



ME450: CHECKLIST FOR ASSIGNMENT #2: DETAILED DESIGN & ANALYSIS

The Detailed Design & Analysis is due for each Design Team during their laboratory on or immediately following October 30th. Each team should prepare the following:

- 1- A formal 10-minute presentation for their laboratory section. This should be followed by a 5-10 minute Question and Answer period. The formal presentation should include about 5-10 slides or overheads, covering the important aspects of their Project. These should include a brief review of the Design Intent (1 slide: what are you trying to build?), 3-view drawings and assembly drawings of their design, a discussion of commercially-available materials that will be used in the fabrication of the prototype, and a discussion of the manufacturing processes that will be employed, and any relevant engineering analysis. The discussion should focus on the appropriate use of engineering analysis in the solution of the Design Problem, the consideration of design alternatives, and how the present design was selected from among the alternatives. What were the relative merits of the alternatives, and what are the major trade-offs in the current design concept.
- 2- The Detailed Design & Analysis; this is a brief written document (see checklist below).

The ME450 web page contains several handouts that will help you with the items that are due. You should review these materials.

Checklist:

- ____ Formal 10-minute Presentation
- ____ Peer Evaluation form #2, from the web page (to be filled out confidentially by each team member)

Written Report (the Concepts + Detailed Design), including:

- ____ A statement of the Design Intent (~1/3 of a page or 1 paragraph, or 1 PowerPoint Slide)
- ____ 3-view drawings of parts that will be made in the shop (using Unigraphics-18)
- ____ Assembly drawings of your design. You will probably not have a complete assembly for the final design, so include at least one sub-assembly (show how some of the parts will fit together)
- ____ Engineering Analysis: calculations that were used in the design process. This is where you demonstrate that you have used your knowledge from prior engineering classes in this course.
- ____ Process Specification: which processes do you plan to employ in the fabrication of your prototype. Examples include: CNC milling, anodizing, welding. You should specify the parts and materials. This list does not need to be exhaustive at this point, but you should include the major processes that will be needed (such as TIG welding of a vehicle frame) and the special processes that will be needed (basically, any process that we can not do "in house").
- ____ A detailed Bill of Materials (BoM): components and materials that you will purchase. Include: Part or material description; vendor; part #; quantity; cost; alternative sources (if any).
- ____ An updated Gantt Chart: show your original and current time line estimates.