Event

- The event will be conducted in Two Rounds.
- Each Team will play both the rounds.
- Both the rounds are of equal weightage (50% each).
- In the end, the team having the highest total points will be the winner.

Round 1- Power and Endurance

Power: (Maximum Points – 30)

- The Aeromodel will have to complete 2 laps between two given checkpoints 250 metres apart.
- The participant performing the maneuvers in minimum time will be credited with maximum points.

Endurance: (Maximum Points- 30)

A maximum propulsion time of 30 seconds (including take off) is given to the participant after which participants have to glide their plane to maximize the time of flight.

Round 2- Aerobatics

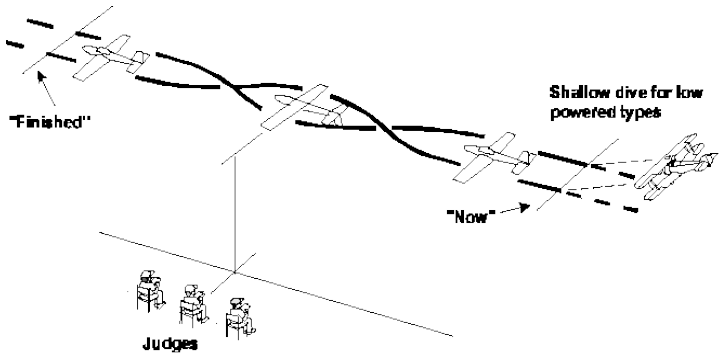
- In this round the participant will have to perform the maneuvers that are listed below and the number of points awarded against the total will be based on the smoothness and accuracy of the maneuvers.
- To toughen the challenge further the participants will have to do spot landing i.e. land the plane in a defined area after completing the maneuvers.
- The Maximum time given to each participant (i.e. for engine warm-up, take-off, maneuvering and spot landing) is 8 minutes.
- Points will be deducted for crossing this limit and maneuvers performed after 8 minutes will not be judged. The pilot must take off within 2 mins of being called on the flight line.
- However spot landing will be considered even after 8 minutes.
- Extra points will be given for completing round before 6 minutes.

MANEUVERS:

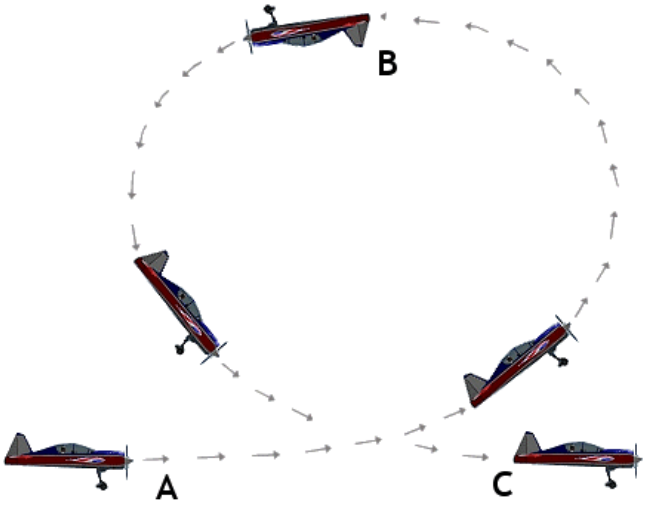
The maneuvers need to be performed are as following:

S.No	Maneuver	Max Points
1	Roll	10
2	Inside Loop	10
3	Inverted loop	15
4	Split S	20
5	Hammerhead	20
6	Square loop	20
7	Humpty-Bump	25
8	4 point roll	25
9	Reverse Cuban Eight	30
10	Flat Spin	35

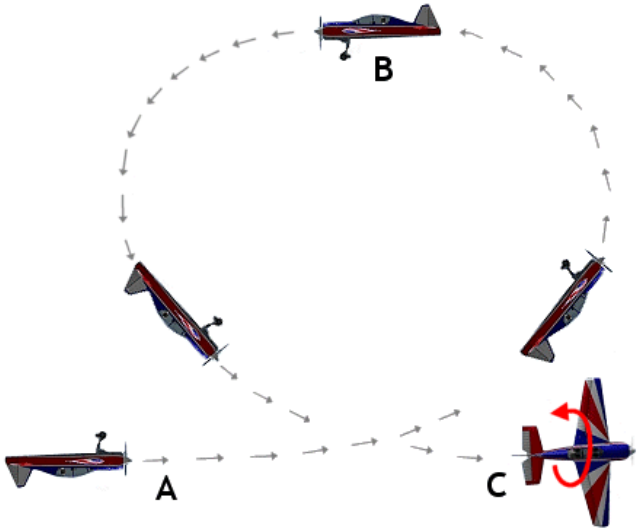
1. Roll: Rolls have to be flown normally on a straight line (exception is the avalanche). The roll rate has to be constant and the longitudinal axis of the plane has to go straight. This requires constantly changing rudder and elevator control inputs throughout the roll.



2. Inside Loop: A vertical circle entered from straight and erect level flight. A positive pitching movement is used at all points in the loop to draw the circle, so that the aeroplane canopy is pointing inwards.

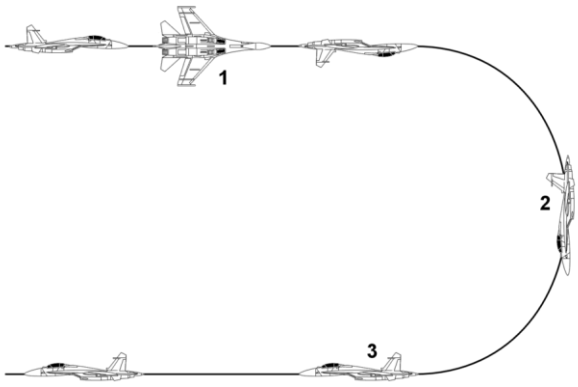


3. Inverted Loop: Vertical loop in which plane remains inverted at start and end of the loop.

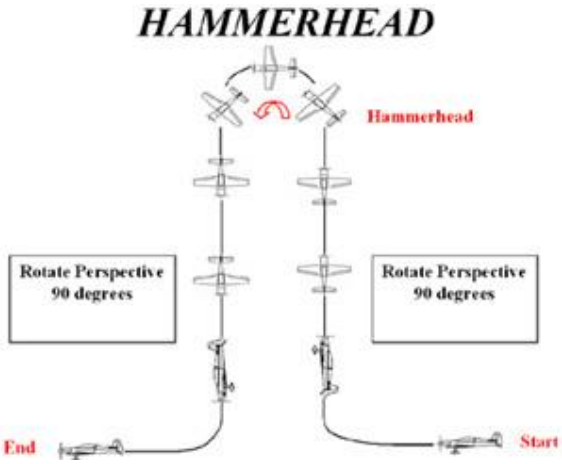


4. Split-S

The figure starts with a half roll to inverted followed by the second half of a loop downward. This is another maneuver to reverse direction. This does not preserve speed and altitude. In this case it trades altitude for speed. (K=10)

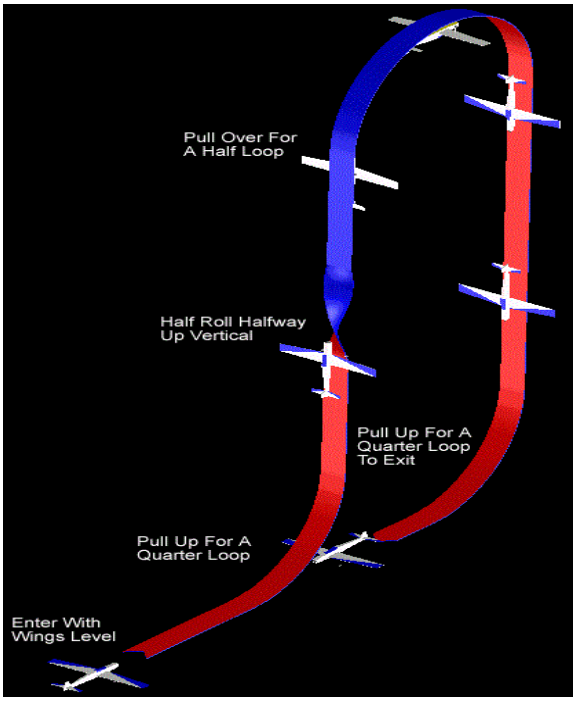


5. Hammerhead: 1/4 loop (pull or push) to vertical, as momentum/airspeed decreases, rudder is applied and the aircraft rotates around its yaw axis, the nose falls through the horizon and points towards the ground, a momentary pause is made to draw the vertical down line, and 1/4 loop to level flight. This figure is sometimes called a stall turn which is a misnomer because the aircraft never actually stalls.

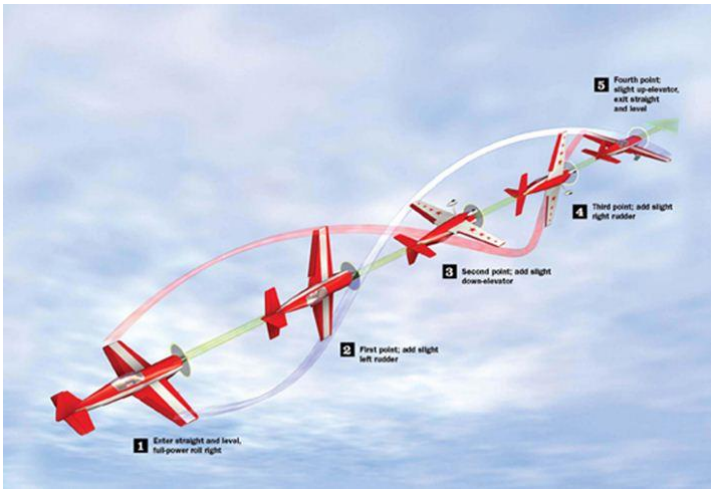


6. Square loop: This is a variation of the basic loop. The two vertical lines and the horizontal line on top have to be of the same length. The exit line at the bottom has to be at least as long as the other three sides. The quarter loops that connect the four sides have to have the same radius at each corner.

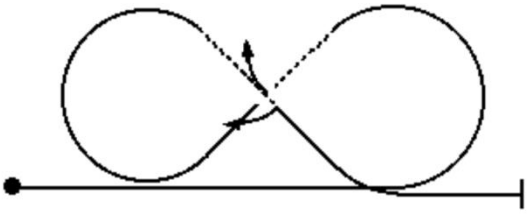
7. Humpty-Bump: This starts with a quarter loop followed by a half roll to a vertical climb. A half loop then results in a vertical down-line. The maneuvre completes with another quarter loop to horizontal flight. .

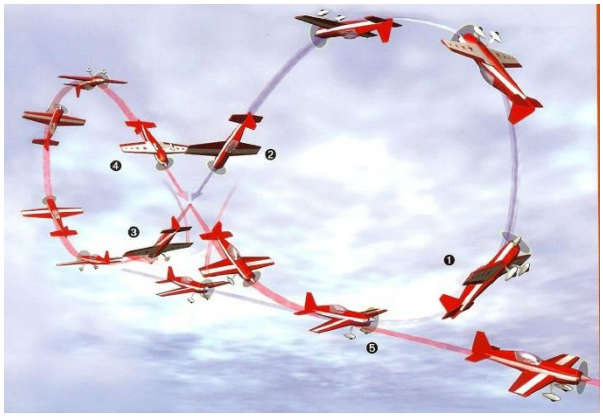


8. 4 Point Roll: The four-point roll (hesitation roll) is a horizontal roll with a brief hesitation at 90, 180 and 270 degrees. You should be able to do a roll without any altitude loss or heading deviation.

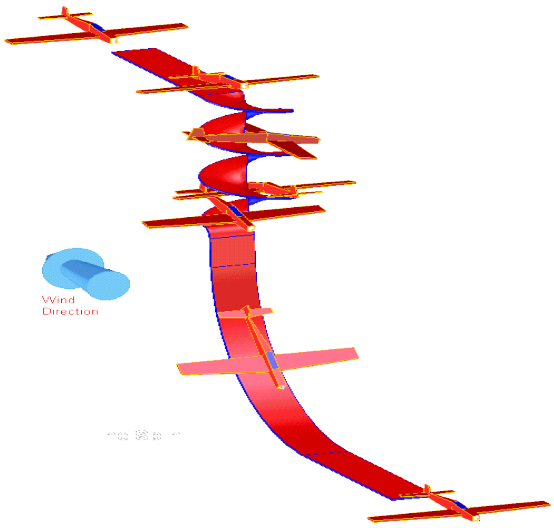


9. Cuban Eight: Two Half Cuban Eights can be combined to form a Cuban Eight or Lay-down Eight. The two looping parts have to be flown at the same altitude with the same radius. The exit has to be at the same altitude as the entrance to the figure.





10. Flat Spin: During spin entry, the plane has to show a stall break, followed by the auto-rotation. The rotation has to stop exactly after the specified number of turns. Once the rotation has stopped, a vertical downline has to be established.



SPOT LANDING: (Maximum Points 50, 30, 20)

After completing the maneuvers proceed for spot landing. The landing zone will be marked on the airstrip. The plane is to touch down precisely in the arena. The better the touchdown greater the marks obtained.

Arena point distribution:

1. Innermost circular region (2m in diameter) will have 50 points.
2. Concentric circular region (3m in diameter) will have 30 points.
3. Outermost circular region (5m in diameter) will have 20 points.

Arena

The event will be conducted at the Air strip IIT Kanpur and participants will need to bring their aircraft and all necessary equipment to this venue.

Round 1:

There will be two checkpoints 250 meters apart.

Round 2:

Spot Landing:

1. Model should be landed in the inner most circle to get maximum points.
2. Points will be deducted for landing in any other circle (depending on judge decision).
3. No points will be given for landing outside the biggest circle
4. Diameter of innermost circle is 2 m.
5. Diameter of outermost circle is 5m.