**Academic Prompt with Rubric Checklist**

**Design a Solution**

**ENGR 353 Fluid Mechanics**

**Assignment Steps**

1. Identify the problem.
2. Identify criteria and constraints.
3. Brainstorm possible solutions.
4. Select a design.
5. Build a model or prototype.
6. Test the model and evaluate.
7. Refine the design.
8. Share the solution.

**Rubric Checklist for the Assignment**

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| **Category** | **Score** |
| Brainstorm to Identify the Problem and Constraints* The problem is identified and explained in detail.
* All criteria and constraints are listed and clarified.
* Possible solutions are listed from the brainstorming session.
* The work others have done to solve the problem is included.
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| Generate Ideas, Possibilities, and Design Choice* Two or three ideas are selected from brainstormed list.
* Detailed sketches are created for the selected ideas.
* Sketches are labeled with dimensions and materials for each component.
* One design is selected to construct with reasons for the choice.
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| Build the Model or Prototype * Detailed list of materials is included.
* Detailed procedures are included and followed.
* Materials are handled and stored appropriately.
* Safety rules are followed.
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| Test the Model and Evaluate * Hypothesis following an “if.., then...” format is developed for the design.
* Strengths of the design are listed.
* Weaknesses of the design or compromises of the design are listed.
* Results are accurately recorded.
* Data tables are complete and well organized.
* The chosen design effectively addresses the identified problem.
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| Refine the Design* Modifications to improve the design are based on test results.
* Modifications to the design are documented.
* Additional trials are conducted.
* Reflections show great insight and understanding of process and goals of project.
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| Share the Design* Presentation is well-organized.
* Presentation covers all areas of the design process.
* Presentation is clearly communicated (verbally or visually) with appropriate data, sketches, graphs or pictures.
* Presentation includes contributions from all team members.
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| Total points (out of 24 possible) |  |

4=excellent (all criteria met), 3=good (most criteria met), 2=fair (many criteria not met), 1=poor (most criteria not met), 0=no effort to meet criteria. 24-21=A, 20-17=B, 16-14=C, 13-11=D, 10 or less=F