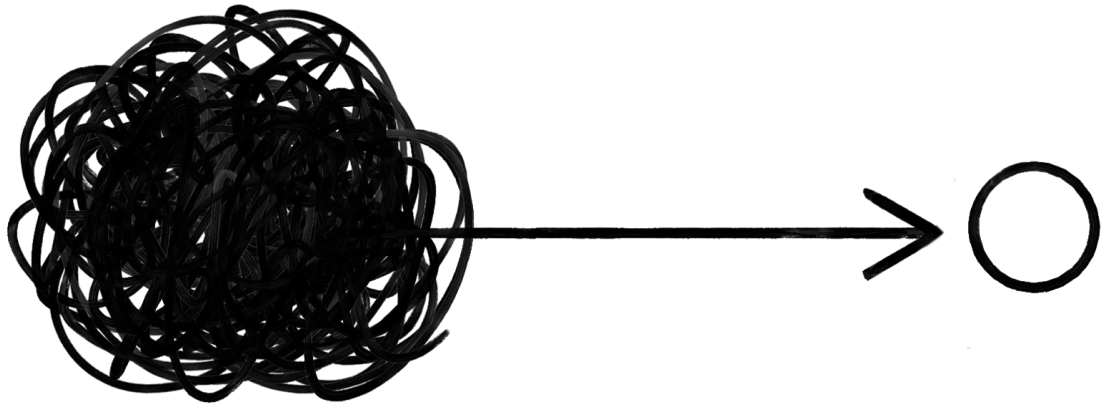
- Target/research question + situation of the problem
- Approach/method
- Results you achieved
- Conclusions (focus on your own contribution) and future R&D
  - Check your presentation for language/typo's
  - Train for your presentation – neither too long nor too short
  - A life demo is very welcome, best to foresee a video for unforeseen problems (remember Murphy comes uninvited)

Tips for the presentation: how? Think first!

- First plan your presentation: sketch a structure
- Design slides with a message
- Explain what you found out, not a travel journey
- Practice!
- Non-verbal communication is crucial: present for your public and ‘in the moment’

http://www.treesmapsandtheorems.com/pdfs/TM&Th-3.0-summary.pdf

Answering questions: how? Think!



1. Listen!
2. Repeat/reformulate the question if needed.
3. Think.
4. Formulate a concise answer.