A guide to preparing the **Capstone** *project proposal* and *final report* in the Faculty of Engineering and Natural Sciences

The purpose of this guide, and the capstone report template (linked below) is to make the report writing process easier and to guide the capstone team through the design process. This guide covers the preparation of both the *project proposal* (to be submitted at the end of 4991) and the *final report* (to be submitted at the end of 4992), these are very similar, requiring only one template to cover both.

The ***project proposal*** will outline your **proposed solution** of the problem with the aim of convincing your advisers that you are ready to move on to the materialization phase in the following semester. By the end of the 4991 course semester you are expected to present a description of the solution up to the *physical architecture* step. This description should remain the same (except for small updates) for both the *project proposal* and the *final report*. Prototyping is encouraged, but depending on the type of project this may not be expected.

The ***final report*** in the second semester will continue from the *project proposal*, added an account of the materialization and validation of the product.

this guide: *https://capstone.eng.bau.edu.tr/doc/CapstoneReportGuide.pdf*

the report template: *https://capstone.eng.bau.edu.tr/doc/CapstoneReportTemplate.docx*

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This works for 7 of 10 departments.
You can find alternative templates for Section 3 for the CEN, ENM and IEN departments in the course resources.

Changelog

Template version 2021.02.20

The previous two templates have been combined into a single document and the guiding notes have been moved to a separate guide.

- Add/rename/move sections to improve the organisation of the report (reduce repetition, add missing objectives).
- BAU logo added to the header page.
- Some figures/tables have been improved
- Corrections for references

Template version 2021.05.01

Section 1.2.3. Constraints

- emphasized the extra information about constraints that is available in the guide relating to Economics, Environmental, Social impacts of the product.

Guide version 2021.02.20

First version. *The guiding notes have been moved from the previous template to this guide and expanded considerably.*

Guide version 2021.05.01

Section 1.2.3. Constraints

- Added a whole page providing extra information about constraints relating to Economic, Environmental, Social impacts of the product.

Guide version 2021.05.23

Section 4.2 Evaluation (Final Report)

- Fix the malformed guide description for this section.

Please send comments/corrections/suggestions to Dr Andrew Beddall (andrewjohn.beddall@eng.bau.edu.tr)

Title page

1. The *header* of the title page shows the template version, make sure you have the latest version.
Double-click and remove the sentence in the header (it will be removed from all pages).

2. Choose either "Capstone Project Proposal" for 4991, or "Capstone Project Final Report" for 4992, and write the title of the project (include the project code).
If you are using the template for your status report, you can give it, for example, the title "Capstone Project Proposal (status report)"

3. List all your team members including their departments. Order names by surname so that everyone has equal status.

4. List the project advisers, again ordered by surname. Give proper titles to the advisers (you can find them on the faculty website).
Use the following (English language) titles:

"Assist. Prof." - for assistant professors (*Dr. Öğr. Üyesi*)
"Assoc. Prof." - for associate professors (*Doç. Dr.*)
"Prof." - for full professors (*Prof. Dr.*)

5. Write the current month and year.

STUDENT DECLARATION

Read this page, understand it; it is your promise to us and to yourself. Encourage your teammates to do the same.
See also *Ethical Thinking* on the capstone website.

Abstract

Project Proposal

The abstract is not required in the project proposal. Delete this page for now, but don't forget to add it back in the final report!

Final Report

This page is required in the final report.

The purpose of an abstract is to allow the reader to quickly review the work allowing them to decide whether it is of further interest to read. This maybe someone in the future looking for a project that is of interest to them. The abstract is an opportunity for the reader to get a general understanding of the scope and results of the project before reading the report in detail.

The abstract should be a self-contained statement containing the purpose, scope, methods, and general content. At the end of the abstract, briefly state the results of the project including verification results, and the main successes and failures.

Although the abstract appears at the beginning of the report, it should be prepared after all other sections have been written.

Key Words

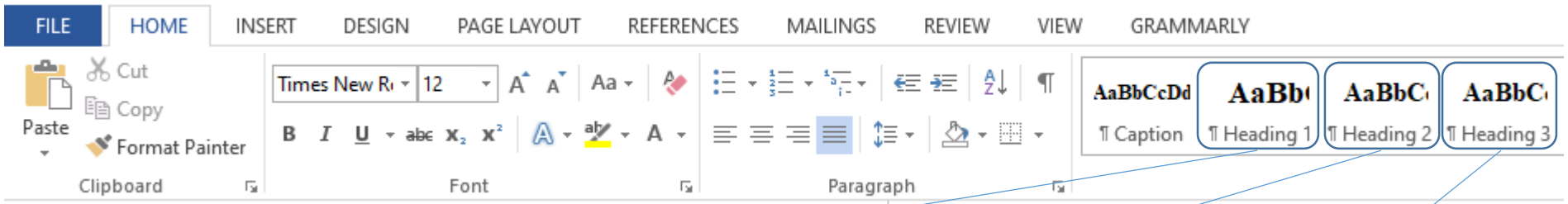
These are words or phrases that help people to search for publications that interest them. Keywords should be present in both reports.

TABLE OF CONTENTS

This must be present in both the *project proposal* and the *final report*. It helps the reader to navigate around the document which, by the end of the project, might be quite large.

If you follow the correct process for creating sections and sub-sections, MS Word will automatically build the table of contents for you. Learn how to do this, it will save you a lot of time now, and in the future!

To add a *section*, *subsection* or *sub-sub-section*, select (in the text body, not the TABLE OF CONTENTS) the relevant Heading type. Your editor might look something like this:

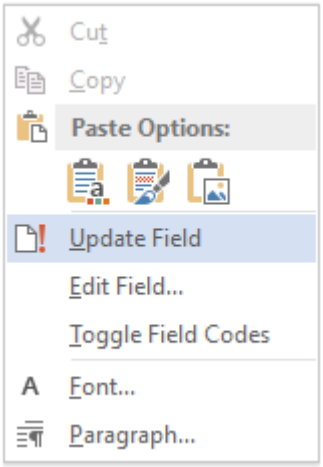


main sections, e.g:
3. DESIGN PROCESS

sub-sections, e.g:
3.2. Civil Engineering

sub-sub-sections,
e.g: 3.3.8. Evaluation

Once you have finished adding sections, go to the TABLE OF CONTENTS and update the list by right-clicking on the lists and press “Update Field”; this will add newly-created objects and update the page numbering automatically.

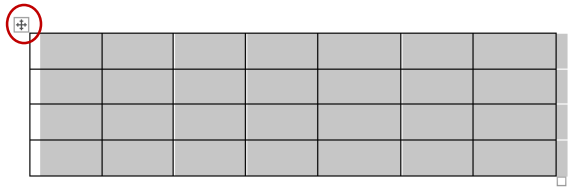


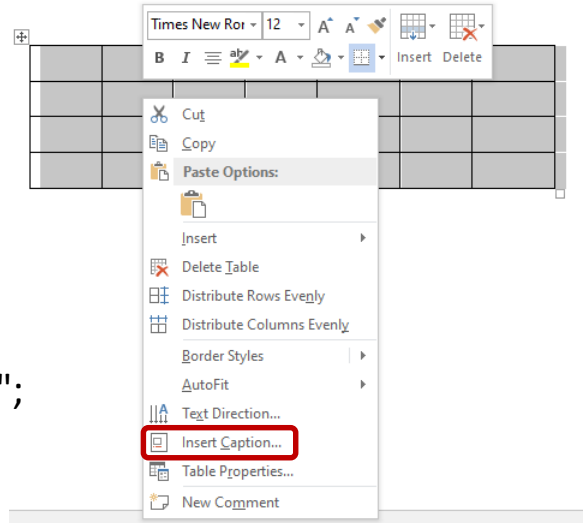
LIST OF TABLES

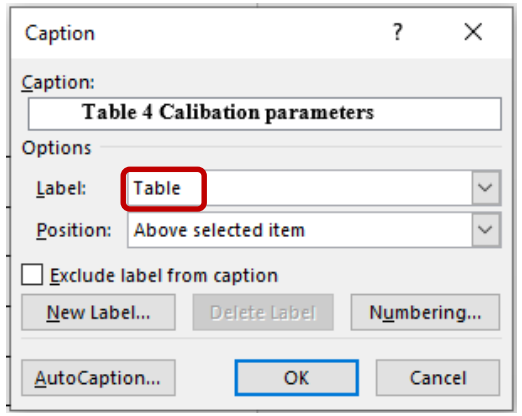
This must be present in both the *project proposal* and the *final report*. It helps the reader to navigate to tables.

If you follow the correct process for creating table captions, MS Word will automatically build the list of tables for you. Learn how to do this, it will save you a lot of time now, and in the future!

To add a new table, create and select the table, right-click and choose "Insert Caption", In the options choose "Table" (do <u>not</u> choose "Tablo"). The Caption field will automatically give you the correct table number; add your caption description and press OK.







Once you have finished adding a new table, go to the LIST OF TABLES and update the list by right-clicking on the lists and press "Update Field"; this will add newly-created objects and update the page numbering automatically.

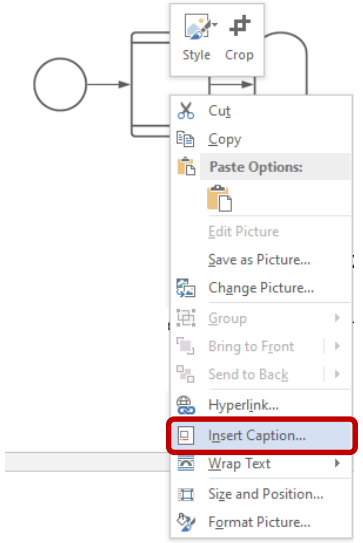
Remember that table captions should go <u>above</u> the table, and provide a short summary of what the table contains. Also, all tables should be referred to in the main text, for example, "Calibration parameters used in the image processing are shown in Table 4.".

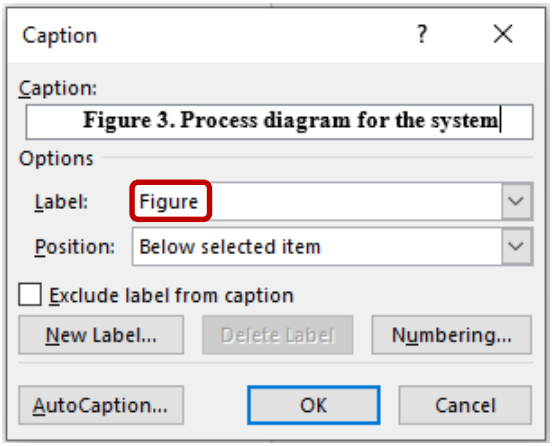
LIST OF FIGURES

This must be present in both the *project proposal* and the *final report*. It helps the reader to navigate to figures.

If you follow the correct process for creating figure captions, MS Word will automatically build the list of figures for you. Learn how to do this, it will save you a lot of time now, and in the future!

To add a new figure, create and select the figure, right-click and choose "Insert Caption", In the options choose "Figure".
The Caption field will automatically give you the correct figure number, add your caption description and press OK.





Once you have finished adding a new figure, go to the LIST OF FIGURES and update the list by right-clicking on the lists and press "Update Field"; this will add newly-created objects and update the page numbering automatically.

Remember that figure captions should go below the figure and provide a short summary of what the figure contains. Also, all figures should be referred to in the main text, for example, "The Control process for the system is illustrated in Figure 3.".

LIST OF ABBREVIATIONS

This can be present in both the *project proposal* and the *final report*. It helps the reader to look up unfamiliar abbreviations.

Repeated phrases can be replaced with well-known abbreviations (if they exist). In the main body of the text, a common way to use abbreviations is to write them in full for the first time with the abbreviation in brackets, then use the abbreviation only for the rest of the document. An example is given below.

> In this project we use an Internet of Things (IoT) approach to improve control of household energy consumption. The IoT architecture ....

In this case, the abbreviation "IoT" would be placed in the LIST OF ABBREVIATIONS in case the reader is not familiar and missed the definition in the main text.

If you don't have any abbreviations, then remove this page.

The aim of the OVERVIEW chapter is to present a high-level description of the product up to the physical architecture.
This description should remain the same (except for small updates) for both the *project proposal* and the *final report*.

1. OVERVIEW

Project Proposal

Introduce the product, service or process that you intend to build. Also introduce your team members and describe very briefly their roles in the project.
You will find a brief description of your project on the capstone website.

Final Report

Introduce the product, service or process that you have built. Also introduce your team members and describe very briefly their roles in the project. If the project goals changed during the second semester, update the overview and all other sections accordingly. Explain what changed and why.

1.1. Identification of the need

Project Proposal

Discuss what problem your product, service or process will solve, who would use the product and what is the need and estimated impact of your solution. In other words, what value does your product bring and to whom?

Final Report

Discuss what problem your product, service or process has solved, who would use the product and what is the need and estimated impact of your solution. In other words, what value does your product bring and to whom?

1.2. Definition of the problem

Define the problem in terms of technical specifications for the product, service or process. Some specifications will be stated at the beginning of the project by your advisers in terms of a set of requirements that represent a project that is challenging enough to be considered to be suitable for a graduation project. Consider any other relevant specifications and add them.

Before going to the sub-sections, start with a brief overview of:

a) the functional requirements (what the product needs to do);
b) the performance requirements (how well the product needs to perform its functions);
c) the constraints (anything that limits your design decisions).

If you use the *present tense*, then your descriptions will be suitable for both the *project proposal* (before materialisation) and for the *final report* (after materialisation). For example:

The robot is required to autonomously navigate a route reacting appropriately to obstacles and signs.
The robot is required to complete it's tasks within a reasonable time and with good accuracy.
The robot should satisfy international safety and quality standards.

These kind of statements are given as a brief overview of the requirements, they will be explained in more detail in the following sections.

The following specifications define the goals of the project. Your advisers will compare the completed project with these specifications. Make sure that the goals are attainable! Discuss this with your advisers at the beginning of the project.

1.2.1. Functional requirements

Provide details about the required functions; that is, what the product, service or process needs to do. These requiremements should be defined using precise technical statements.

1.2.2. Performance requirements

Provide details about the required performance; that is, how well the product, service or process needs perform its functions. These requirements should be defined using precise technical statements and should be measurable. Identify the parameters that will be used as performance measures. Note that, later in the *project proposal*, you will be required to plan verification experiments in which you will measure the performance, and in the *final report* you will document results of these verification experiments.

1.2.3. Constraints

A constraint is anything that limits your design decisions. Declare and discuss the key constraints that need to be considered in your project. This should cover all sub-systems and should include, but not limited to:

Scheduling: How many team members do you have and what are their skills - how does this limit your design choices; how much time do you have to complete the project, how does this limit your design choices.
Costs: What is your budget for the project, how does this limit your design choices.
Standards: Identify and discuss relevant legal requirements for your type of product, and recommended standards from your industry.
Other constraints: Also discuss, where relevant, business, environmental, social, ethical, health and safety considerations.

Constraints are especially important and are covered in more detail on the following page...

Sustainability consideration and constraints includes economic, environmental, and social (equity) aspects that need to be evaluated and taken into account in project research and development. There is a strong relationship between these three pillars of sustainability. These need to be considered and incorporated in this section with a discussion on their design constraint and the positive and negative effects of the project within this scope. Beyond the feasibility of the technical solution an engineering project needs to take into account the following aspects:

Economic (cost) impact: should consider, when relevant,

1. Prototype design and production cost, including the manner in which production cost can be reduced, when applicable.
2. Device cost in mass production, including materials, operations, supports etc.
3. Cost-saving of the product should be considered when appropriate. For example, energy savings compared with the use of other products, water-saving, reduction in operation cost, etc.
4. Tax incentives to be considered towards final product cost. For example, renewable energy and energy-efficient products tax incentives, carbon footprint reduction, etc.
5. Environmental aspects, such as availability of resources, may affect the product cost and therefore price and their market vulnerability.

Environmental impact of the product: when relevant, please consider

1. Increase or reduction in emissions obtained through modifications in processes that emit greenhouse gasses (GHG) or products that do so.
2. Change in consumption or use patterns, which affect the environment such as the use of water, food, energy, wood, etc. (positive or negative affect).
3. Reliance on resources that are scarce (such as precious material) or abundant. For examples, some fuel cells technologies use rare material while other use abundant ones. This will have an impact on the availability of these materials as well as their prices.
4. Project production and operation effect on natural resources availability and competition on the planet resources. Considering their availability in nature and the impact of their consumption on the balance of nature.
5. Environmental regulation

Social impact of the product: when relevant, please consider

1. How can the developed product impact people's lives? Is it a positive or negative impact?
2. What community or personal needs does it address?
3. Is the product going to change consumption patterns?
4. Is the product automating a task currently performed manually and therefore might impact employment?
5. Does the product create new jobs or fields?
6. Are there any safety aspects or health concerns?
7. Are there any regulatory constraints that address social and environmental concerns?

The above-mentioned examples are a partial list of sustainability consideration that includes the economic, environmental, and social (equity) aspects that need to be evaluated for any real-life project.

With the completion of Section 1, you are now ready to develop your conceptual solutions

1.3. Conceptual Solutions

Now that you have defined the problem (in the previous section) you are ready to move on to develop conceptual solutions.
Start with a review of the literature and then move on to your own conceptual solutions.
You should be able to write this section in a way that is suitable for both the project proposal and the final report (with some updates).

1.3.1. Literature Review

Before you provide your own conceptual solutions, explain in this section what similar products are in the public domain and how your concept needs to differ from them and why; this may simply be the need for a cheaper implementation, or an implementation that has more features, or your concept represents a major innovation to this type of product.
Described relevant technologies and methods (keep this general, you will give more details for your sub-system in Section 3).

You can refer to literature (textbooks, handbooks, technical papers/reports, web sources etc) about similar products and include photos and diagrams - make sure that your give appropriate references especially for photos of existing products that are not your own work (you can refer to such products with, for example, "Figure 3 is an existing product that illustrates this type of solution [8].").

In this case we have a reference to the original source, the reference should have a definition in the REFERENCES section.

1.3.2. Concepts

In this section, express your solutions at a *conceptual* level without details of low-level components. Consider two or three concepts and compare them to each other with respect to how well each concept would acheive the desired goals of the project. By the end of this section, you should be in a position to state which solution, in your considered opinion, is the best.

In your comparison, consider for example:

Cost - a good solution is one that satisfies all requirements at a minimum cost.
Complexity - a good solution is one that satisfies all requirements with minimum system complexity.
Performance - a good solution is one that exceeds, with a good margin of safety, all performance requirements.
Features - a good solution is one that includes all required features for a miminum viable product, and has additional features.
... think about what other considerations are relevant to your product and team.

Describe your conceptual solutions and prepare a table (or tables) that lists and compares your concepts with respect to these considerations. An example table (simplified) is provided in the capstone report template; you can add more considerations, and more details.

Discuss the strengths and weaknesses of the alternative concepts and explain which design you finally arrived at and why.

Now that you have chosen a concept, you are ready to describe the overall physical architecture in Section 1.4.

1.4. Physical Architecture (or Architecture if there is no physics system)

Now that you have chosen a conceptual solution (in the previous section) you are ready to prepare a top-level physical architecture that represents the overall physical and operational structure of your solution. This is a critical step that communicates the top-level solution to the whole team so that they can develop (in Section 3) their sub-systems in more detail. The information that is presented here can also be referred to during team discussions and for task planning (Section 2).
You should be able to write this section in a way that is suitable for both the project proposal and the final report (with some updates).

Description the top-level physical architecture for your chosen concept. Give a brief overview of of the sub-systems, their functions and their interfaces with other sub-systems. Describe the top-level operation of the system.
For most project types, it is common to provide:

*a **system interface diagram*** - this illustrates the relationship between sub-sytems, including the flow of energy, information and material. Sub-systems should be clearly labelled; details of each sub-system can be left to Section 3.

*a **process chart*** - this is often in the form of a flow-chart, but can take other forms. The process chart shows the top-level step-by-step operation of the system, that is the chain of events that lead to the overall operational behaviour of the system.

Simple examples of these figures can be found in the capstone report template.

You can create flow charts at https://www.lucidchart.com/

After describing the overall physical architecture, you will be ready to plan the tasks in Section 2.

The WORK PLAN presents project management activities which have the aim of maximising the success of the project.
This description should be similar for both the *project proposal* and the *final report*.

2. WORK PLAN

Now that you have the overall physical architecture, you can assign tasks and plan the sequence and time of their execution. Note that you are building a plan of action for the following semester (execution phase). In this section you will present the WBS, RM, PN, Gantt chart and risks for the project. While the whole team should contribute to the preparation of this section, usually one member of the team is assigned the task of planning responsible; this team member will make sure that tasks are planned and properly documented.

Introduce this section by reminding the reader about what is being built, by whom and which departments, and in what time-frame; then proceed to the sub-sections.

2.1. Work Breakdown Structure (WBS)

You can create the WBS (flow chart) at https://www.lucidchart.com/

The WBS provides a detailed hierarchical view of the structure of the product. It is a deliverable-oriented breakdown of the project into smaller elements. The purpose is to indentify sub-systems and divide them further into elements that individual team members can identify as areas that they can be responsible for. A simple example WBS is given in the report template. Adapt that example to your project and add more structure and discuss details. Each element should be numbered, they will be referenced again later in the PN and Gantt chart.

2.2. Responsibility Matrix (RM)

With the structure of the project defined, the RM lists who is responsible for which element of the WBS. Add the additional special responsibilities of planning, reporting, integration. A simple example RM is given in the report template. Adapt that example to your project and add more structure. Add a discussion in the text to clarify the roles of the team members.

** Claims for reimbursement of costs will be compared with this table - make sure that it is accurate.*

2.3. Project Network (PN)

The PN illustrates the connection between tasks; that is, which tasks precede others, and which tasks require interaction with other tasks. The PN can inherit elements from the WBS, but additionally provides information about the sequence and interactions of tasks. A simple example PN is given in the report template. Adapt that example to your project and add more tasks and interactions. Add a discussion in the text to clarify any important details.

2.4. Gantt chart *There are many software applications to choose from to create the Gantt chart, e.g. https://www.diagrams.net/*

The Gantt chart tabulates the tasks from the PN and adds timing information. Rows can represent sub-systems, task groups and team members. Remember that the *project proposal* documents the planning of activities for the **materialization phase** (in the following semster); this typically involves sourcing and assembling components from Week 1. Take care to assign realistic timing for the start and end of tasks such that there is sufficient time to complete the tasks and that tasks are not waiting for other tasks to be complete. Plan to complete the product by Week 10 and give at least two weeks for verification; this will give time to deal with unexpected problems. Also, consider emphasizing adding important milestones such as the completion of sub-system integration. For the *final report*, update your Gantt chart to account for any changes, and explain those changes. Ideally, you would also add a separate Gantt chart for the first semester (design phase); this can help you plan your first semester activities, or at least document them.

2.5. Costs

Tabulate the **predicted costs** for the *project proposal* and the **actual costs** in the *final report*. Divide the costs into sub-systems and explain any significant differences between the predicted and actual costs. Give totals* for the sub-systems and whole system.

2.6. Risk analysis

Consider **significant** risks to the success of your project, list and evaluate them, determine and state your plans for mitigating these risks. Do this for the whole project (all sub-systems). Two simple example tables (Risk Matrix and Risk assessment table) are provided in the report template; adapt them for your project.

3. SUB-SYSTEMS

The SUB-SYSTEMS chapter presents a detailed account of the design and build activities for distinct parts (sub-systems) of the project. There will be at least two sub-systems which can be named according to two faculty departments or if it makes better sense, according to related “work groups”.

3.x. *The name of your sub-system*

Sub-system name examples (departments):
Artificial Intelligence Engineering, Biomedical Engineering, Civil Engineering, Computer Engineering, Electrical and Electronics Engineering, Energy Systems Engineering, Engineering Management, Industrial Engineering, Mechatronics Engineering, Software Engineering.

Sub-system name examples(work groups): Machine learning; System Integration; Communications; Data recording and presentation.

Before moving to the sub-sub-sections, begin with a short introduction to the sub-team and the functions that the sub-system performs in the product.

3.x.1. Requirements

Using precise technical statements, give details of the **functional and performance requirements** of your sub-system; that is, what the sub-system needs to do and how well it needs to perform to meet the requirements of the overall project. You can copy the relevant parts from Section 1.2, extend and give more details.

For **Software**, include Functional Requirements (list of behaviors and attributes and their explanations as a table for each actor type) and Nonfunctional Requirements (performance, security, safety, business rules).

3.x.2. Technologies and methods

Conduct a literature survey (textbooks, handbooks, technical papers, technical reports, web sources and regulations) and give a review of technologies and methods that are relevant to your sub-system.

For **software**, describe your Database (all implementation details and the DB design), Software and Hardware (Libraries and tools etc.).

3.x.3. Conceptualization

Refering to the overall architecture given in Section 1.4, consider two or three conceptual solutions for your sub-system. Compare them to each other with respect to how well each concept would acheive the desired goals of the sub-system. You can repeat this for each key component, for example for the choice of motors, image processing platform, control algorithm. Make use of tables to compare the alternative components with respect to, for example, cost, complexity, performance and features, and any other relevant consideration. At the end of this section, state which concept, in your considered opinion, is the best solution.

For **software**, provide your Use-case Modeling for alternative solutions (Actor glossary, Use-case glossary, Use-case scenarios and Use-case diagrams - prepare a use-case diagram for each use-case scenario). Give your Interface Designs (Screen Images, Screen Objects and Actions etc.) with explanations and summarize your architecture by providing Data Flow Diagram(s), Sequence Diagram(s), UML Diagram(s), Activity Diagram(s).

3.x.4. Physical Architecture (or Software Architecture or simply Architecture)

Give a detailed description of the low-level physical architecture for your chosen concept. This should include a detailed diagram showing all key components and their interfaces. There should be a clear correspondence between your low-level architecture and the system interface diagram given in Section 1.4; that is, the two diagrams should be consistent, but with a much more detailed sub-system architecture diagram. Provide also a process chart for your sub-system; again, there should be a clear correspondence between your sub-system process chart and the process chart given in Section 1.4.

3.x.5. Materialization (or Implementation for Software)

Project Proposal

Since materialization is not expected in the first semester, this section can contain a brief description of sub-system build **plan** for next semester including, how and when you will source components and what other resources (e.g. workshops) you plan to use during the materialization phase.

Final Report

Provide a historical account of the build process. Describe (including photographs) your sub-system at major milestones. Discuss successes, failures and fixes that you needed to apply. Explain any significant changes to the plan that was stated in the *project proposal*.

3.x.6. Evaluation

Project Proposal

Describe your plans for the evaluation of your sub-system before it will be integrated with other sub-systems. Include plans for the experiments that you will perform, what data will be collected and how the data will be analysed to provide verification of your sub-system features and performance.

Final Report

Describe the experiments that you have performed to evaluate (verify) your sub-system - explain any significant changes with respect to the plan that was stated in the proposal. Show data and results of your analysis. Conclude with a statement about the success/failure of the verfication.

4. SYSTEM INTEGRATION AND EVALUATION

This section presents the plans(*project proposal*) for, or historical record(*final report*) of, the final stages of the project; that is the integration of sub-systems into a final product and the evaluation of its features and performance. Note that verification should be based on well-designed experiments and meaningful analysis of data. All sub-teams must contribute in this section.

4.1. Integration

Project Proposal

Begin by reminding the reader about what sub-systems need to be integrated. Refer to the *system interface diagram* and the *process chart* that you provided in Section 1.4. Referring to the PN and Gantt chart, discuss the organization and scheduling of the planned integration.

Final Report

Rewrite the description that you have already provided in the *project proposal* in such a way that it presents a historical account of the actual integration. Explain any significant changes to the plan that was stated in the *project proposal*. Add photographs of the completed product. Discuss successes, failures and fixes that you needed to apply.

4.2. Evaluation

Project Proposal

Remind the reader about the functional and performance requirements of the product that need to be verified. Describe your plans (for the following semester) for the experiments that you will perform, what data will be collected and how the data will be analysed in order to confirm that these functional and performance have been met.

Final Report

Rewrite the description that you have already provided in the *project proposal* in such a way that it presents a historical account of the actual experiments that you have performed to evaluate (verify) your product satisfies the original functional and performance requirements outlined in Section 1.2. Explain any significant changes with respect to the plan that was stated in the proposal. Show data and results of your analysis. Comment on the successes and any failures.

5. SUMMARY AND CONCLUSION

This section presents a summary of the work done and a conclusion about successes, failures and experiences.

Project Proposal

Present a brief summary of each step of the design process that you have implemented.

Conclude with a statement about your readiness for the materialization phase next semester. Descibe any additional work that you intend to do during the semester break to improve your readiness. End with a reminder about the actions that you will take in the first week of the following semester.

Final Report

Present a brief summary of each step of the design process that you have implemented. Pay greater attention to materialization, integration and verification.

Present the results of your verification experiments and state your conclusions regarding compliance of your product with respect to *functional requirements*, *performance requirements* and *constraints* (see Section 1.2).

Conclude with a statement about your successes, failures and experiences.

State any suggestions that you have about how the product can be developed in the future.

You can now prepare the *Abstract* on page iii.

ACKNOWLEDGEMENTS

REFERENCES

APPENDIX

See the template for explanations of these pages.

Common mistakes

Common mistakes in Capstone Reports - please avoid these mistakes!

- Incorrect format of references and not citing them properly in the report.
- Not adding captions and/or not centering Figures/Tables.
- Not referencing a figure or table in the main body of the text.
- Abstract is too short.
- Submitting the docx version to advisers instead of converting it to PDF before sharing it.
- Not giving the report the proper file name
- "Bookmark not defined" error when the students did not add the Figures correctly.
- Not discussing/comparing conceptual solutions enough.
- Un-cited, copy-pasted sentences from Internet.
- Unreadable fonts in figures (fonts are too small)
- Poor image resolution in figures
- Using figures/photographs that are not your own without citation.
- Use bold or italic font in paragraphs.
- Adding full code in the body of the report instead of the Appendix; using double-spacing for source code.
- Poor/absent planning for product verification.
- Poor Conclusion section.