Capstone Engineering Design: Design Strategy Rubric

Team Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- | --- | --- | --- | --- |
|  |  | **Cycle 1** | **Cycle 2** | **Cycle 4** | **Cycle 5** |
| 1. | Problem Decomposition | /100 |  |  |  |
| 2. | Concept Generation and Screening | /50 | /130 |  |  |
| 3. | Use of figures | /30 | /30 |  |  |
| 4. | Professionalism/ Formatting | /20 | /20 |  |  |
| 5. | Response to comments/ previous grading |  | /20 | /25 | /50 |
|  | TOTAL: | /200 | /200 | /25 | /50 |

Grading elements in Design Strategy

|  |  |  |  |
| --- | --- | --- | --- |
|  | Excellent (max pts) | Average (mid pts) | Poor (lowest pts) |
| Problem Decomposition | The problem has been decomposed in a logical, clear manner. Subfunctions are determined with clear interactions that allow for effective concept generation. | The problem has been decomposed, but some subfunctions or interactions are unclear or illogical. | Decomposition is incomplete or poorly done. |
| Concept Generation and Screening | In cycle 1, a well-designed plan for concept generation and screening has been presented. Criteria for screening is clearly explained. In cycle 2 and beyond, key concepts that have been generated are clearly explained and documented. Methodical concept screening is shown using pugh matrices, or other defensible rationale. There is a clear discussion or story of how you arrived at your final concepts. | In cycle 1, the plan for concept generation and screening has been presented, but is not clear. Criteria for screening may be incomplete or lacking. In cycle 2 and beyond, key concepts are poorly communicated. Methodical concept screening is shown but the pugh matrices and/or rationale is not well-supported. The path to your final design is not clear. | The plan of concept generation and screening is incomplete or vague. Criteria for screening are missing. In Cycle 2, few concepts are presented, and their presentation is poor. |
| Use of figures | Figures are included to explain and organize content and help reader visualize device operation and function. Figures are numbered and referenced in text, and figure content is appropriately labeled and easy to read. Captions explain the figures thoroughly. | Figures are used but may have a few of the following problems: do not aid understanding of device operation or function; are not explained well; are not numbered, labeled, referenced in text, or appropriately captioned. | Figures have several of the problems listed in Col. 2 or are used ineffectively or sporadically in the document. |
| Professionalism/ Formatting | Organizes document for readability. Transitions logically between topics, leads with assertions, and provides clear forecasting sentences and subheads to guide reader through the document. Grammar and spelling is not distracting. | Document contains some distracting formatting or grammar problems. Organization may not aid understanding or help readers skim the document. Writing (sentence structure and transitions) may fail to guide reader. | Transitions and other cues to guide reader are absent. Document may be incomplete, sloppily organized, or poorly written. |
| Response to comments and previous grading | Team has thoughtfully considered feedback and input from graders in prior cycles. Work in this cycle demonstrates team's effort actively improve the document, going above and beyond specific points called out by the grader. | Team has incorporated most of the specific changes made by graders, but revisions do not address deep or more substantive problems with the document. | Team has ignored grader feedback or taken only minimal steps to improve the document. |