**Project 1.2.11 Glider Design Challenge #2**

Introduction

In Project 1.2.10 Glider Design Challenge One, you designed a stable glider. In this project, you are going to expand your knowledge through more advanced skills while refining your glider design. This is an importance design step of refining and testing a design to improve your design concept.

Equipment

* Engineering notebook
* Pencil
* PC with AERY glider design software
* Printer

Procedure

1. Confirm that the AERY glider design software configuration correctly matches the construction material.
2. Use the Challenge Two glider constraints shown below.

|  |  |  |  |
| --- | --- | --- | --- |
| Main: |  | Stabilizer: |  |
| Fuselage Length (cm) | 30 | Span (cm) | 20 |
| Wing Location (cm) | 19 | Root Chord (cm) | 5 |
| Stabilizer Location (cm) | 1.3 | Taper Ratio | 0.75 |
| Vertical Location (cm) | 22 | Leading Edge Sweep Angle | 30 |
| Nose Mass (g) | 10 |  |  |
| Wing: |  | Vertical Tail: |  |
| Span (cm) | 50 | Height (cm) | 8 |
| Root Chord (cm) | 10 | Root Chord (cm) | 5 |
| Taper Ratio | 0.4 | Taper Ratio | 0.75 |
| Leading Edge Sweep Angle | 14 | Leading Edge Sweep Angle | 30 |
| Launch Velocity (km/hr) | 20 |  |  |

1. Start the AERY glider design software.
2. Create a glider design that meets the constraints provided. Make minimal changes to the design compared with the first design challenge to retain the original fundamental design of the Canard wing.
3. When your design is stable, print out two copies of the design.
4. Save the design to the location indicated by the teacher.
5. Enter one design print in your engineering notebook. The second print will be for your final design report.
6. Prepare a report using the Project 1.2.11a Glider Design Challenge Report.

**Conclusion**

1. Explain difficulties faced with this second design challenge compared with the first challenge.
2. Explain how these constraints impacted your glider design compared to the first.