

Detailed Design Review Outline (v. 1.4)
BE-405, Dr. C. S. Tritt, Winter '09

Detailed Design Review (Winter Quarter of Senior Year)

Specific briefing document requirements:

- Each major concern identified during the system level design review must be addressed. These concerns are the ones listed in the “System Design Review Follow-up Requirements” document provided to each team after then design review.
- A table listing the name of every BE team member followed by the specific component or subsystem they have designed or are deigning must be included.

The general goal of the Detailed Design Review is to prove:

- The overall device concept remains valid and all innovative/high risk aspects of the design continue to appear achievable (no show stoppers have been discovered).
- The set of functional specifications that was systematically developed based on input from all stakeholders remains valid and are being meet by the design.
- Alternatives are being considered throughout the design process and decisions made based on objective analysis and/or data.
- The valid hazard analysis of the device and its design has been completed.
- The component level designs of subsystems meet or are expected to meet the relevant specifications and are being tested.
- That the progress is being made (that the project is reasonably on time and on budget).

Required briefing document outline:

I remind you that these are formal documents and must include cover pages, tables of contents and sources (in a bibliography).

Abstract – starting with a succinct project statement and continuing to summarize the rest of the document.

Table of Contents

Market Summary – A very brief market summary and background; just enough to show the need for the device being design.

Regulatory and Standards Summary – A brief summary of the regulatory and standards context for the design.

Functional Specifications – A very brief description/summary how the specifications were developed, followed by a very complete listing of the specifications themselves.

Block Diagrams – Level 0 and higher block diagrams with enough text to explain them.

Technical Background – Just enough technical background to prepare the reader (assumed to be a senior BE student) for what follows in the report.

Design Summary – A summary in some detail of what has actually been considered, analyzed and designed. In the interest of everyone's time constraints, only innovative, high risk and critical aspects of the design must be addressed. This section should describe the implementation of various parts of the block diagrams using technologies described in the background and in order to meet the listed specifications so as to address the market need. Two or more detailed (component level) subsystem designs are required. Complete and specific details of the entire design are not expected or even appropriate (these will be required in your final report next quarter). Items not covered in detailed should be summarized at the end of section as "other components and subsystems."

Safety and Hazard Analysis – A relatively complete safety and hazard analysis for the most critical and highest risk aspects of your device.

Tests and Test Results – At this stage some experimental results on device subsystems are expected. Summaries of testing done and the results obtained should be provided. Tests should be designed in a systematic way to address a reasonable subset of the listed functional specifications. Fairly complete testing of subsystems and the overall, integrated device will be required in your final report next quarter.

Plans and Schedule – A detailed and complete description of what is left to complete on the project, who will be doing what and the schedule for doing it.

Budget – A summary of money spent and the expected cost of completing the design with some indication of how this money will be obtained.

Recommendations – State if you believe the project should continue. Also, make recommendations regarding the need for more (or less) resources (people, money, equipment, time, etc.). If your recommendation is that the project not be continued, suggest an alternative project to be completed in its place or state that your team should be disbanded.

Appendices (only the first 2 are required)

Individual Design Activities – a table providing the name of each team member and indicate what sub-systems or components this student is designing. Each member of the team must design at least one part of the final device or system. Students are expected to apply what they have learned in their previous courses to meet the required functional specifications while considering with realistic constraints (including standards and regulations).

Required System Design Review Follow-up Items – Each required follow-up item must be addressed explicitly. Note some of these issues may not yet be fully resolved, but some evidence of effort and progress must be provided.

Data sheets for any commercial devices to be used in the design.

Product literature for any commercial subsystems to be used in the design.

Design details – circuit diagrams, mechanical drawings, etc. describing what it is you have designed.

Detailed test procedures and results.

Other detailed information relevant to your design.