

# CRUISE CONTROL

Pool Event

Points: 20

Once you've learned to fly your RC aircraft confidently, it's time to step it up a notch and learn some basic designing skills. This event will test your nerves, ability to design a proper model which can withstand in difficult flying conditions. Go through the problem statement carefully, specify all the below mentioned points in your presentation (with brief overview) and you will have only 24hr to submit your design report.

## Team Structure:

This is a pool event with a single team per pool. **Only the last report will be considered.**

## Problem Statement

The competition requires the participants to design a Glider aeroplane (**maximum wingspan 2m**) which would include the below-mentioned Points in their respective reports. Compare at least two airfoils and explain the one you are using.

## Design Report Submission

Submit via mail to [iitkaeroclub@gmail.com](mailto:iitkaeroclub@gmail.com), mention subject as “**Pool name\_Cruise\_Report**”

**Deadline: 11:45 PM, 29th Feb 2020**

Participants must have a good knowledge of designing and analysis of an aircraft. The participants will have to submit the design report (XFLR file as well as a presentation with pictures of all the mentioned points)

- Copying of any other pools design report will lead to disqualification.
- The report must consist of the following details along with XFLR file.
  - Bending moment.
  - Tip stall
  - Cl/Cd wrt alpha
  - Neutral Point
  - HTV and VTV coefficient ratios
  - Lateral and longitudinal stability analysis.
  - Static margins.

- Damping of disturbance with time (lateral and longitudinal)

## Point distribution

The total score for the design report is 100

1. Bending moment 10
2. Neutral Point 10
3.  $C_l/C_d$  w.r.t  $\alpha$  10
4. Tip stall 10
5. HTV and VTV coefficient ratios 10
6. Lateral and longitudinal stability analysis 20
7. Static margins 10
8. Damping of disturbance with time (lateral and longitudinal): 20

## Rules and Regulations

Each pool has to submit its report within the given time limit. Any delay in submission, or even a single second, will not be considered.

Note:

\*\*You have to **demonstrate your design and show the analysis**. Failure to give a valid reason for your design won't fetch you points.

\*\* In case of any disputes, the decision of the coordinators and judges would be final and binding to all.

**In case of any problem, feel free to contact.**

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