

Engineering Journal

One of the goals of this course is to teach students how engineers problem solve and manage projects. A good engineer/project manager schedules their project, documents the projects milestones, and documents the design process. Your team is required to keep an “Engineering Journal” for each problem that you work on in this class. This will help you to organize your project and help the teacher to assess the project. At the bare minimum, this journal should identify the essential information about your project. Preferably, the journal should also record the significant evolutionary changes in your design.

For full credit on this project, the final contents of the Engineering Journal must include:

- Any handouts given as part of this project.
- Team members names as well as their role on the team.
- Notes documenting team meetings.
- Either a Gantt Chart or PERT Chart that shows the project schedule and the team work assignments.
- Time and date of each entry.
- All sketches of your project.
- An updated set of drawings showing final dimensions and critical tolerances. These may be done either by hand or in CAD depending on the assignment.
- Notes on feedback from design reviews.
- Any calculations relevant to the design of your project.
- A copy of the program, if applicable, used to control your system.
- Sketches or descriptions that help to describe the thought process behind the evolutionary changes in your project.
- Any marketing materials related to your project if it were to be commercialized.
- A final description of your project. You should note any significant changes from your original concept, and why those changes were necessary. You should discuss both the positive and negative aspects of your design, and how well it met your original objectives. Document everything!

Journal Assessment Rubric

Name on the journal	1 pt
Journal neat	1 pt
Documentation of scheduling	1 pt
Sketch/Drawings complete	2 pts
All appropriate notes complete	2 pts
Journal in chronological order	2 pts
9- A 7-8 - B 5-6 - C 4- D	

NAME

DATE

Design Reviews

Design reviews allow teams to receive feedback from others regarding the feasibility of their project design. These reviews can be held internally, with only members of your team, or externally, with outside reviewers. The main objectives of the design reviews are to:

- *Provide opportunities for teams to learn from the experience of others.*
- *Receive input from the instructors and other reviewers.*
- *Set milestones to complete parts of the project.*
- *Learn what other teams are doing to solve their robot problems.*

Deliverables for each Design Review will be determined by the instructor. The expected contents of the PDR and DDR presentations are:

Preliminary Design Review (PDR)

The preliminary design review is designed to allow teams to “float” ideas to others. It is a formal opportunity and so teams should be prepared. It will be up to the teachers discretion, but teams typically should have the following for the PDR:

- *Sketches - will allow the presenter to discuss his/her ideas with the reviewers.*
- *A list of relevant specifications for the project’s objectives and functions.*
- *A brief evaluation of the advantages and disadvantages of your design.*
- *A 3-D sketch or CAD solid model of your best candidate solution. Dimensions are not required.*
- *A list of the required materials (e.g., aluminum stock, Plexiglas, gears, dowel pins, etc.).*
- *A bill of materials that documents the cost of the project.*
- *Optional: a simple prototype (e.g., cardboard and tape) mock-up of your project design.*

Detail Design Review (DDR)

The Detail Design Review is conducted as the last step before the design is implemented. It is important that teams prepare for the DDR. This is your last opportunity to get good feedback before you begin to build your project. It will be up to the discretion of the teacher, but teams should have all of their notes from the PDR plus the following:

- *Working prototypes and or models*
- *A working set of drawings*
- *A schedule that includes milestones and completion dates*
- *A list of expected difficulties as well as plans to resolve them*
- *A list of lessons learned to date*

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