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| Activity 16-1 | Team Project – First Informal Design Review |
| Textbook Reference: |  |
| Purpose / Goal: | Team projects are initially reviewed for several criteria to drive students toward successful implementations. |
| Materials / Resources Required: | Laptop, paper, pencil, team’s “Statement of Work” document, team’s Concept Proposal document, Milestone 2 Rubric |
| Time Allocated: | 1:50 |

# Team Project – First Informal Design Review

## Purpose

To help the teams get off to a proper start on their team projects by verifying that they have considered several important items as described below.

## Consultations by Instructors

Instructors are to talk to and work with all of the teams to understand their initial project direction and to offer suggestions, corrections and other guidance as needed. As instructors we are essentially serving as Project Managers to coach the student teams toward success.

The following are some suggested things for an instructor to look at when reviewing the team’s efforts. This is NOT considered nor planned to be a complete list!

1. Product safety
   1. Is the product inherently safe?
   2. Are there potential safety hazards during manufacture?
   3. Are there potential safety hazards during installation / assembly?
   4. Are there potential safety hazards during operation?
   5. Are there environmental considerations?
   6. Is the product potentially harmful to animals?
2. Product lifecycle considerations
   1. What will be the useful life of the product?
   2. What is to be done with the product when it is no longer useful?
      1. Repair?
      2. Replace?
      3. Dispose?
   3. Is there a “break-in” period?
3. Manufacturing considerations
   1. Can the product be manufactured for a “reasonable” cost?
   2. Does Rensselaer have or have access to the required manufacturing processes?
4. Cost estimates & budgets
   1. The team should begin creating an estimated project budget
   2. Add as many line items as are currently known or which can be readily estimated
   3. Update the budget weekly as more required items become known and as actual costs are accumulated
5. Realistic project scheduling / planning
   1. Are school breaks / vacations accidentally shown as “work time”?
   2. Are the estimated durations reasonable based on instructor experience?
   3. Is there time / effort planned for individual subsystem testing?
   4. Is there time / effort planned for integrating the subsystems into a final working unit?
6. Viability of the team’s concept
   1. Are there any identifiable problems inherent in the team’s approach?
   2. Is the complexity appropriate to this program?
   3. Is the concept meaningful?
   4. Does it meet our safety guidelines or how can it be adjusted to do so?

## Subsystems

By the end of this class, the team should have a documented list of their subsystems and each member should have their assigned subsystem. It is recommended that multiple students NOT be assigned to a single subsystem but instead that the subsystem be broken down further. Then each student can have a clearly defined subsystem with individual responsibility and tangible output.

There are two typical subsystem diagrams – the “flat” and the “hierarchical”. An example of the flat diagram would be seen in Figure 1 - Flat Subsystem Diagram.

**Figure 1 - Flat Subsystem Diagram**

An example of a hierarchical subsystem diagram can be seen in Figure 2 - Hierarchical Subsystem Diagram.

Figure - Hierarchical Subsystem Diagram

As the students are defining the subsystems it is critical that they consider what the interfaces are to and from that subsystem, how it interacts with the rest of the system and how they will test that subsystem. They may need to fabricate a fixture or test setup. This is especially important when they need to demonstrate their subsystem’s operation at the final demonstration (Milestone 2). Students should be aware of and review the rubric for that milestone.

## Looking Forward

In the remaining classes the teams are to continue their design activities and to document those for their final report / presentation. The most successful teams will capture this documentation each time they meet rather than attempt to generate it all at the end.

The goal is to ask enough questions to develop everyone’s confidence that they can succeed with their project!