Trailblazers 2016 Problem Statement

Round 1

Manoeuvre your aircraft along the pre-determined flight path.

You can choose to perform any 4 (FOUR) the following manoeuvres:

1. Stall Turn
2. Outside Loop
3. Inside Loop
4. Immelman Turn
5. Half Cuban 8
6. Split S Turn

The flyer will have to call out before performing a stunt. The team must perform only 4 out of 6 manoeuvres mentioned above. Any request to consider another manoeuvre and grade the best 4 will not be entertained. Points will be awarded based on accuracy and elegance in performing the manoeuvre.

BONUS: A Bonus credit will be awarded upon performing 'Low Pass'. This isn't compulsory. The flyer will have to call out before performing the stunt. This can be performed after Event 2, and time for this stunt will not be considered.

Round 2

Task 1

This task will ask for a payload (minimum 200gm) to be delivered at a specific location. The position of payload drop will have significant amount of points. Time will not be criterion in this task.

Each team is expected to design and bring their own payload, keeping in mind the above mentioned condition for weight. The event management will not be providing any payload, in case of need, under any circumstances.

Task 2

A very simple flight path will be given to the participants. The flyer that goes through the entire flight path in the least amount of time gets the maximum credits for this task.

Time will be the only criterion for this task.

Round 3

Fliers will be given 30 seconds to throttle their plane to any height and speed. After the first 30 seconds, the flier will be instructed to turn off the throttle (he can continue controlling the direction) and let the plane glide. Time of glide, i.e. time from turning off the throttle to the time when the plane lands (or crashes), will be the criterion for score in this round.

Points accumulated by each team in each round will be added up and the total score will decide the winners of the event.

Arena

The arena consists of an open field of approximately 50m radius.

Team Specification

A team may consist of a maximum of 5 members. Students from different educational institutes can form a team.

Eligibility

All students with a valid identity card of their respective educational institutes are eligible to participate.

General / Machine Specifications

An aircraft is defined as an object that has the four forces of flight, namely lift, drag, weight (gravity) and thrust due to propeller acting on it at any point of time.

The plane should be capable of performing pitch and roll motions. Yaw motion is optional.

The wingspan of the plane should not be more than 150 cm, while its length should be less than 150 cm.

The plane may be hand-launched or may take-off from the ground. Use of any other launching mechanism is prohibited.

Use of IC engines is strictly prohibited. Only electrical motors are allowed.

Use of gyroscopes is not allowed.

Participants must make all parts of the aircraft themselves. Usage of Ready-to-Fly (RTF) and Almost-Ready-to-Fly (ARF) kits is strictly prohibited. However, kits comprising of unassembled cut-pieces of Balsa wood are allowed. Use of readymade actuators/motors, remote controls and propellers is also allowed.

We strongly recommend that the team carries extra batteries to avoid charging time between consecutive rounds or flights.

Violation of any of these specifications will lead to instant disqualification.

Decision of the Event Manager, Judges will be final and binding.