



AeroCup 2025 Handbook

V1.0

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Changelog

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1.0	First release.

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Chapter 1

Introduction

AeroCup Portugal is a yearly competition aimed at university students, organized by alumni that have participated in similar competitions. It was inspired by the North American DBF (design-build-fly) and the Air Cargo Challenge, a Portuguese initiative from 2003 that has since gained European projection and is held every two years in a different European city with varying organizations.

The AeroCup Portugal organization aims to provide a stable and reliable competition for university teams to improve every year and put their skills to the test. By using broad rules focused on safety and keeping rule changes to a minimum in-between editions, the competition gives teams the ideal conditions for improving in their previous models without the need to completely redesign the aircraft.

The competition aims to promote technological developments and hands-on learning by challenging students to design, build, and fly unmanned aerial vehicles (UAVs). On top of the technical demands, the students must develop essential skills in project management and resource allocation, essential for the success of the team. In turn, the AeroCup team will provide a competition where teams may put their aircraft to the test, with: scrutineering to evaluate that the aircraft adheres to the competition's technical and safety requirements; design evaluation with static events and; flight evaluation during dynamic events.

By combining theoretical knowledge with practical execution, AeroCup offers university teams the opportunity to test their skills in a dynamic environment, preparing them for real-world challenges in the fields of aeronautics and engineering.

Chapter 2

Administrative Regulations

2.1 Competition Objective

The objective of the AeroCup is for a team of university students to design, build and fly small unmanned aerial vehicles (UAVs), scoring the maximum number of points.

2.2 Competition Classes

A team can enroll in the following classes:

- **Design Class (DC):** The team takes part only in the static events. No aircraft shall be built.
- **Manual Class (MC):** The team takes part in the MC Static Events and in the MC Dynamic Events. All flights are performed with a pilot controlling the aircraft.
- **Automatic Class (AC):** The team takes part in the AC Static Events and in the AC Dynamic Events. Part of the dynamic events are performed without a pilot controlling the aircraft.

Teams that enroll in the Design Class cannot do so in the Manual or Automatic Classes. However a team can enroll for both Manual and Automatic classes.

2.3 Competition Information

- The official languages of the competition are Portuguese and English;
- The organizer of any competition outlined in this document is solely responsible for all aspects of the event.

2.4 General Requirements for Teams and Participants

2.4.1 Teams Requirements

- A university or other institution may register one or more teams across one or more classes;
- Teams may be formed with members from two or more institutions;
- For the purpose of registering and competing, each team is considered to be separate and independent;
- Each team must have one team member identified as the team leader. The team leader is the main contact person for the officials during the registration process and the competition.

2.4.2 Participants Requirements

- Each team member may only participate with a single team;
- Individuals who have previously attended any official event as a judge are not allowed to participate as team members;
- Team members must be enrolled as degree-seeking undergraduate or graduate students in any university. Team members who have graduated within the seven month period before the competition remain eligible to participate;
- Students enrolled in a PhD degree or equivalent are eligible to participate.
- Team members must be at least 18 (eighteen) years of age.

2.4.3 Team and Aircraft Eligibility

- Aircraft entered into the competition must be conceived, designed and maintained by the student team members without direct involvement from external professional engineers, racers, machinists or related professionals;
- The student team may use any information from professionals or from academics as long as the information is given as a discussion of alternatives with their pros and cons;
- Professionals must not make design decisions or drawings;
- Students should perform fabrication tasks whenever possible.

2.5 Rules of Conduct

2.5.1 General Rules of Conduct

- All team members must cooperate with the officials and follow their instructions;

- Failure of a team member to follow an instruction or command directed specifically to that team or team member may result in penalty points being deducted from the team's overall score;
- Argument with, or disobedience to any official, results in the team being eliminated from the competition;
- Any instance of unsportsmanlike conduct will result in penalty points being subtracted from the team's overall score. A second violation will lead to the team's expulsion from the competition (check section 2.5.2);
- The officials reserve the right to adjust the schedule of the competition and/or interpret or modify the competition rules at any time, as deemed necessary for the safe and efficient operation of the event, based on their sole discretion;
- Official announcements before and during the event are considered part of these rules.

2.5.2 Penalties

- **Unsportsmanlike Conduct:** Any instance of unsportsmanlike conduct will result in **100** penalty points being subtracted from the team's overall score.

2.5.3 Protests

- Any team may protest any rule interpretation, score or official action which they feel has caused some actual, non-trivial, harm to their team, or has had a substantive effect on their score;
- All protests must be submitted in writing within the designated protest period for consideration;
- The officials' decision on any protest will be issued in writing and is final, meaning that a subsequent protest on the same matter will not be permitted.

2.6 General Rules

2.6.1 Forfeit for Non-Appearance

- Each team has the responsibility to be at the right place, at the right time, according to the schedule provided by the competition handbook;
- If the team is not present and ready to compete within 5 minutes of the scheduled time, they will lose their opportunity to participate in that event.

2.6.2 Testing and Work Safety

- Competition organizers are not responsible for the use of the aircraft outside of the competition;

- Teams assume full responsibility for the operation of their aircraft, and for any damages to third parties that may result from their operation;
- The competition officials disassociate themselves from all activities of the teams besides their own competition and associated events;
- All teams are advised to follow common practices and common sense when working on the aircraft and when operating the aircraft, before, during and after the competition;
- Organizers reserve the right to disqualify a team registered for their competition in case of unsafe flying behaviour, especially if the reputation of the competition, sponsors and other teams is compromised. Examples of what could be seen as “unsafe flying behaviour”, include flying outside the respective flying area or flying without the permission of the officials;
- When working on the aircraft, everyone must wear appropriate closed-toed shoes and adequate personal protective equipment;
- Any operation that generates litter or debris, such as cutting carbon fibre, should be conducted with proper safety precautions. Participants must ensure the use of protective equipment and follow safety protocols throughout the procedure;
- The teams are responsible for cleaning and maintaining the work areas where they repair or work on the aircraft.

2.7 Documentation and Deadlines

- Before the competition, submitted documents may only be viewed by members of the submitting team, authorized judges, officials, and competent authorities;
- By submitting documents, the team agrees that they may be reproduced and distributed by the officials, in both complete and edited versions, for educational purposes;
- Documents which are considered by the officials as largely incomplete or not readable/viewable will be considered as not submitted.

Chapter 3

Event

3.1 Location and Dates

The competition will be held in Sta Margarida Military base (Av. Nuno Álvares, 2250-350, Portugal) in July 19-20.

3.2 Venue

Figure 3.1 shows the venue map, that will take place in UAFTOS area, highlighting the cafeteria where lunches and dinners will be served, as well as the accommodation area, which includes the bedrooms for participants and the rooms and auditorium where the event activities will be held. The venue is detailed in figure 3.2 including blocks A, B and C which house the bedrooms, along with the additional rooms designated for all static event activities. A picture of the aforementioned blocks is shown in figure 3.3. In the building where technical inspections and static events will be held, a room will be assigned to each team, to assemble a workshop and prepare the aircraft.

To conclude, the flights (dynamic event) will take place in the Sta Margarida aircraft runway that is shown in figure 3.4. During the second competition day, during the dynamic events, each team will have a space to work on the aircraft by the runway, with sun cover, tables and access to electricity.



Figure 3.1: Venue - aerial view.



Figure 3.2: Venue - detailed view (subjected to changes).

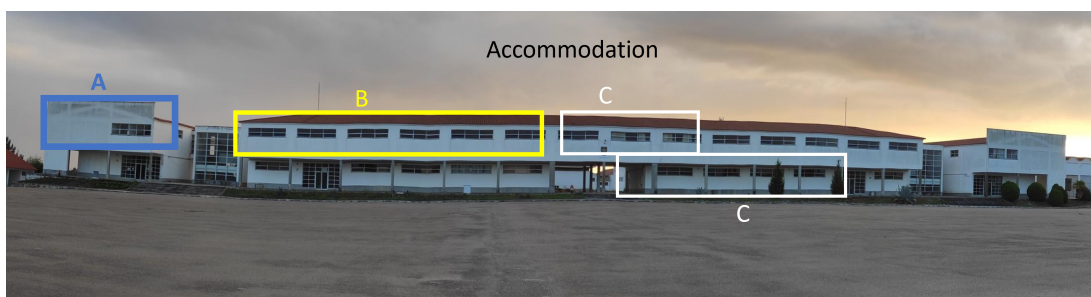


Figure 3.3: Accommodation (block A, B and C).



Figure 3.4: Flight zone.

3.3 Event Staff

Throughout the event, various personnel will be present on-site to ensure the smooth operation of the competition. To facilitate identification. You can identify the role of each staff member by their shirt color:

- **White** - Event Officials
- **Red** - Media Team
- **Blue** - Static Event Judges
- **Yellow** - Staff and Technical Inspectors

Please respect the roles and responsibilities of each group and approach the appropriate personnel when assistance is needed.

3.4 Event Schedule

3.4.1 Dates of Interest and Deadlines

- **Saturday 19/07/2025:**
 - 08h00 to 09h00: Arrivals and check-in.
 - 09h30 to 10h30: Welcoming ceremony (Auditorium).
 - 10h30 to 11h30: "How not to kill a team" by João Paulo Monteiro (Auditorium).
 - 11h30 to 13h00: Lunch Break. (Cafeteria)
 - 13h30 to 17h10: Static Events.
 - 13h20 to 18h30: Technical Inspections.

- 17h30 to 19h00: Feedback session with judges (Auditorium).
- 19h00 to 21h00: Dinner. (Cafeteria)

- **Sunday 20/07/2025**

- 08h00 to 09h00: Arrival to base.
- 09h30 to 12h30: Dynamic Events - Take off (Runway).
- 12h30 to 14h00: Lunch Break (Cafeteria).
- 14h00 to 17h00: Dynamic Events - Endurance (Runway).
- 17h00 to 18h00: Exhibition flights (Runway).
- 18h30 to 19h30: Awarding and Closing ceremony (Auditorium).
- 19h30 to 21h00: AeroCup social event and dinner (Cafeteria).

3.5 Technical Inspections Schedule

The technical inspections will take place both inside and outside of the building where the team workshops are. The teams may attempt to pass the technical inspections as many times as time allows during the assigned schedule, but whenever a team fails some step, it has to wait for the remaining teams to go through before trying again. The first attempt shall be done according to the following schedule:

- 13h20 to 14h20: Academia Militar
- 14h20 to 15h20: AutoMec
- 15h20 to 16h20: UBI Aeronautics Team
- 16h20 to 17h20: IST - Aerotéc ATLAS

3.6 Static Events Schedule

3.6.1 Engineering Design Event

This event will take place in a room to be announced during the competition, according to the following schedule:

- 13h30 to 14h10: UBI Aeronautics Team
- 14h30 to 15h10: IST - Aerotéc ATLAS
- 15h30 to 16h10: Academia Militar
- 16h30 to 17h10: AutoMec

3.6.2 Cost and manufacturing Event

This event will take place in a room to be announced during the competition, according to the following schedule:

- 13h30 to 14h10: AutoMec
- 14h30 to 15h10: UBI Aeronautics Team
- 15h30 to 16h10: IST - Aerotéc ATLAS
- 16h30 to 17h10: Academia Militar

3.7 Dynamic Events Schedule

The dynamic events will take place according to the aforementioned schedule. The teams will compete in the reverse order of the static events scoring, starting with the team with the least amount of points.

3.8 Checklist for participants

According to the facilities provided, participants and staff should bring themselves some utilities:

- Bed sheets or a sleeping bag.
- Pillows are provided but pillow sheets should be brought.
- Basic toiletries (shampoo, shower gel, etc).

Chapter 4

Participation

4.1 Competition Classes

A team can enrol in the following classes:

- **Design Class (DC):** The team takes part only in the static events. No aircraft shall be built.
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Teams that enrol in the Design Class cannot do so in the Manual or Automatic Classes. However a team can enrol for both Manual and Automatic classes.

4.2 Registration

The registration period for the competition starts on 01/10/2023 (First of October, 2023) at 00:00 and ends on 06/02/2024 at 23:59 for the Academic Category and on 01/03/2024 at 23:59 for the Clubs Category, unless all the available places are previously filled. Registrations are accepted on a first-come, first-served basis up to a maximum of 20 teams.

The submitted registration will be accepted when the following elements are received by email by the organization of the event:

- Identification of all team members showing that they are all linked to schools or a federated;
- A correct and complete application. This document has an .xlsx format and it is available on the official website.
- A brief team presentation.

4.3 Fees

There are two types of registration, regardless of the category:

- Team registration: **250 euros (two hundred and fifty euros)**. Includes participation in the competition, a working space for the team to store and work on the aircraft, lectures and a final award ceremony.
- Participant registration: **50 euros (fifty euros)**. Includes accommodation during the competition for the night of the 19th. Includes breakfast, lunch and dinner for the 19th and 20th. Also includes access pass to the facilities.
- Teams may additionally request stay and breakfast for the night before and after the event for an additional cost of 12€ per night.
- Visitors are allowed for both days for no fee. Visitors are also required to check-in, so they must arrive between 08h00 and 09h00. Check-in may be exceptionally provided to visitors between 13h00 and 14h00 by contacting the organization. Food and beverages are not available on site for visitors. Visitors may leave and return to the premises at will as long as they provide a valid form of identification and have performed the check-in.

All members must pay the registration fees. In case of cancellation, the organizing committee will try to refund as much money as possible. Payment will be made in the form of a single bank transfer per team to an account too be announced during or after the competition.