

Report requirements

Tue V Jensen, Kai Heussen

8th August 2020

About the Final Reports

The final project delivery and grade is based on two reports to be handed in, together with the supporting data and code. In a common delivery for the project the overall project is reported. The individual hand-in then describes an individual test case or set of tests assessing one aspect of the project. This document outlines the requirements for the reporting content.

Reports are handed in as PDF file with code, and data where applicable. Include only the relevant code lines in the report. The specific template and formatting of the report is up to you.

A. Common part

The common part includes all aspects related to the purpose and implementation of your controller.¹

¹ This part covers the the "build it" portion of the course.

The common part includes the following sections:

1. **Introduction** (keep it short; what is the intent of the project and report?)
2. **Use case and KPIs**
(What are we trying to achieve?)
3. **Control system outline**
(How are we approaching the use case? What is the solution we contribute?)
4. **Control system structure, design and internal communication**
(describe the controller details, how it works, how the control design and parameters were decided, and how the parts of the control systems interact specifically)
5. **Failure handling** (Describe any provisions you included to make your control robust to failures of devices or communication)
6. **Functionality that should be tested** (What will the tests to come show? Why is it relevant to test this aspect?)
7. **Conclusion** (a short reflection on the case and developed controller, not the test outcomes)

For each of these sections there are different diagrams that can be suitable for illustration and precision. Use them, and save yourself a lot of words.

B. Individual part

Each group member must submit one part that is entirely written by themselves.

The individual part should report all aspects of a single test (aspect) of the solution.² Everything from planning over execution to interpretation is included here.

² This section covers the "break it" portion of the course.

The individual part should include exactly the following headlines, with each headline addressing at least the mentioned points:

Test Case • Purpose of the test (what we intended to find out)

- Function under test (what functions of the controller were tested?)
- Selection of relevant metrics (starting from KPI/user need, how would the test outcome be measured?)

Test Specification • Test rationale (How will the test specs reveal what we are interested in?)

- Input signals in the test (test signals; applied where?)
- "Black box" (What components of your solution and the lab are active in the test?)
- Output signals and applied metrics (what is measured? how is the metric computed from inputs & outputs?)

Test results • Graphs of input/output signals

- Tables of metrics calculated from signals
- Comment on the quality of the test results (what do we see?)

Discussion and outlook • What did we learn about the system based on your test?

- Name one aspect of the system that can be improved to score better on the test.
- What would be the next test you want to run?

This section includes also the delivery of the test data and analysis scripts relevant to the report. If the data has been pre-processed it is ok to only include the processed data files.