

Laboratory Exercise I - ASME STUDENT DESIGN CONTEST
Design Problem – “Sip and Puff” Fishing Rod
Part I. Portfolio – Due Oct 12, 2005

The laboratory report for this exercise should contain (at least):

- I. **Definition of the problem.** Describe the problem. Describe the important design requirements and objectives.
- II. **Description.** Detailed description of the device and how it works, referring specifically to the drawings on the succeeding pages.
 - a. Give general overview
 - b. Break down device into specific components
- III. **Drawings** – Detailed drawings or very neat sketches of the device, including labels, approximate dimensions, and material specification. This does not need to be done in I-DEAS or pro-engineer, but must be neat and clear. This should include drawings of the design as well as schematics that describe the motion of different components. Solid modeling software
- IV. **Scoring function.** Detailed analysis of the scoring function and a discussion of the score your device is expected to achieve. How did you optimize your design to achieve the best score.
- V. **Parts list.** A list of parts, approximate costs, and supplier (or where you will get the part from). Include a budget for building the apparatus as designed.
- VI. **Manufacturing plan.** Estimate the amount of time required to obtain, build, and assemble all parts, and make a timetable for its completion.
 - a. How many total people hours are necessary for completion of project.
 - b. Devise a plan for insuring the completion of your design.
- VII. **Design contingencies.** A list of contingency plans if certain mechanisms do not work as expected. Specify anticipated “weak link” of the mechanism and an alternate strategy in case proposed design does not work. A robust design should not require the highest precision machining of all parts. If there is a specific ASME design constraint that you believe must be lifted for successful completion during the constraints of the semester, then state what it should be.

Deadlines:

Oct 3 & 5: Each group presents preliminary design during lecture. Presentation format: 7 minute presentation, 4 minute Q&A, 1 minute transition to the next speaker.

October 12: Design portfolio due

October 19: Plan to order/obtain all parts by this date

Nov 11: Design trials during lab period and preliminary report due Friday Nov 11

Dec 9: Final trials held during final exam period/final report due at same time