

# SYNERGY 2023 Competition: The War of Wings 4.0

**Last Date of Online Registration:** 9<sup>th</sup> October 2023 (On the spot registrations are also allowed)

## Rules and Regulations for the Drone Competition

Contemporary times have seen drones being employed in journalism, videography, delivery of commodities, disaster management, search and rescue, healthcare, mapping, military operations, and many more. The drone competitions will give an opportunity to students to showcase coding and problem-solving skills in a simulated environment.

### Events/Rounds:

**1. Drone Race:** A drone race which will be conducted in two phases:

- i) Simple race
- ii) Restricted race with constraints (hurdles)

The restricted race will have the drones moving within constraints of predefined width and height and the drones that successfully manoeuvre the constraints with minimum completion time will be the winners.

The decision of the Judges and Event Organizers shall be treated as final and binding on all.

**2. Eye in the Sky:** It is a Drone photography/videography contest which will be held in two phases:

- i) **Static photography** (*for stationary objects*)
- ii) **Dynamic photography** (*for objects in motion*)

A common time slot will be given to all the teams simultaneously and they will have to shoot photos and a video using their respective drones. *Only public areas will be used for this event.*

The view or perspective, stability of the video, and innovativeness involved in capturing the photographs or shooting video, will decide the winner of this event.

The decision of the Judges and Event Organizers shall be treated as final and binding on all.

**3. Creativity/Innovation:** Drone innovation is a unique competition designed to encourage innovation at the grass-roots level to solve real-life problems.

Evaluations will be based on:

- Presentation
- Uniqueness
- Extent of social impact

The decision of the Judges and Event Organizers shall be treated as final and binding on all.



**Note:-**

- Top three prizes will be given, subject to a minimum of 15 team registrations for the event.
- Top two prizes will be awarded in case of 10-15 team registrations.
- Only first prize will be awarded for less than 10 team registrations.

**Candidature of Participants:**

- Must be a regular student of a recognized Institute/School by State/Central Educational Governing Body.
- Team size: Maximum 3 members with valid I-Cards of their respective Institutions/Schools.

*\*Refer to the general rules document for further specifications of Drone.*

## **General Rules for Drone and Robot Based Competitions (Referred from IDRL and IDRA)**

1. All pilots must attend a general safety briefing and sign the appropriate waivers.
2. All pilots must demonstrate basic piloting skills (including Line of Sight).
3. Pilots must show Fail Safe and Arming/Disarming of their drones while working at Registration Desk.
4. All pilots must have an “ARMING” position switch or sequence on their radio.
5. Pilots must use Nano/Micro unmanned drone (MTOW up to 2 kg, without any pay load) at university premises as prescribed by DGCA (GoI). ([DGCA Guidelines](#))
6. Pilots must have all equipment and airframes within the pilot pit area.
7. Pilots must carry additional battery backup for entire event with chargers, while the charging points would be provided at our end.
8. Pilots should bring their own soldering rod and other equipment.
9. All frames must pass a safety and airworthiness inspection. Once the airframe has been checked and approved by University Drone Committee (UDC), it must not be modified or changed.
10. Pilots are allowed to bring their own launch pads to races.
11. Pilots can only use circular antenna on quads and the antenna must be in good condition.
12. **Drone Specifications:**

<b>Name</b>	<b>Measurement (Maximum)</b>
Drone dimensions – hub-to-hub (diagonal)	360 mm
Drone height – from the base to the top of a GPS antenna	222 mm
Propeller – length	150 mm
Maximum weight of drone as per DGCA	2 Kg
Control distance (maximum) – with supplied remote control	300 m
Altitude of operation	100 feet

## **Venue Rules:**

- Pilots must adhere to all the rules within the competition venue, and will not fly in any other part of the venue unless it is a designated flight zone.
- Pilots must arrive at the venue with their complete setup at least 1 hour before the official race time and must be in complete READY-TO-GO state 15 minutes before the race time.
- Pilots will NOT be given any practice session before race event starts.
- Pilots MUST NOT assume any change of event timings until it is officially announced by the organizers (UDC).
- Pilots must keep all the equipment and airframes within the pilot pit area and must not solder, weld or cause any spark within the pit area. There will be established workbench areas for soldering, repairs and modifications.
- A charging station would be provided with power points.
- General charging of electronic devices including radios or any device with a self-contained power supply is permitted.
- All batteries must be stored in a LiPo-safe bag or in an approved, fire resistant container.

## **Judging Criteria and Race Format:**

- All events and races will be conducted by an appointed team of judges/organizers.
- All events and races will follow the general rules and regulations of the competition.
- Each event & race will be monitored by judges, cameras, timing/lap systems and volunteers to maintain fair and accurate competition.
- University Drone Committee (UDC) reserves the right to take disciplinary action in case of any dispute.

## **Note:**

*Participants can modify the kit according to their professional judgment. Participants are responsible for testing and ensuring the safety of their own configurations. They are also responsible for establishing the operating limits of those configurations.*

## **Acronyms:**

- IDRL: INDIAN DRONE RACING LEAGUE
- IDRA: INTERNATIONAL DRONE RACING ASSOCIATION
- DGCA: DIRECTOR GENERAL OF CIVIL AVIATION
- MTOW: MAXIMUM TAKE-OFF WEIGHT
- GPS: GLOBAL POSITIONING SYSTEM
- UDC: UNIVERSITY DRONE COMMITTEE

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