Project Report Requirements

CIBER-U: Cyber-Infrastructure-Based Engineering Repositories
for Undergraduates Projects

The final report will be electronically submitted in Wikimedia format (this is the same format that Wikipedia uses). A template will be provided to each group to help in the creation of this page. If there are problems using this format, additional help can be found at [http://meta.wikimedia.org/wiki/Help:Help](http://meta.wikimedia.org/wiki/Help:Help).

Before Disassembling the Product

- Describe the purpose of the product and how it works (your understanding at this point). What types of energy are used and how are they transformed?
- Operate the product, if possible. How does it run? If it doesn’t work, why do you think it doesn’t work? What type of motion or sounds does the machine make?
- How many components do you think the product is made of?
- How many different types of material are used in the product?

During Disassembling the Product

- Record each disassembly step, the tool used, the ease or difficulty involved.

After Disassembling the Product

- Record each component, material type, manufacturing process used for each component, model or part number, and any other description necessary (color, texture, etc.).
- Record the function of each component.
- Record the number of components and the types of components encountered (e.g., fasteners, support, housing, gearing, screws, etc.).
- Record why your group thinks each component was made out of its type of material.
- Record why your group thinks each component looks the way it does.
- Record a list of design changes/improvements your group thinks could be incorporated into the product at the component level. What features would you change or eliminate to facilitate disassembly or assembly? Are there any parts that can be eliminated or combined?
- Select 3-5 components that are assembled in sequence and develop 3-D CAD diagrams of each component and explain in detail how these components are to be assembled. Any CAD package can be used.

During Assembling the Product

- Record each assembly step, the tool used, and the ease or difficult involved.

After Assembling the Product

- Clearly explain how your product works now that you have seen its component structure. Does your product run the same as it did before you disassembled it?
- Explain how analyses could be used to design and test your product (or some of its components). What type of basic engineering models could be used? Could you use estimates or would you need very precise models?
- Reflect on the disassembly/assembly processes. Were they the reverse of one another? Why or why not? Were the same sets of tools used? Were you able to reassemble the entire product? Why or why not?
• What design changes would your group recommend at the product level (operation, manufacturing, assembly, design, configuration, etc.)? What new features would you recommend? Would you recommend a different shape, configuration, layout, style?

• What recommendations would your group make to the company who designs and makes this product with regard to its design, manufacture, use, maintenance, and recycle?

**Digital Project Report**

Final written reports in Wiki form are due **Friday, December 8, by 4:00PM (before class)**. On the GICL (Geometric and Intelligent Computing Laboratory) website, run by Drexel University, are example Wikimedia pages of products which are similar to the products which your group will be dissecting. For an idea of what is expected, the URL’s to these pages are:


This page is not necessarily representative of the report format which your group will need to submit, these are simply examples so that your group may have an idea of what is expected. Here is a template of the Wikimedia page which is expected to be used by your group. *Do not edit this Wikimedia page, it is a reference.*

Template: [http://gicl.cs.drexel.edu/wiki/Template_for_UB_MAE_277_Class](http://gicl.cs.drexel.edu/wiki/Template_for_UB_MAE_277_Class)

Each Wikimedia page should have the following sections:

- **Executive Summary**
  - This section is much like an abstract and summarizes the entire report

- **Introduction**
  - This section should include an introduction of the product and a brief description of group members (i.e. who was responsible for which sections or tasks)

- **Before Disassembly Section**
  - Requirements are listed above

- **Disassembly Procedure**
  - Document each step to disassemble the product
  - How difficult was each disassembly step?
  - What types of tools were required to perform this step?
  - Include a picture of each disassembly step

- **After Disassembly**
  - Requirements are listed above
  - Part Tables, including:
    - Part number
    - Part name
    - Number of parts of this type
    - Part material
    - Part manufacturing process
    - Image of the part (JPG format)
    - CAD file for selected parts (native CAD file format)

- **Assembly**
  - Document each step to reassemble the product
- How difficult was each assembly step?
- What types of tools were required to perform this step?

• After Assembly
  - Requirements are listed above

- References (use APA referencing style www.apastyle.org)

- The Wikimedia page should not read like a book report or essay – it is a technical report and therefore needs sections and subsections (these sections are outlined above). The sections should answer the questions posed regarding the product disassembly, design, manufacturing, and assembly in a coherent, effective manner. It should look like one person wrote it, even though everyone in the group contributed to it. Be sure to organize each section in a coherent and well thought out manner.

- The Wikimedia page that your group creates will be hosted on the CIBER-U website at Drexel University. This website will be available to engineering students from Penn State, Drexel University and the University of Missouri-Rolla. Students from these universities will also be making contributions to CIBER-U. Your page is intended to communicate the design and function of your product to others. It is possible that other students will be reading this page to gain an understanding of your product, so be sure that your ideas and thoughts are well organized and represented!

**Oral Project Report**

Your group will prepare a **6 minute** presentation on your product and its design. Include only the highlights of your report and the insights you found to be most interesting. Be sure to include discussion on the design changes your group would recommend. Showing sections of your Wiki project page is encouraged as well. Presentations will occur during the last 2 weeks of class.