MADRAS INSTITUTE OF TECHNOLOGY

ASSOCIATION OF AERONAUTICAL ENGINEERS

FLIGHT'20

29th FEBRUARY 2020, 8AM(SHARP)

<u>**DAY 2 EVENTS:**</u>

<u>**RC RACING**</u>

Design Constraints:

- T/W <=0.75 without payload (If excess thrust is measured, it will be neutralized by adding weight below the aircraft at centre of gravity)
- Propeller diameter should not be greater than 13 inches
- Total wingspan should be a maximum of 1.5 m
- Only electrical motors are allowed. The use of IC engines or any other means of providing thrust is prohibited.
- Use of gyroscopes (gyros) and programming assistance in receivers is prohibited

Flight Constraints:

ROUND 1:

A good measure of the design of an aircraft is in rate of climb and gliding time. In this round, participants are required to make their aircraft (without payload) to climb for 20 seconds. After this, they need to perform a dead stick flight (throttle=0 or Gliding). The aircraft however can be maneuvered while it is gliding.

The teams will be graded based on the glide time of the aircraft as mentioned below.

ROUND 2:
In this round, the design w.r.t. to the payload handling capability of the aircraft is put to test.

- The aircraft should carry one or more than one payloads *(weighing less then 50g of 2x2x2 cm dimensions-* will be supplied by the organizers during the competition) and drop them in a circular drop zone . The payloads should fall as independent objects and should not be put together as one bigger payload (sticking them together or putting payloads into a single box etc. are not allowed).

- A maximum time of 10 minutes will be given between the first take off and the final landing. The maneuver can be performed multiple times within the time limit for additional points. Entire payload should be released using only one channel in the transmitter.

So, it is important to design the aircraft for quick loading (for multiple attempts) and quick releasing of payloads (to ensure they drop within the zone when released) in addition to the payload carrying capacity.

1.Time limit for glide flight per contestant (max)   :   10 min
2.Time limit for payload attempt   :   10 min
                              Total   :   20 min

TOTAL MARKS= ROUND 1+ROUND 2

GENERAL RULES:
1. The use of 2.4 GHz radio is required for all aircraft competing in the competition. If the participants want to use any other frequency, they will have to inform the organizers in advance.
2. Receivers installed in the aircraft must be in 'receiver mode only'.

3. All the systems (Servos, motor, etc.) will be checked by organizers for functionality before the competition. If found not working, teams will be dismissed from the competition.
4. Pilot can position himself at any point in the arena to fly the aircraft during the rounds.
5. In view of stringent safety requirements, if a pilot flies out of the designated flying zone which includes overhead of the event organizing and control

section, as mentioned at the venue, he/ she is disqualified and has to immediately turn back and land at any cost.

7. Teams are suggested to carry additional components (motors, batteries, propellers etc.) as needed to avoid last minute surprises at the venue. You will lose time/ attempt if you are not ready at the time of your turn.

8. **Metal propellers are not allowed.**

9. Pilot should fly only using transmitter and receiver. FPV or any other devices that assist in flying are not allowed

10. The models can have powered take-off with a landing gear or can be launched manually by a person standing at ground level.

11. Aircraft should be built from scratch by the participants of the team and should not be a purchased model.

12. A team member can't be a part of more than one team.

13. Any of the above-mentioned rules, if found violated, teams would not be allowed to participate in the competition.

Decision Taken by Judges and Organizers will be final and binding for all.

Coordinator:
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DATE : 29.02.2020
TIME : 7 am

Price worth- 15k