

INNOVATEX 4.0 – Presidency University

MakerSpace Cluster | Standard Rule Book

Event Overview

| Field | Details |
|------------|---|
| Event Name | Competitive CAD |
| Cluster | MakerSpace Cluster |
| Event Type | Technical Skills Showcase / Hackathon-Style Design Competition |
| Mode | Offline |
| Team Size | 4 members / Team |
| Duration | Total Event Day: 09:00 AM – 4:30 PM (Two 3-hour competitive rounds) |

Event Task / Objective.

The objective of Competitive CAD is to provide a high-pressure, standardized environment where students can validate their technical skills and benchmark their proficiency against peers. The event aims to identify top talent in technical modeling and precision while fostering practical innovation by challenging participants to design functional solutions for real-world engineering problems. Beyond skill validation, the event is designed to enhance employability by allowing participants to add a verifiable, high-level achievement to their professional portfolios, demonstrating their ability to deliver complex design work under strict deadlines. Specifically, the competition tasks participants with achieving high accuracy in their models and successfully generating a complete documentation package, including native CAD files, universal exports, and fully dimensioned 2D technical drawings.

Design / Technical Specifications

- **Hull Geometry:** Designers must implement a flat-bottomed V-shape, known as a Planning Hull, to achieve the optimal balance of speed and stability.
 - **Hydrodynamic Efficiency:** The front of the model must utilize a deadrise angle (V-shape) to cut through water and reduce impact.
 - **Lift and Drag Reduction:** The rear section of the hull must be designed to allow the boat to "plane" or lift out of the water at speed.
 - **Aspect Ratio:** A high Length-to-Width (L:W) ratio, specifically aiming for 4:1, is required to minimize drag.
 - **Model Integrity:** The CAD model must be constructed as a hollow shell or a solid body that assumes a consistent material density for buoyancy calculations.
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General Guidelines

- **Team Structure:** Teams must consist of 4 members.
- **Registration:** A fee of ₹699 per participant or team is required for entry.
- **Schedule:** Participants must be present for the full event duration from 09:00 AM to 4:30 PM, covering two 3-hour competitive rounds.

- **Technical Deliverables:** Every team must submit a native CAD file, a universal export (STEP or STL), and a fully dimensioned 2D Technical Drawing in PDF format.
 - **Design Standards:** Models will be heavily evaluated on accuracy and precision, which accounts for 40% of the technical aim.
 - **Software Proficiency:** Participants are expected to use CAD software to create functional hulls and innovative engineering solutions.
 - **Professional Conduct:** Designs must adhere to specific engineering principles, such as buoyancy and hydrodynamic stability, to meet the competition's technical requirements.
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Safety Rules

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- **Hardware Protection:** Food and open beverages are strictly prohibited in the competition area to prevent electrical hazards.
- **Equipment Integrity:** Participants must not modify power supplies or open computer casings.
- **Reporting Hazards:** Any burning smells, exposed wires, or hardware malfunctions must be reported immediately to the Technical Lead.
- **Workspace Safety:** Keep aisles and emergency exits clear of bags and personal belongings to prevent trip hazards.
- **Emergency Awareness:** Note the locations of fire extinguishers and first-aid kits before the 10:00 AM briefing.
- **Peripheral Security:** Do not insert foreign metal objects into computer ports or vents.

 **Event Rounds / Structure**

| Phase | Description | Duration |
|---------|------------------------------|------------------|
| Phase 1 | Registration & Screening | 10 AM to 11 am |
| Phase 1 | Round 1 | 11 am to 12:30pm |
| Phase 2 | Round 2 | 1 pm to 3:30 pm |
| Phase 3 | Judging & Price Distribution | 3:30 pm to 4 pm |

 **Submission Guidelines**

Final submissions must include:

- **Required Files:** Every team must submit the native CAD file, a universal export (STEP or STL), and a fully dimensioned 2D Technical Drawing in PDF format.
- **Deadline:** Submissions must be completed within the two 3-hour competitive rounds.
- **Technical Standards:** Models must demonstrate high Accuracy & Precision, which accounts for 40% of the technical evaluation.
- **Model Integrity:** For flotation tasks, the hull must be modeled as a hollow shell or a solid body with consistent material density.
- **Success Criteria:** Failure to generate all required files (Native, STEP/STL, and PDF) will result in incomplete documentation

☐ Judging Criteria

| Criteria | Weightage |
|----------------------------------|-----------|
| Innovation & Creativity | 25% |
| Technical Implementation | 25% |
| Functionality & Working Output | 20% |
| Practicality / Real-World Impact | 20% |
| Presentation & Documentation | 10% |

💰 Scoring Overview

| Parameter | Max Points |
|-------------------------|------------|
| Performance / Accuracy | 50 |
| Technical Design | 25 |
| Safety & Compliance | 15 |
| Innovation / Aesthetics | 10 |
| Total | 100 |

🚫 Penalties & Disqualifications

| Violation | Penalty |
|------------------------------|----------------------------|
| Late Submission | -10 Points |
| Unsafe Operation | Immediate Disqualification |
| Incomplete or Pre-built Work | -20 Points |

Violation of Safety Zone -15 Seconds / -10 Points

Misconduct or Unethical Practice Permanent Ban

Awards & Recognition

| Category | Prize | Remarks |
|-----------------|---------|-----------------------------|
| 1st Prize | ₹10,000 | Winner |
| 2nd Prize | ₹7,000 | Runner-up |
| 3rd Prize | ₹5,000 | Technical Merit |
| Special Mention | ₹2000 | Creativity / Sustainability |

Event Team

| Role | Name | Department / Club | Contact |
|------------------------|-------------------|-------------------|---------------|
| Faculty Coordinator | Dr. Divyarani mam | Build club | [Email/Phone] |
| Event Lead | Manjunath | Build club | 8971284518 |
| Technical Mentor | Vanmughilan | Build club | 9344293452 |
| Logistics & Media Lead | Moulya mahesh | Build club | 7090933814 |



General Instructions

- Follow all university and MakerSpace cluster policies.
 - Respect judges, peers, and staff.
 - Any form of plagiarism or code reuse will lead to disqualification.
 - Decisions of the judges are final and binding.
 - Certificates will be awarded to all valid participants.
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Official Note

This Rule Book serves as the official guideline for all MakerSpace Cluster events under INNOVATEX 4.0, Presidency University.

Any updates or clarifications will be communicated officially via the MakerSpace WhatsApp community and notice board.