

# ***Preliminary Design Review Assignment***

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## ***ASEN 4018, Senior Projects I: Design Synthesis***

***Fall 2014***

### **1.0 Document Scope**

This document specifies the required elements and deliverables for the Preliminary Design Review (PDR) assignment, and provides a grading rubric.

### **2.0 Purpose of PDR**

The purpose of the Preliminary Design Review is to **provide evidence** that the project objectives, as defined in PDD, for the baseline design defined in CDD, is **feasible**, i.e. can be accomplished within the constraints of technology and the senior projects course (time, skills, money, facilities, etc.).

Since review time is limited, students should focus on the key aspects of project feasibility, by identifying the critical elements to project success, and provide evidence that the most important of these elements are feasible.

It is expected that the key elements to be analyzed for feasibility are clearly defined, and reasoning about why they were chosen for analysis and presentation is provided. For each key element, a first-level feasibility analysis is expected. Some key elements may need a more in-depth treatment, depending on their importance to project success and the complexity or difficulty of the feasibility issues involved.

A summary of the state of project feasibility is required, along with a plan for further feasibility studies, if any are needed.

### **3.0 PDR Presentation Structure**

#### **3.1 Project description**

- 3.1.1 Brief project definition, using Objectives, CONOPS and FBD from PDD
- 3.1.2 Baseline design from CDD. Include diagrams and explanation sufficient to understand the baseline design without having to read the CDD.

#### **3.2 Evidence of baseline feasibility**

- 3.2.1 Identification of critical project feasibility elements, choice of key elements to present
- 3.2.2 First-level feasibility analyses of all key critical project feasibility elements.
- 3.2.3 Other evidence (comparisons, simulations, experiments) as needed to show feasibility

#### **3.3 Status summary**

Recap baseline design with aspects shown to be feasible vs. studies still needed

#### **3.4 Strategy for conducting remaining studies**

## **4. Deliverables**

### **4.1 PDR Presentation Package**

Each group must submit their PDR Presentation Package in the form of a Powerpoint presentation. This must be submitted to the CA by one member of your group. Videos must be embedded. Work with CA to assure your added media work during the presentation.

Name your file in the following format: Team-PDR.ppt(x) (e.g. ARCTIC-PDR.pptx)

Each team provides the PAB with a hardcopy of their presentation before presenting. This should be printed double sided, with 6 slides per page, stapled in one corner. Ten copies are required.

### **4.2 Due Date and Time**

The PDR presentation package is due at 11:59 PM, Monday, October 13, 2014. Presentations begin the following day, and occur from 3:00 to 4:50 on 10/14, 4:00 to 4:50 on 10/15, 3:00 to 4:50 on 10/16, 3:00 to 4:50 on 10/21, 4:00 to 4:50 on 10/22, and 3:00 to 4:50 on 10/23.

### **4.3 No Changes to the Submittal**

To ensure fairness, no changes will be allowed to your presentation materials after the due date and time. You will be presenting from the version of the presentation that is submitted.

No supplemental material shall be distributed at the presentation.

You may send a copy to your customers if requested. Please inform the CC in advance if any customers/visitors will be attending your presentation.

Important: The AES department laptop computer will be used for the PDR presentations. Your submitted files will be loaded on this computer. If you would like to test your presentation on this computer then you should contact the CA well in advance; we may not be able to accommodate last minute testing.

### **4.4 Presentation Schedule and Format**

The PDR is an oral presentation in front of the entire PAB and all students in the class. Teams should invite their customers to attend. If a customer has a specific time constraint, please e-mail this to the CC well in advance so this request can be considered in arranging the presentation schedule.

Presentations will be scheduled during allotted class lecture and lab times in ECCR 245 beginning with lab time on Tuesday, October 15, 2013 at 3:00 PM. The presentation schedule will be posted on D2L.

All students are required to attend all presentations (see the Course Syllabus).

Your presentation is strictly limited to 30 minutes and will be followed by 20 minutes of questions and discussion from the PAB and students. These time limits will be strictly enforced!

Each team member is required to speak at least once during the 2 design reviews (PDR, CDR). All team members are required to be present at the review and prepared to answer questions. However only ~50% of the team shall speak at PDR and the other ~50% of the team will speak at CDR.

## **PDR Presentation Grading**

The entire PAB will grade presentations for both the quality of the content and the quality of the presentation. The final group PDR grade will be computed as an average of all PAB member grades for the group. Individual grades within a group will vary around the group grade, in the sense that the average of the individual grades will equal the group grade. Individual adjustments will be based on adviser and PAB judgment, and evaluation of self-assessments and peer reviews within the team. Comments from the PAB review will be distributed to the teams so they can correct any deficiencies in the feasibility analysis before turning to the design development for CDR.

### **Engineering Content (80%)**

#### **Project description (20%)**

Brief project definition, using Objectives, CONOPS and FBD from PDD.

Clear what project is about and what it must accomplish to be successful (8-10 pts)

Mostly clear, but some parts are vague (say which) (6-8 pts)

Many parts are vague (say which) (4-6 pts)

Project is ill-conceived (say why) (0-4 pts)

Baseline design from CDD. Include diagrams and explanation sufficient to understand the baseline design without having to read the CDD.

Clear what all major elements of the project are, and how the baseline design works (8-10 pts)

Some elements are vaguely defined or poorly explained (say which) (6-8 pts)

Key elements seem to be missing or were not explained (say which) (4-6 pts)

Can't tell what the baseline is or how it works (0-4 pts)

#### **Evidence of baseline feasibility (50%)**

Identification of critical project elements, choice of key elements to present

Critical elements make sense, and priority selection was related to project objectives (8-10 pts)

Some critical elements were missing, or reasoning for including them was missing (say which) (6-8 pts)

Most critical elements seem poorly understood in terms of project objectives (4-6 pts)

Little understanding of critical elements in project is evident (0-4 pts)

First-level feasibility analyses of all key critical project elements. Other evidence (comparisons, simulations, experiments) as needed to show feasibility

All critical element feasibility evidence was credible and convincing (30-40 pts)

Some feasibility aspects are dubious (say which) (20-30 pts)

Many feasibility concerns remain (say which) (10-20 pts)

Little evidence of feasibility was presented (0-10 pts)

#### **Status summary and strategy for conducting remaining studies (10%)**

Recap baseline design with aspects shown to be feasible vs. studies still needed

Good summary of feasibility relative to project objectives, feasibility seems clear (8-10 pts)

Some feasibility concerns remain, but a clear plan is in place to address them (6-8 pts)

Feasibility study is largely incomplete, and plans for completing it are vague (4-6 pts)

Serious feasibility concerns remain, and they are unlikely to be resolved in a timely manner (0-4 pts)

### **Presentation Quality (20%)**

Well-organized (0-4 pts)

Clear, informative slides (0-4 pts)

Well-spoken presentation (0-4 pts)

Listened to questions, answered directly (0-4 pts)

Professional appearance and demeanor (0-4 pts)