Use this template as a guide when writing your technical brief.

***Your technical brief must follow the format shown here! Failure to follow this format will result in lost points!***

**Delete all red text from this answer sheet before submitting!**

**Notes:**

* Margins must be set at 1 inch and font must be 12 points.
* Your technical brief must be **no longer than 2 pages**, unless otherwise specified.

To: Teresa Wall, Vice President of Research

From: ENGR 132 Team 13 (-30

RE: Optimizing a Mixture of Quantum Dots for a PV Customer

Date: 01/26/2015

**Part 1, Introduction**

1. In your own words, describe the problem in 2-3 sentences. This should include your team’s consensus on who the direct user is and what the direct user needs in terms of the deliverable, its function, the criteria for success (indicators of a working solution), and the constraints (what was provided to guide the design solution).

According to the information provided to our team, we have come to the conclusion that the direct user of our deliverable will be the manufacturing department employees. The direct user primarily needs the deliverable. The deliverable is the model or solution to the problem that has been presented. It is a way to either visualize or test possible solutions to various issues that may arise in the development of certain applicable technologies. The function of the deliverable would be to either run simulations of or perform calculations for a variety of applications within a certain scope, providing actionable data for those researching and evaluating possible solutions or products. Some of the criteria by which the success of the model could be judged are: its ease of use, the efficiency of the deliverable, the cost effectiveness of the deliverable and the versatility of the product. A few of the more important constraints on the system could be: the amount of time it takes for one iteration of the process, the cost of the deliverable, the amount of data that are needed for input or result from the process as well as the ability of the deliverable to address the possibly widely varying needs of the program for which it is designed.

1. Provide an overarching description of the procedure 1-2 sentences. This should emphasize the key features of the design of the mathematical model. Be specific.

We envision the procedure for our model as being quite simple. We hope to produce a model that will only require data points to use. These points will simply have to be entered and a solution would be calculated. The data that would be required are any of the following: the permittivity of the material, the radius of the Qdot, the bulk energy of the material, the proposed Qdot energy of the material, the desired cost/toxicity level, and so on.

1. State the conditions under which it is appropriate to use your procedure. Consider this questions: Did you make assumptions that result in limits on when your model can be used?

We believe that our model will be useful under a variety of circumstances, but primarily with the intent to minimize the cost/toxicity level of a given material. The model would most probably function best when only one variable is allowed to change per iteration.

**Part 2, Procedure (mathematical model)**

**List the steps** of your procedure (mathematical model). Provide sample calculations and explanations for steps that may be more difficult to understand or replicate.

As of now, the proposed plan for our model is as follows. The program might first as the user what the purpose of this particular iteration is (to minimize cost or toxicity), it would then require the entry of the particular data sets needed to complete the desired calculations. After the data has been entered, the algorithm might then request the amount of precision desired. Once that has been fixed, the algorithm would then run and produce the desired.

**Part 3, Results**

**Present results** of applying the procedure to the specified data in the form requested. Results should be formatted for technical presentation; they should not be copied from MATLAB or Excel without cleanup. Consider using tables or graphs to present your results more concisely.

Because the information we were given was incomplete, we were unable to construct a very accurate set of preliminary results. These are very rough calculations.

The cost of type 1 is approximately

**Part 4, Other Information**

Provide any other information that has been requested.

<insert your text here>