



Boeing & IITs present

National Aero-Modeling Competition

Scope

Evaluation will be carried out in two rounds for the Zonals; a qualifier round and a maneuver round. The evaluation criteria and the constraints are listed in the Problem statement. Teams qualifying to the Maneuver round in the Zonals will be reimbursed a limited amount for the costs incurred towards the expenses for procuring materials for their models.

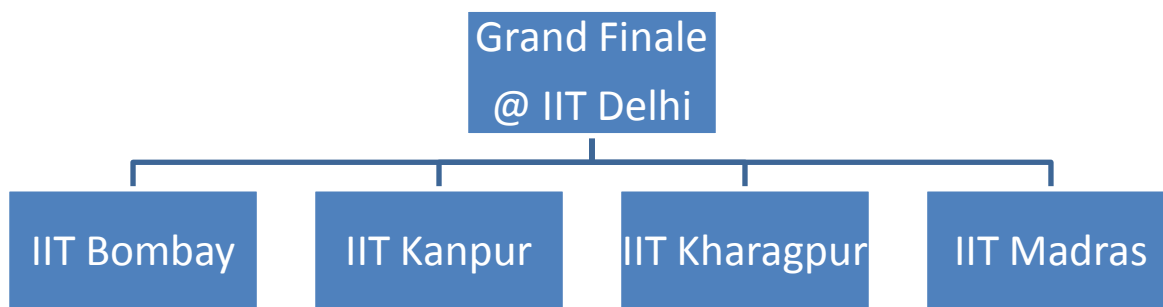
The competition criteria for the Finals will be declared soon.

Prizes

- National Competition:**

1st prize - Rs. 100,000	2nd prize - Rs. 50,000	3rd prize - Rs.30,000
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- At each Zonal Competition:**

1st prize – Rs. 50,000	2nd prize - Rs. 25,000	3rd prize - Rs. 15,000
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Problem Statement

Rules on Team structure

1. Maximum of 4 members in a team
2. Members of a team may be from same college or different (UG or PG)
3. Any number of teams can participate from one college
4. Professionals are not allowed

Design Constraints

1. The RC plane should measure a maximum of 1.0 m along any direction
2. $T/W = 0.75$ (if excess thrust is found, it will be neutralized by adding weight below the plane at center of gravity)
3. The use of IC engines is prohibited. Only electrical motors are allowed
4. The maximum voltage between any two points on the plane should be 12V at any point of time
5. Use of gyroscopes (gyros) is prohibited
6. One of the team members should fly the aircraft and another should call the stunts as they are performed (just before)

Abstract Submission

1. All the participants need to submit an abstract on their aircraft, which would be a **no longer than 2 pages** long with standard formatting. The Abstract would document the basic design of the aircraft (dimensions, wing areas, velocity, etc.) and would also explain how their design is suitable for given problem
2. Participants have to also send a zip file containing at-least 5 and no more than 10 photographs of plane while it's being built along with the Abstract
3. The Abstract has to be submitted to the respective Zonal competition 20 days in advance of the Zonal. E.g. For a Zonal happening on the 4th of January, the Abstract deadline is the 15th of December and so on.



Format of the Competition

The competition requires the participants to design a RC plane (no Readymade Planes are allowed) and perform a set of maneuvers. The event will be conducted at the grounds of the respective IITs and participants will need to bring their aircraft and all necessary equipment to this venue. The arena will be an open ground. There will be two rounds of the competition.

A. Qualifier Round

B. Maneuver Round

A. Qualifier Round

The best measure of the design of an aircraft can be done by climb and gliding time. To examine this, participants have to climb for 30 seconds. After this, they need to perform a dead stick flight (throttle=0 or Gliding). The plane however can be maneuvered while its gliding.

The teams will be graded based on

- Smooth Climb (35%)
- Glide Time (65%)

Top 30 teams from the qualifier round will qualify to Maneuver Round. Along with qualification to next round, qualifying teams will get a reimbursement of INR 5000 per team towards material costs for their models.

B. Maneuver Round

The Arena consists of 2 vertical poles separated by a distance of 25 meters and 2 horizontal bars/gates at heights of 3 meters-“entry gate” and 6 meters - “exit gate” separated by a distance of 10 meters (for better understanding of the arena- look into the arena diagram). Each gate would have enough space for planes to pass through, yet the skills of pilot could only guarantee a swift maneuver. The Arena will be at around 25 meters from Take Off zone to Landing Zone.

The participants get the scoring as below

a	A horizontal eight loop around the 2 vertical poles	25 points per loop (none for incomplete loop)
b	Fly-in through the entry gate and fly-out from below the exit gate	25 points
c	Fly-in through the entry gate and fly-out from above the exit gate	35 points
d	A horizontal eight loop around vertical poles immediately followed by Fly-in through the entry gate and fly-out from above the exit gate	65 points
e	- Safe landing before completion of 3 mins in the landing zone	10 points (no points for landing before the landing zone or a crash landing anywhere in the field)



Teams will have to perform all the above maneuvers (excluding landing) at least once. After they have completed the mandatory maneuvers, the teams can perform additional maneuvers in any extra time they have remaining before landing for extra points.

A maximum time of 4 minutes will be given to take off, complete the maneuver-set and land. Taking as many laps are allowed within 4 minutes but, the option has to be called before performance. Any further instructions would be given before the competition, on the spot. As soon as the timer crosses given time, only the points gathered by the aircraft till that moment are considered.

If there is a tie, winner will be decided based on a separate round in which time taken to complete one eight loop will be considered. Judges' decisions would be considered final in all cases.

Rules

1. Each team would be given 2 chances for each of the rounds and the best score is considered as per the scoring procedure mentioned above for each round
2. The timer will start from the moment the aircraft is in the air for both the rounds

Revisions

Any revisions to the Scope of the Competition would be intimated to all the participants via registered email and on the websites of the respective festivals at-least 45 days before the event takes place.

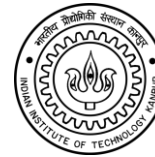


General Information

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. A limited number of 2.4 GHz radios will be available with the organizers for use by the teams. Teams who do not have access to radios can inform the organizers in advance to request use of these radios.
3. Metal propellers are not allowed.
4. The models can have powered take-off with a landing gear or can be launched manually by a person standing at ground level.
5. Plane should be built from scratch and not purchased models
6. Winners (Top 3 teams) from one zonal level are not allowed to participate in other zones, but others teams can participate again in other zonal competitions.
7. Teams who have claimed reimbursement in one Zonal cannot claim it in other Zonal.
8. A team member can't be a part of more than one team at any one given competition.
9. Bring your college/student I-Card at the time of competition.
10. Travelling allowance for grand finale will be given to the successful teams.
11. Any of the above mentioned rules, if found violated, teams would not be allowed to participate in the competition.

Award Policy

1. For zonal level winners
Winner- Rs. 50,000 ; 1st Runner-Up- Rs. 25,000 ; 2nd Runner-Up- Rs. 15,000
2. For national level winners
Winner- Rs. 1,00,000 ; 1st Runner-Up- Rs. 50,000 ; 2nd Runner-Up- Rs. 25,000
3. Every participant will be given a certificate of participation signed by Boeing and the Organizing Committee of the competition.
4. Winners will get certificate indicating their positions at different levels of the competition.



Arena Information

