ME403: Assignment 5
"Design Screening and Midstream Report"
Guide to Responding

1. The first part of this assignment is established to structure the course and allow you the time to work on your design project. You should plan to spend 45 hours on this assessment. However, students often find it necessary to devote 100 to 150 hours for its completion. This will allow you to reach a level of progress where you feel you have identified a conceptual design which will solve the problem at hand, with a sound fundamental and theoretical basis. You should also have begun thinking about how to go about implementing this design into a prototype or sufficiently modeled process that will allow you to move forward with validating your concept idea.

This will be a very detailed, extensive process, which will require a strong amount of self-applied time management and commitment to progressing forward properly. Look toward your Gantt Chart and project management tools to help stay on task and keep focused on progressing forward without either stagnating or rushing too quickly into decisions.

You will need to look closely at your conceptual design ideas and examine their feasibility, applying sound engineering logic and analysis to scrutinize the logical validity in moving forward with a particular design.

There will most likely not be a simple, best solution which comes easily. Instead, you will need to examine various aspects of your design and constantly look toward how it meets your metrics, iteratively examining whether changes or better alternatives exist. You may find the need to work a great deal with your customers to further refine their needs and what is most important, or you may not be able to obtain much information past that which you have already gathered about the project or problem.

If your design project requires multiple components to be individually designed, make sure you have a well-structured plan for tackling each piece while being able to account for how variation in one aspect will affect the design as a whole. If you are opportune enough to be involved in a team during your project (a common approach in most design work, however a potential lacking aspect in this one due to the nature of the online driven structure), make sure you work to maintain strong managerial oversight of the project and individuals working. In this way, individual decisions won't be made that risk the success of other's approaches due to a lack of dialog or unified vision.

By the end of this part of the assignment, you should have selected a full design concept and should be able to move forward with prototyping or modeling for validation.

2. The second part of the assignment is creating a midstream report. This report will detail not only the problem definition, design requirements, and statement of work, but it will also document for a technical audience the to-date progress on the design project. This will include concept generation and concept analysis leading to a decision on the path forward in the problem solution.

Your midstream report will start as a larger extension of your Statement of Work. It will hold a well-defined problem statement which explains the background to the problem and why it is being approached for your design project. It will detail your examination of customer needs and the resulting metrics which are driving your design. It will also present a concrete summary of what work you have done in establishing the design you plan on moving forward with into validation.

The report should also examine your management of your project thus far, including potential reexamination of your Gantt Chart to determine if you need to implement any changes or adjustments to your original plan.

Finally, you should present a concise description of where the work is going and what you plan on delivering at its completion. If this entails significant variation from your original Statement of Work, make sure at this time that your customer (if you have one) finds alteration of the original plan acceptable.

Midstream Report Examples:

Florida International University: EML4905 Senior Design Project: "Senior Design Final Reports—Spring 2011." Select any of the PDF links in the section "Senior Design Final Reports—Spring 2011" on this page to see various design teams' final design reports. The information included in these reports, up to, but not past, each report's chapters about prototype development will be comparable to the information that you should make sure to include within your midstream report.

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