

NORTHEASTERN UNIVERSITY

MIE Department

Summer – 2011

MIE5240

**MIDTERM PROJECT**

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Assigned 5/23/11 (Chapters 1-7)

Due: 6/8/11 in class. **Late projects: 50% for 6/8 after 9:40 am – 6/13, 0% afterwards.** NO EXCEPTIONS.

**Instructions:**

- A. **Work in pairs; i.e. two students/project. You may work individually. However, we recommend working in a team. The pros and cons of teamwork are well known whether you are a student or a professional.**
- B. **The project is the CAD modeling/design and documentation of a product. The product must be an assembly of at least 3 unique parts, i.e. if you use 2 instances of one part in the assembly, they count as one part, not 2, e.g. using a bolt twice in the assembly.**
- C. **Document your work following the style of the book tutorials.**
- D. **Submit a Word document and all CAD files on a CD or a flash drive and printout.**

**Description:**

**The goal of this project is to master CAD part/assembly modeling and design documentation via engineering drawings. Toward this goal, you need to model and document an existing product of your choice. Sample possible products are caster assembly (Tutorial 2.2 in book), nail clippers, plumbing wrenches, car pistons, valve assembly of a car engine, etc. By doing this project, you would master CAD modeling, creating engineering drawings, and assembly modeling.**

**Start by selecting a product. Simplify the product and reduce it to a manageable model, i.e. ignore intricate details that are time consuming. If needed, you can make measurements or estimate the dimensions of each part of the product.**

**Now create the CAD models of the parts of your product. Save them as part files. Try to take advantage of each part geometric features to create it easily, e.g. uniform thickness, geometric patterns (arrays), etc. Also, use as much design intent as you can.**

**Next, create the assembly model.**

**Last, document your design by creating the engineering and assembly drawings.**

**Submit:**

- The modeling steps of each part with complete dimensions. Follow book tutorials styles. I should be able to create your parts using your documents.**

- **A drawing for each part. Each drawing must include the three standard views (front, top, and right) and the title block. Also, include dimensions, labels, and notes.**
- **Two assembly drawings: collapsed and exploded. The collapsed drawing must include a BOM. You also must create an animated assembly file.**

**Please create a word document to present your CAD design and answer all questions in the grading rubric, and submit screenshots of your CAD design as outlined by the attached rubric. Also, submit your CAD files of all the parts, drawings, and assembly.**