Design Review Case Study – Assignment D – Solution Description

Cell & Tissue Engineering

Introduction

In the next phase of the case study you will outline the specifications for your selected CTE solution. This document is like the roadmap for how the solution came to be. Here you will outline some of the attributes or qualities of the design that may have been design criteria. For example if the solution landscape indicated that there was a gap for low cost treatment, then one criteria would be low cost. Once you have the design criteria outlined you will describe how the solution work and how it specifically fulfills the criteria.

Part 1: Table of Existing Solutions, Advantages, Gaps

1. First generate a list of design criteria. Each criteria should be a keyword followed by a single sentence description.

    Example: Weight – Surgeon must be able to insert the solution with one hand.

2. Here is a list of some design criteria you may want to include:
    - Cost or budget constraints – what is a realistic cost based on the population you intend to serve?
    - Weight – does a surgeon need 2 hands to place it?
    - Ease of use – will it take more than one type of medical professional to employ?
    - Manufacturability – is it made or order, customizable or off the shelf?

3. Then using a table, map your design criteria with metrics for assessment. List the metrics, units of measure, and ideal values for each criteria. Think critically and quantitatively about the specifications and constraints that your end product meets. As you brainstorm criteria you may find yourself coming up with qualitative items. You will need to dig deeper to find ways to quantitatively address these initially qualitative criteria. For example, if a criteria is "low immune response" you next need to think about how this is tested. Perhaps putting the product material in culture with monocytes and measuring their degree of activation via western blot of TNF -α. The unit of measure here is "TNF-α/monocyte", the acceptable margin may be "below xyz competing device" the ideal value may be "zero." Your criteria may include functional requirements, performance requirements, and interface specifications. For this assignment please include at least 4 design criteria – for the final project you will need at least 6. Your final table should be as comprehensive, specific, and quantitative (whenever possible). You will be using published data to create this so be SURE to reference everything.

An example table is shown below.

Need or criteria	Unit of measure	Ideal value
Criteria 1. Light weight Description:	pounds	2

Part 2: Summary of Table

Second, in paragraph form (don't forget to double space), summarize the content of the table and describe how the solution concept fills these criteria. This is where you get to describe how the solution works!

This document is a draft of a section that will be included in your final report. It is intended as a tool for you to get feedback on your progress. It is expected that this document be full-text unless otherwise specified.

This should be submitted to Blackboard as a pdf. Resources on proper citation and best practices in online research are located here: http://krieger.jhu.edu/writingcenter/writing_resources/ Please use the MLA format.

Additional Information

- Resources on proper citation and best practices in online research are available online at the JHU Krieger School Writing Center.
- Page limit 2.5, final point value 30/100, include project topic in header
- Reminder, drafts are worth 50% of the final point value 15/100
- Use MLA format.

Grading Rubric

Points	Component	Description
10	Content	Table includes 4 thoughtful and critical design criteria. Table is filled out completely. Paragraph summarizes the criteria, metrics and the process of selecting the design criteria.
2.5	Organization and Structure	Clearly organized content with natural progression and structure. Informative subheading when necessary.
2.5	Writing	Superior narratives and analyses that are clearly and simply written. References included as appropriate.
15	**SUM**	