NFPA Fluid Power Vehicle Challenge

**SCORING RUBRIC**

Judge:

Team:

***For teams from returning universities, we expect new and innovative designs from you. You will need to describe changes from previous year’s vehicle at your Midway Review.***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **MIDWAY REVIEW** | **Poor** | **Moderate** | **Good** | **Very Good** | **Excellent** |
| **Design objectives** are clearly stated and appropriate to the competition. | 1 | 2 | 3 | 4 | 5 |
| **Vehicle design** clearly supports the design objectives and is of obvious quality.\* | 1 | 2 | 3 | 4 | 5 |
| **Hydraulic and Pneumatic circuit designs are** complete and reflect an understanding of fluid power components and systems.\* | 1 | 2 | 3 | 4 | 5 |
| **Selection of hardware** is complete and is appropriate to the design objectives. | 1 | 2 | 3 | 4 | 5 |
| **Analyses** have been performed and their results have been incorporated into vehicle and/or circuit designs.\* | 1 | 2 | 3 | 4 | 5 |
| **Presentation** is completed on time and demonstrates team synergy. | 1 | 2 | 3 | 4 | 5 |
| **Prototype** vehicle assembly has begun.\*\* | 1 | 2 | 3 | 4 | 5 |
| \*In addition to the above description, judges will be evaluating returning teams that are leveraging work products from previous year’s based on how they address these criteria in their Midway Review:**Vehicle Design** – Returning team demonstrates original thought.**Hydraulic and Pneumatic circuit designs** – Returning team made significant changes.**Analyses** – Returning team demonstrates understanding of work completed.\*\*Criteria: **Prototype vehicle assembly has begun** 1= Significant progress has been made in sketches, schematics and engineering design.2= Vehicle frame assembly has begun3= Vehicle frame has been assembled and ready for testing4= Vehicle frame has been assembled, tested, and the pump, motor, accumulator, mounting brackets have been made5= Vehicle frame has been assembled and tested, and components are mounted |

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| --- | --- | --- | --- | --- | --- |
| **FINAL PRESENTATION** | **Poor** | **Moderate** | **Good** | **Very Good** | **Excellent** |
| **Summary of midway presentation** is succinct and well organized and focuses on changes and progress made between the Midway Review and Final Competition. | 1 | 2 | 3 | 4 | 5 |
| **Vehicle construction** was completed on-time and performed mostly by the team members. | 1 | 2 | 3 | 4 | 5 |
| **Vehicle testing** was performed and improvements were made based on results. | 1 | 2 | 3 | 4 | 5 |
| **Final vehicle** brought to competition appears reliable, safe and of quality craftsmanship. | 1 | 2 | 3 | 4 | 5 |
| **Lessons learned** are clearly stated and appropriate to the design/build experience described. | 1 | 2 | 3 | 4 | 5 |
| **Presentation** is completed on time and demonstrates good team synergy. | 1 | 2 | 3 | 4 | 5 |

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| --- | --- | --- | --- | --- | --- |
| **VEHICLE DESIGN REVIEW** | **Poor** | **Moderate** | **Good** | **Very Good** | **Excellent** |
| Quality of vehicle design associated with **reliability**. The vehicle is robust and durable, but not too heavy. | 1 | 2 | 3 | 4 | 5 |
| Quality of vehicle design associated with **operator safety and comfort**. The vehicle is ergonomic and easy to use. | 1 | 2 | 3 | 4 | 5 |
| Quality of vehicle design associated with **originality and uniqueness**. The vehicle incorporates innovative concepts and could be marketable as a production vehicle. | 1 | 2 | 3 | 4 | 5 |

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|  |  |  |
| --- | --- | --- |
| **FPVC Mentorship** | **Summary Submitted (Y/N)** | **Points** |
| Introduction and initial discussion about **vehicle** design. |  | 1 |
| Discussion about **component** design. |  | 1 |
| Discussion about **assembly** and **testing** |  | 1 |
| Final discussion on **adjustments** |  | 1 |
| **Total Points** | 4 |

Comments: