ME 748: Optimum Design of Mechanical Elements and Systems
Spring 2006; Project-3

Project-3 is a team project involving 3 students. The objective is to "pick a topic related to engineering optimization", carry out a literature survey, and give a 30 minute presentation in class. The presentation dates are 2nd May and 4th May. There will be a total of 4 presentations. The dates and slots are as follows:

Team A: 2nd May (Tue): 11:00 AM to 11:30 AM + 10 mins for questions
Team B: 2nd May (Tue): 11:40 AM to 12:10 AM + 10 mins for questions
Team C: 4th May (Thu): 11:00 AM to 11:30 AM + 10 mins for questions
Team D: 4th May (Thu): 11:40 AM to 12:10 AM + 10 mins for questions

The slots will be assigned randomly once the teams have been identified. All team members will receive the same points. You need to send me a power-point presentation no later than one day before presentation.

**Topic**: The topic must be an optimization concept relevant to engineering not covered in class (or not covered in detail in class). A collection of papers has been posted on the course web-site. You are NOT required to limit yourself to these papers. I recommend you study the references in these papers. Use Google (Scholar) to find papers. There are also numerous optimization books in the library. Contact the librarian if you need access to journal papers. Do this early on to avoid delays. Let me know the topic as soon as you are ready. If there is a conflict (i.e., two teams with the same topic), then the first team who identified it gets to keep the topic. A broad survey with no specific optimization concept focus is NOT acceptable.

**Presentation**: The presentation must contain the following sections (at least):

- **Problem identification** (use examples to your advantage)
- **Challenges** (why concepts taught in class are not sufficient)
- **Concept** (the main concept that your research survey is on)
- **Example** illustrating the concept
- **Main theorems and claims**
- **Applications**
- **Numerical implementation** (if any); state if these are 'borrowed' or your own.
- **State of the art**
- **Key Research Contributors** (with references).

**Evaluation**: You will judge your class-mates presentation on the following:

- **Learning**: Did you learn a new concept on engineering optimization from the presentation? This is the most important aspect of the presentation.
- **Clarity**: Was the concept well motivated and illustrated?
- **Difficulty**: Was the concept a trivial one or a rather difficult one?
- **Research**: Did the background research appear to be thorough?
- **Q&A**: Were the questions answered well?
In addition, you will be required to ask at least one question over the two-day period. More questions are encouraged. No additional report is necessary. However, you will need to turn in your evaluations no later than 5th May (Friday; 5 pm) after you have seen all presentations. There is no need to identify your name; just the team you are in.