# Lab1: Evaluating Design Features

ME395 Su 2012 (Kumar)

This exercise is designed to help you to think in terms of functions that a design needs to satisfy (the Functional Requirements or FRs) and how these functions are addressed by the solutions implemented in the design, i.e. its features. In class we will introduce the phrase "Design Parameters", or DPs, to refer to features of a design.

**Functional Requirements and Design Parameters**

Each team will be given two pens: a low cost model (Pen A) costing approximately $0.10, and a high cost model (Pen B) costing approximately $1-3.

First, as a customer, what functions would you expect a pen to have? Create a list. There are some not-so-obvious functions, such as "a way to look at your ink level", etc. Each team should come up with 6 or more functions.

Secondly, for each pen, make a list of features that you have seen.

Finally, compare the list of features for each pen to the list of functions. Are all of the functions addressed by these features?  If not, which ones? What features would you add/change to address these functions?  Compared to the low cost pen, what are the additional features that the high cost pen has?

**Functional Decomposition and Functional Hierarchy**

Identify the key subsystems for the high cost pen. These subsystems correspond to the primary FRs.

Now for each subsystem, identify the features that make up the design solution for that subsystem.

Organize the FRs and DPs as shown in the textbook Figs. 6.12 and 6.13.

**Report**

Each team should hand in a brief report of 1-3pages. **Please submit the report by email to brian.aher@gmail.com**. Please indicate your group and group members at the top. Take pictures of the two pens your team has investigated and include them in the report.

**Due date**:  **6pm on Wednesday, June 27th**. Indicate your group number in the subject line.