ECE4500J & ME4500J & MSE4500J

UM-SJTU Joint Institute Summer 2024

Design Review #2 Recommended Guidelines

Special Note

Be creative! Think outside of your box!

You are allowed to change the recommended guidelines if the change can help Judge Panel better understand your presentation and you believe you are on the right track in terms of meeting sponsors/instructors' expectation.

General Objectives

- Develop multiple conceptual designs using methods taught.
- Determine whether a good, well thought-out concept has been developed.
- Develop a first design that can be evaluated rigorously for engineering feasibility.
- Document progress since the DR#1, and assure that any needed modifications have been made.

Requirements

- Oral presentation (No written design report is required for DR #2)

Oral Presentation

This is a presentation of progresses made since Design Review #1, including only changes and evolutions in customer requirements, engineering specifications, or the project plan. Use good visuals to aid the audience in understanding.

Re-state your overall understanding of this project briefly.

The focus should be to describe the process used to generate multiple conceptual designs and how one "best" design is analyzed and selected which satisfies the proposed engineering specifications and customer requirements. You should generate various design concepts in a systematic way and select the best concept. It is possible that even your No.1 choice will require significant modification (and perhaps a new design altogether), driven by feedbacks from the Judge Panel, your Section Instructor and/or your sponsor. If your selected concept should be modified, you are very likely to modify your experimentation plans and further analysis.

Software teams may elaborate their user interface/data structures/algorithms through animation (e.g., flash, slides etc.), flow charts or other means. In general, it should get across the basic form of the concept concisely.

It's suggested that you give a background intro in the beginning of your presentation, including problem, needs, solution, and concept diagram (or flow chart). Don't assume the Judge Panel knows/remembers your previous DR presentations.

The oral presentation will be confined to **10 minutes**, **including 7 minutes for your presentation, 2 minutes for Q&A, and 1 minute for transition/preparation**. **Everyone should present and the team will be graded in a whole.**

Keys to a Great Design Review

Please use the following helpful questions for Design Review #2 to check your presentation and progresses.

- Has the scope of the project changed?
- How can this project be decomposed into sub-functions?
- What concepts can meet the sub-function requirements? Can they be put together into a system?
- How can the generated concepts be classified? (Note: a classification tree might be helpful here)
- Are the selected concepts consistent with the engineering specifications and customer requirements?
- How were the concepts generated? Are they really distinct from one another?
- Is the selected concept well enough defined?
- What is the engineering content and what are the engineering challenges of the selected concept?
- What will the "deliverable" at the Expo be? (Remember Covey: "begin with the end in mind").
- Is the project goal consistent with the progress to date?

Special Note

After Design Review #2, you are required to complete a final detailed design, including modeling for determining the dimensions, data structures, algorithm parameters, etc. Technical drawings and/or source codes (written by your team) should also be included for prototyping your design. For those teams that follow an experimentation path, prototyping in the machine shop will likely begin shortly after Design Review #2.