INNOVATEX 4.0

Presidency University · MakerSpace Cluster

WRECKS AND WAVES

Amphibious RC Vehicle Championship

OFFICIAL RULE BOOK

1. EVENT OVERVIEW

Field	Details
Event Name	WRECKS AND WAVES: Amphibious RC
Cluster	MakerSpace Cluster
Event Type	Hardware Bot
Mode	Offline
Team Size	3 – 5 Members
Duration	8 Hours (9:00 AM – 5:00 PM)

2. EVENT OBJECTIVE

Participants are required to design, build, and operate an amphibious RC vehicle that demonstrates performance across both land and water terrain. The core objectives are:

- Operate efficiently on both land and water surfaces.
- Complete a predefined track consisting of land and water segments.
- Navigate obstacles without any external assistance.
- Finish the course in the shortest possible time or within the set time limit.
- Maintain stability, control, and reliability throughout the race.

3. TECHNICAL SPECIFICATIONS

3.1 Vehicle Dimensions & Limits

Parameter	Specification
Maximum Dimensions	40 cm × 30 cm × 30 cm
Maximum Weight	5 kg (including battery)
Maximum Operating Voltage	24 V DC
Power Source	Onboard battery only (Li-ion / Li-Po / NiMH)

3.2 Permitted Components & Materials

- DC, Servo, or BLDC motors.
- Microcontrollers: Arduino, ESP32, or equivalent.
- RC transmitter and receiver units.
- Custom chassis/hull fabricated or 3D-printed by the team.

The following are strictly prohibited:

- Fully pre-built or commercially assembled amphibious RC vehicles.
- Ready-to-race commercial kits.
- Hazardous or track-damaging materials.

3.3 Control & Programming

- Manual RC control only — no autonomous navigation modules permitted.
- Standard control libraries are allowed.
- No AI-assisted navigation, internet connectivity, or external communication of any kind.

3.4 Design & Build Requirements

- Vehicles must be team-assembled; pre-built units are disqualified.
- Modified open-source designs are acceptable with disclosure.
- Direct copying of commercial designs is prohibited.
- Teams must be prepared to explain their design to judges upon request.

3.5 Amphibious Requirements

- The vehicle must operate on both land and water without manual intervention during transition.
- Smooth, unassisted land-to-water and water-to-land transitions are mandatory.
- All electronics must be waterproofed.
- No oil, fuel, or other pollutants may enter the water body.

4. SAFETY RULES

- All wiring must be properly insulated and secured.
- Batteries must be securely mounted to prevent movement or short-circuit.
- RC vehicles must include propeller guards or appropriate fail-safes.
- No flammable, high-voltage, or otherwise hazardous materials are permitted.
- Participants must adhere to all venue safety instructions at all times.
- Spectators must remain outside designated operational areas.
- All equipment must comply with applicable safety regulations (battery, wiring, mechanical).

5. GENERAL EVENT RULES

- Each team is permitted one vehicle only.
- No external assistance is allowed once a run has commenced.
- Repairs and adjustments may only be carried out in the designated pit area.
- Teams are responsible for bringing all required equipment unless stated otherwise.
- Participants must adhere to the event schedule and submission deadlines.
- Any unsafe or unethical behaviour will lead to immediate disqualification.
- The decisions of the judges are final and binding in all matters.

6. EVENT STRUCTURE & ROUNDS

Round	Name	Description	Objective
Round 1	The Awakening Run	All teams complete the full amphibious track; performance is time-based.	Complete the course.
Round 2	Cargo of Hope	Teams carry a small survival payload across the track.	Secure and deliver the payload.
Round 3	Rescue to Survive	Teams must rescue a designated target and complete the entire amphibious course within the time limit.	Rescue and escape before time runs out.

7. SCORING CRITERIA

Parameter	Maximum Points
Performance / Accuracy	50
Technical Design	25

Parameter	Maximum Points
Safety & Compliance	15
Innovation / Aesthetics	10
Total	100

8. PENALTIES & DISQUALIFICATIONS

Violation	Penalty
Late Arrival	−10 Points
Unsafe Operation	Immediate Disqualification
Violation of Safety Zone	−15 Seconds / −10 Points
Misconduct or Unethical Practice	Permanent Ban

9. AWARDS & RECOGNITION

Rank	Prize	Remarks
1st Place	₹15,000	Winner
2nd Place	₹10,000	Runner-Up
3rd Place	₹7,000	Technical Merit Award

10. TEAM DOCUMENTATION REQUIREMENTS

All teams must document their work and be prepared to present the following to the judges:

- Problem Statement — the challenge the team identified and addressed.
- Approach & Technology Used — design decisions and components selected.
- Challenges Faced & Solutions Implemented — obstacles encountered during development.

Certificates will be awarded to all valid participants upon event completion.

11. EVENT COORDINATION TEAM

Role	Name	Department / Club	Contact
Faculty Coordinator	Dr. Divya Rani	MakerSpace	—
Event Lead	Mohammed Farhan Khan	Build Club	+91 87927 82737

Official Note

This Rule Book serves as the official guideline for all MakerSpace Cluster events under INNOVATEX 4.0, Presidency University. Any amendments or clarifications will be communicated via the official MakerSpace WhatsApp community and the campus notice board.