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100 CENTURY OF EDUCATION

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17th INTERNATIONAL MEB ROBOT COMPETITION

RC FIXED WING AIRPLANE CATEGORY GUIDE

2025

Education, Technology, Production from Roots to the Future

CONTENTS

RC FIXED WING AIRCRAFT CATEGORY COMPETITION RULES

1. PURPOSE

Unmanned aerial vehicles (UAVs) are used in many fields today. Although aerial imaging and mapping are among the most common applications, there are also various applications in areas such as small-scale cargo transport, fire fighting, defence industry, first aid and life saving.

Technological leap points are events that increase the level of development of countries and the welfare of their people with a "doping" effect. Technological leap points in the past are considered to be the steam engine, car and aircraft production, atomic energy, computer and space technology, and industrial robots. The current technological leap point is UAV technology. Successful applications in the military field show how UAVs can contribute to the defence of the country. For this reason, many countries carry out R&D studies in the field of UAVs and offer their products to the market.

The aim of this competition, which high school and university students can participate in, is to develop the culture of producing and using unmanned aerial vehicles in our country. In doing so, it is aimed for young people to combine technology with entertainment and to increase their knowledge and skills. Thus, the competition will also contribute to the development of the human resources that our country will need in the near future, both in terms of UAV use (pilot) and UAV production.

2. SCOPE

As a basic structure, UAVs can be divided into three groups as fixed wing, rotary wing and hybrid.

UAVs with immobile and fixed wings that keep the vehicle in the air are generally called fixed-wing UAVs. Aircraft belong to this group. The ability of fixed-wing UAVs to stay in the air depends on the continuous movement of their bodies. The propulsion force that provides movement is provided by propellers connected to a liquid fuelled, internal combustion engine or electric motor. Some models use a liquid fuelled turbine (jet) or electric fan (fanjet) that can reach high speeds. The propulsion force is applied perpendicular to the direction of gravity. In electric motorised models, the position of the propeller can be at the front (a), on the wings (b), on top of the fuselage (c) or at the rear of the fuselage (d), as shown in Figure 1.

Figure 1: *Fixed Wing UAV Images: Front Motorised (a), Wing Motorised (b), Top Motorised (c) and Rear Propulsion (d)*

It should also be noted that each fixed wing design has advantages and disadvantages compared to the other. A large part of the design and production of fixed-wing UAVs consists of mechanical works. The production costs of these vehicles, which are generally single-engined, are low compared to other UAV models. Although large areas are needed for them to be flown and to take off and land, their flight range is quite high.

UAVs whose propeller blades that keep the vehicle in the air rotate continuously in the direction opposite to the direction of gravity are called rotary-winged UAVs. These vehicles, which have one, three, four, six and eight propellers according to the number of propellers they have, are called helicopter, tricopter, quadcopter (quadrotor), hexacopter and octocopter, respectively, from Latin origin. Since the body is fixed and the propeller blades rotate in rotary blades, the body does not have to move continuously as in fixed blades in order to keep the vehicle in the air. In this way, the movements of rotary wings in the air are more controlled, they can hover at a single point in the air and can take off and land in very small areas. A large part of the design and production of rotary wings consists of electronic labour and planning (weight, load, battery balance). Production costs are much higher due to the exponential increase in the number of expensive electronic materials such as motors and drives according to the number of rotating wings. Flight ranges are short. Figure 2 shows rotary wing UAVs with various numbers of propellers.

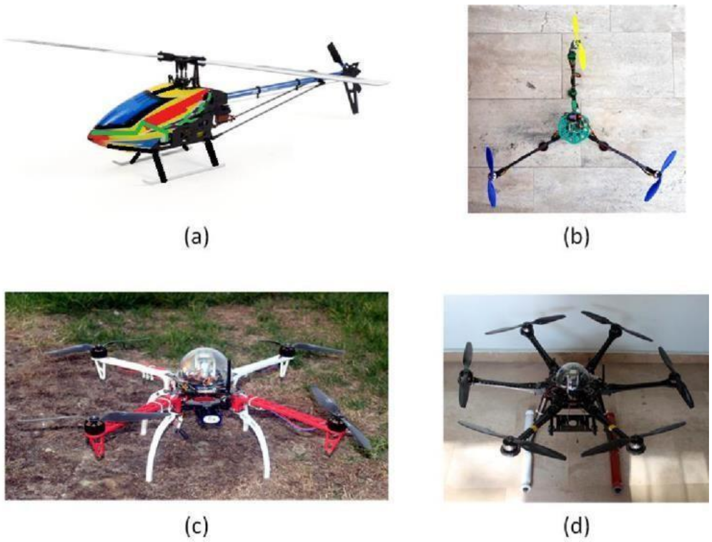

Figure 2: *Rotary Wing UAV Images: a. Single Propeller Helicopter, b. Three Propeller Tricopter, c. Quadcopter with Four Propellers, d. Hexacopter with Six Propellers*

Another design type that has recently become popular and widespread is hybrid UAVs. The hybrid UAV design combines the superiority of fixed-wing UAVs in terms of long range with the superiority of rotary-wing UAVs in terms of vertical take-off and landing capability. This hybrid UAV type, also called VTOL (Vertical Take Off Landing) in English, will be the manned and unmanned aerial vehicle design of the future. In principle, hybrid UAVs have both rotary propeller blades that allow the vehicle to take off and land vertically, and fixed wings attached to the fuselage that allow the vehicle to glide in the air. There are various designs in this UAV model and development studies of different models are still ongoing. In some designs, there is only a propeller on the vertical axis and the vehicle returns to the horizontal axis after the vehicle takes off vertically. Some designs have a propeller both on the vertical axis, as in rotary wing UAVs, and on the horizontal axis, as in fixed wing UAVs. In some designs, the propellers on the vertical axis change direction after take-off and return to the horizontal axis. Figure 3 shows various hybrid UAV designs produced by different companies.

Figure 3: *Hybrid UAV Designs Produced by Different Companies.*

In the Unmanned Aerial Vehicle RC Fixed Wing category, fixed wing UAVs with low production cost, open to development and offering design flexibility were preferred. These UAVs provide a suitable platform where the competitors can add their own designs and interpretations and produce them in an original way. The fixed-wing UAVs shown in Figure 4 were preferred because they are suitable for innovative designs and domestic production, have low production and material procurement costs, and are open to continuous development.

Figure 4: *Sample UAV RC Fixed Wing Images*

In the RC Fixed Wing category, a race will be organised in an open area within the scope of the rules detailed below. While determining the rules, the rules of international and national UAV racing leagues (e.g. TEKNOFEST, SESA, etc.) were taken into consideration. In this way, the ground has been prepared for a team competing as an amateur in the Unmanned Aerial Vehicle category to be able to participate professionally in national and international races by obtaining a licence in the future.

3. BASIC INFORMATION ABOUT DRONES

The sample components that make up the UAV that will participate in the competition and the technical specifications to be complied with are as follows:

3.1. Flight Simulator Software

When the UAV is on the ground, the flight plan is set via the ground station. The content of this flight plan includes information such as which direction the aircraft will go, which direction it will turn, and how high it will go. The prepared flight plan is loaded into the flight card and the UAV is made ready for flight and taken into the air. While the UAV is in the air, the autonomous flight card calculates the position of the UAV, which direction it is travelling, how fast it is travelling and at what altitude it is, and compares it with the information entered in the flight plan, and flies the UAV according to the information entered in the flight plan. Various applications can be used as ground stations, such as Q ground control or Mission planner. Various calibrations and settings of the UAV are made via ground stations. Flight plan preparation and loading of the flight plan to the card is done via the ground station. Telemetry modules provide communication between the UAV and the ground station. We can see the position of the UAV in the air , the direction and speed of the UAV through the ground station thanks to the gps module to be installed externally on the card. There are various autonomous flight modes, such as FBWA and Auto modes. FBWA mode allows the UAV to fly in an assisted manner, the flight card restricts the turns that the aircraft can make. Auto mode flies the UAV according to the information entered in the flight plan. The UAV flies completely autonomously, turns and accelerates autonomously.

3.2. Body

The body of the Unmanned Aerial Vehicle (UAV) is usually made of various materials. These materials include FOAM (styrofoam foam), BALSA, COMPOSITE (fibreglass), CARBON or PLA (with 3D printers). Which material is preferred should be determined depending on the specific characteristics and intended use of the designed UAV.

Figure 5: *UAVs made of different materials*

- ***FOAM (Styrofoam Foam):*** It is a light, cheap and easy to process material. It enables the UAV to be produced quickly and economically. However, its durability is lower than other materials, so it is more suitable for use only in light and low-speed flights.
- ***BALSA****:* It is a light, flexible and durable material. It can be well processed and easily shaped. However, BALSA material mostly requires manual labour and production costs may be higher than other materials.
- ***COMPOSITE (Fibreglass):*** It is a high strength and lightweight material. It is frequently used in UAV bodies due to its durability and aerodynamic properties. However, composite material is more difficult to process and its production cost is higher than others.
- ***CARBON****:* It is an extremely light and high strength material. Therefore, it is preferred for fast and high performance UAVs. However, carbon material is quite expensive and

difficult to process.

- ***PLA (with 3D Printers)****:* Can be easily produced with 3D printers and provides design flexibility. PLA material is lightweight and durable, but it is not recommended for use in high-speed and high-altitude flights.

Which material is preferred may vary depending on the design requirements, performance expectations, cost factors and usage scenarios of the UAV. For example, FOAM or PLA may be preferred if lightness and economy are at the forefront, while CARBON or COMPOSITE materials may be more suitable if durability and high performance are sought.

3.3. Engine

The number of brushless motors or fan motors to be used in the UAV is limited to 2, and there are no size, KV rotation speed and operating voltage limitations on the motors to be used. Teams can choose any motor that will meet their needs. This flexibility gives UAV designers the freedom to choose the most suitable motor from a variety of motor options. In this way, the engine that best suits the design requirements and performance targets can be selected and the efficiency, reliability and performance of the UAV can be increased. Factors that need to be taken into account when selecting an engine include flight expectations, payloads to be carried, speed requirements and energy efficiency.

Figure 6: *Example UAV Engines*

3.4. Motor Driver (ESC)

Motor drives (electronic speed controller) that can drive 10-80A current with the power to support the current of the motor to be used in the UAV can be preferred. These drives receive the RC control signal through an optical isolator (optocoupler), so that interference caused by the supply voltage does not prevent the operation of the drive and maintains the motor rotation speed more stably.

Figure 7: *Example UAV Motor Drivers*

3.5. Flight Controller

Off-the-shelf controllers with 8-bit or 32-bit based processors (compatible with PIXHAWK, APM, CUAV, etc.) can be used, as well as personal design flight controllers using MEMs sensors (3-axis gyro, 3-axis accelerometer, 3-axis magnetic compass).

Figure 8: *Example UAV Autonomous Flight Controllers*

3.6. Power Module And Power Supply

The UAV provides the power it needs from Li-PO batteries that provide high discharge current. In UAVs without a flight controller, equipment other than the engine is provided from the signal output of the ESC. In UAVs with a flight controller, the PIXHAWK POWER MODULE or a similar power reduction module must be used. This module takes the power required for the engine from the battery and transfers it directly to the engine without reducing it at all, while reducing the voltage and amperage to other equipment.

Figure 9: *LiPo battery and power distribution module*

3.7. Remote Control

To avoid interference with other UAVs, 2.4GHz frequency hopping transceiver modules with at least 6 channels should be used. In order for the remote control to work in harmony with the training simulator, it is recommended to choose among the professional models with a trainer connection socket on the back. Thanks to a single professional remote control to be purchased, different vehicles can be controlled with a single remote control by purchasing an additional RC receiver in the future, professional remote controls can store the settings of at least 16 different vehicles separately, for these reasons, the remote control is a basic device (fixture) and it is recommended to prefer good brand models.

Figure 10: *RC Control Types*

3.8. Pilotage Camera, Display and Goggles Kit (FPV)

The first person view (FPV) is an image and transmission system that allows the pilot to perceive the aircraft as if he is flying the aircraft while flying it. It is an equipment that facilitates the steering of the aircraft. The kit basically consists of a camera transmitter, 7/21 receiver, antenna assembly and a display device (LCD screen or goggle). Each device can be purchased and combined separately, but today there are also models that combine camera and transmitter, receiver and screen or goggles. Especially when choosing a screen or glasses with a receiver, models with two separate receivers (diversity) should be preferred in order to get a clear image. When selecting a camera, it is recommended to choose a model with a high quality image sensor, low image resolution and minimum illumination value, and if possible, a transmitter and the ability to record simultaneously to the SD card. It is not mandatory to use a pilotage camera set. If it is used, in order to avoid conflicts with other UAVs, the transmitter broadcast frequency should be preferred models that use only the 5.8GHz band and can broadcast 40-50 channels supporting the racing band (Band R: 5658, 5695, 5732, 5769, 5806, 5843, 5880, 5917).

Figure 11: *FPV Goggles system*

3.9. OSD (On Screen Display) Module

It is a module used to place information such as battery voltage, current, inclination of the aircraft, etc. read and calculated by the flight controller from the sensors on the camera image. For example, when you want to switch on the TV volume at home, you can see the volume level on the screen. Thus, the users of the pilotage camera set will be able to see the information about the vehicle live on the screen image. It is forbidden to use in the competition.

Figure 12: *OSD Modules*

3.10. Propeller

The power of the engine to be used in the UAV should be large enough so that the wings will not collide. When selecting the engine, its specifications (datasheet) contain information on which sizes of propellers it can work efficiently with.

Figure 13: *Example Propellers*

3.11. Battery Alarm (Li-Po Alarm)

It is a small electronic module that can be attached to the feedback terminal of the battery, will display the battery cell voltage and will give an audible warning when the cell voltage drops below 3.7V during flight.

Figure 14: *Sample Battery Alarm*

3.12. Safe Battery Carrying Case (Li-Po Safe Bag)

A fireproof bag with protective features should be used against explosions of LiPo batteries, all batteries should be charged and stored in the bag.

Figure 15: *Sample LiPo Battery Safe Transport Case*

3.13. Mechanical Assembly

Special liquid solutions (locktite etc.) or fibre nuts will be used to prevent loosening of nuts, bolts and screws during flight. In the technical control to be carried out before the competition, it will be examined whether these solutions are used or not.

3.14. Electric-Electronic Assembly

Shrinking macron shall be used in cable and connector connections, and no exposed electrical wires shall be seen. Cables shall be fixed to the UAV body with cable ties. Exposed and unfixed (dangling) cables pose a fire hazard by contacting each other when the UAV falls to the ground or hits something. For this reason, in the technical control to be carried out before the competition, it will be checked whether cable ties are used to fix the cables with shrinkable tubing so that there are no exposed cables. The team that does not comply with even one of these rules will not compete.

4. MISSION:

The task of all teams is to drop 2 tennis balls from their UAVs to the specified target within a maximum flight time of 6 minutes. The size and weight of the tennis balls are standardised. The balls to be used for the mission will be given to the teams before the flight.

4.1. Implementation of the Task:

The teams have to perform the mission and land within 6 minutes after take-off to perform the mission. The mission mechanism of the UAVs must be unique, but the ball to be dropped by all teams is the same. If the dropped balls hit the target (**2 square metre canvas**) at the moment of the first fall, it is written in the team's score as full points. The balls cannot be dropped at the same time. After the first ball, at least one round flight must be made for the second ball to be dropped.

Take-off, flight, mission and landing time cannot exceed 6 minutes. For every 30 seconds exceeding this time, 1 penalty point is awarded to the flying team. If the take-off, flight, mission and landing time is less than 3 minutes, 1 penalty point is awarded for every 30 seconds.

5. OBJECTIVES FOR TEAMS:

Business science*:* The engineering skill, quality-oriented approach, functionality, effort and seriousness demonstrated by the team during the design process are indicators of business science. BI includes the technical capabilities and expertise related to the design, production and performance of the UAV.

***Experience**:* The experience gained in the organised competition contributes to the team to be more successful in future projects.

***Opportunity**:* Participation in competitions provides teams with the opportunity to establish collaborations with each other and with the private sector. Teams can access technology transfer and co-operation opportunities by establishing industrial partnerships through competitions.

Motivation Participation in the competition and the awards received provide motivation to the teams and create a desire to participate in various competitions.

***Team Awareness**:* It includes interdisciplinary work, sustainability, social responsibility and ethics. These achievements include elements such as the ability to succeed together, ensuring sustainability, process discipline, honesty, openness and transparency, and benevolence.

5.1. Expected Features of the Developed UAV

Localisation: The developed UAV is expected to be produced with domestic capabilities. (For example; the use of indigenous hardware, software or both).

- Domestic design of the UAV.
- Production of the UAV using domestic facilities.

Innovation: An innovative UAV is one that includes new hardware, software, auxiliary equipment or design. For example;

- Using a different engine or adapting the engine type used in another field to the UAV.
- Feeding the UAV through another power source.
- Use or design a different flight control board.
- Designing an original fuselage or mission mechanism.

Affordability: It is an indicator of economy for the developed UAV to perform its mission with less cost, but the efficiency and capabilities of the aircraft should not be restricted while ensuring economy.

Ease of Production: Ease of production is an indicator of the efficiency and sustainability of the developed UAV in the production process.

- The design and manufacture of the UAV should be as simple and easy to use as possible.
- The assembly time should be simple and efficient.
- Parts must be easily accessible and easy to replace.

Stability: The developed UAV is expected to perform a stable flight during take-off, during the mission and during landing.

Capability: The capability criterion is assessed according to the following aspects;

- The UAV must effectively fulfil the tasks set.
- The UAV's successful completion of missions with a specified degree of difficulty is an indication of its capability.
- The UAV's speed, manoeuvrability, payload, precision, accuracy and other performance characteristics determine its overall capability.
- UAV's the specified tasks in a fast, reliable and The ability to fulfil it effectively indicates high level of ability.

Autonomy: Autonomous flight capability scores higher than manual flights with remote control of the UAV, and this criterion is often a decisive factor in the successful completion of the mission.

The reliability and accuracy of autonomous flight systems are critical for the UAV to successfully fulfil its missions. The ability of the UAV to follow the specified targets and routes, to change the route when necessary during the mission and to make effective decisions is an indicator of autonomy capability.

Mission Success: Even if the UAV has a high capability, it is expected to successfully complete the prescribed mission. The UAV's completion of the specified missions in accordance with the targeted success criteria is an indicator of mission success.

Team Skill: The UAV must be built by the competing team. Detection of the contrary will cause the team to be eliminated from the competition. This process will affect the evaluation during the technical control phase.

****The developed UAV is expected to include all the above-mentioned aspects, scoring will be made according to these principles. Otherwise, teams will receive missing points in scoring.*

6. GENERAL RULES

The rules of the competition are as follows:

1. Each team must strictly follow the rules set by the race committee and the referee's warnings. Teams found to have violated the rules will be excluded from the competition.
2. The race committee may re-run the race it deems appropriate.
3. Teams can make all appeals according to the general "Application Guide" rules.
4. Each team can have a maximum of two students, one pilot and one observer (co-pilot).
5. UAVs cannot be controlled by watching through FPV goggles or LCD screen.
6. The observer will carry out the tasks of placing the UAV at the starting point with the instructions of the referee, taking coordinates from the competition area, visually following the UAV by standing next to the pilot during the competition and providing all kinds of support by giving voice commands (co-pilot) when necessary.
7. The selection of the teams that will come to the city where the competition will be held will be based on the videos requested from the teams. The selection of the videos will be made by the competition committee according to the criteria specified in section 5.1 of the specification.
8. Video length should be at least 4 minutes. The UAV produced in the videos should be described according to title 5.1.
9. Production videos are uploaded to YouTube by teams with the team name and the name of the competition category. The links of the uploaded videos are added to a specific area on the registration system.
10. The first 30 teams with the highest score from the video submission are invited to the competition.
11. On the first day of the competition, all teams are scored by the technical committee

according to section 5.1 of the specifications. This scoring constitutes 50% of the points the team will receive in the semi-final and final. The team that gets full points from the technical committee gets 50 points. The points received at this stage will also be used in the final stage.

12. After the completion of the technical controls, the flights start on the first day. Flight order is determined randomly. For this reason, all teams are expected to be ready for the flight on the first day.
13. Teams do not have the right to skip a flight. Teams that do not take the flight even though it is their turn to fly will forfeit 1 flight right.
14. The score to be obtained from the flight and flight task is added to the score obtained from the technical committee and the 6 teams that will remain in the final stage are determined. A team can get 50 points from technical control, 20 points from flight, 10 points from autonomous flight and 20 points from mission.
15. Each of the 30 teams has the right to fly 2 times in the mission area. The highest score from the 2 flights is used in the ranking of the final stage.
16. Each team that qualifies for the final stage gets 2 more flight rights. With the sum of the highest score obtained from the flights and the score given by the Technical Committee, the award-winning teams of the final stage are announced.
17. The flight order in the competitions will be determined by lot.
18. Before each flight, the UAV of the teams is taken into technical control and it is determined whether it is suitable for flight. Since each team has 2 flight rights, teams that are found unfit for flight 2 times are disqualified.
19. Teams invited to the competition area according to the draw order must take their places in the technical control section within 15 minutes. Teams that do not show up will forfeit their right to fly.
20. Teams that pass the technical control are given 15 minutes to start the flight. Teams that do not start their flight at the end of the time will be penalised 1 point for every 2 minutes of delay. The flight right of the teams whose delay time exceeds 30 minutes will be cancelled. (It should be noted that each team has 2 flight rights).

21. The autonomous or semi-autonomous flight will bring 10 additional points for the teams.

22. In the 100-point competition; the flight has 20 points and the mission has 20 points.

23. In order for the flight to be considered complete, the UAV must make an undamaged landing after a stable flight without leaving the designated area.

24. UAVs that go out of the area during the flight are detected by the signallers waiting at the borders of the flight area. For each violation after the first violation, 1 point will be deducted. Teams with 6 warnings are asked to land their UAVs and their flight rights are terminated.

25. In order for the mission to be deemed to be fully completed, the balls released from the mission mechanism are expected to hit the targets that are predetermined and marked in the competition area before the flight. The first point of contact of the balls on the ground is considered as hitting the target. The officials near the target determine the realisation of the hit with the flags in their hands and notify the scoring committee. A ball falling within 2 square metres of the target is considered to have hit the target. Each hit of the target is worth 10 points. For each metre away from the target, 1 point is deducted as a duty point. For example, the ball that makes first contact 8 metres away from the target earns 2 points for the team.

7. TECHNICAL CHARACTERISTICS OF UNMANNED AERIAL VEHICLES

1. The wingspan of the Unmanned Aerial Vehicle that can participate in the competition must have a maximum wingspan of 2000 mm and a length of 2000 mm from beginning to end. In the technical control to be carried out before the competition, it is checked whether the UAV complies with the specified dimensions.
2. The weight of the UAV must be maximum 6 kg including the battery and all other equipment. The UAV will be weighed during the technical controls before the competition.
3. The propeller diameter that can be used in UAVs can be selected according to the needs of the UAV, there are no restrictions.
4. UAV bodies must be personal custom design. The UAV and its team will be excluded

from the competition.

5. Teams must keep their LiPo batteries in a fireproof battery bag (LiPo safe bag). Teams without a fireproof battery bag will not be registered.

8. SECURITY MEASURES

1. A switch or button on the controller will be set to make the UAV active/passive (arm/disarm). This feature will be checked before the competition and the UAV and its team will be excluded from the competition.
2. When the control connection with the UAV is lost, the vehicle will land automatically (radio failsafe). The presence of this feature will be checked by the judges before the competition. UAVs without this feature will be excluded from the competition.
3. When the UAV goes beyond the boundaries of the competition area or the field of view, the UAV will be disarmed by the pilot when the referee gives instructions.
4. UAVs use LiPo or derivative batteries with high current capability. These batteries are chemically unstable and can easily explode. Each team must have a sufficient number and size of fireproof battery bags (LiPo safe bag) to carry their batteries.
5. The plugs on the UAV where LiPo or derivative batteries are installed shall be placed in such a way that they can be removed by the referee when necessary. Thus, it will be ensured that the battery can be easily removed from the UAV in case of emergency. This issue should be taken into consideration in the design and assembly of the UAV.
6. Teams will be allocated a special test area within the competition area to test their UAVs. Referees in this test area will organise the test flights. Teams found flying outside the test area (corridor, garden, etc.) will be warned and 2 penalty points will be given to the team for each warning. If necessary, at the discretion of the referees, the UAV and its team will be excluded from the competition.

9. GENERAL RULES OF THE COMPETITION

- The flight order of the teams is determined by lot. It is announced before the competition. Teams cannot object to the grouping and flight order.

- It is the responsibility of the team to provide all kinds of materials and equipment to be used for the task to be performed.

- Robot teams consist of 3 students and 1 counsellor teacher.
- All registered teams are obliged to take technical control before the flight.
- Since it is planned to complete the scoring to be made on the first day of the competitions in areas such as Technical Control, Design Ergonomics, Innovation, Localisation, etc., teams should have completed all preparations in advance.
- In technical control, the UAV is checked by experts in the field for weight components, structural strength, mechanical mobility and safety of electronic equipment.
- Teams that are successful in the technical control are prohibited from disassembling or changing parts of the UAV before the flight in terms of flight safety.
- It is the teams' responsibility to follow the flight order. Excuses of 'not being ready' or 'not passing the technical control' are not accepted.
- Teams taken to the Queue Waiting Tents wait in a ready state by attaching their propellers after making the last checks of their vehicles. It is at the discretion of the relevant referee to consider the readiness status of the teams in the queue waiting tent instead of the ranking when calling them to the track. No objection is accepted.
- When there is a possibility that the flights may not be completed due to weather conditions or other reasons that may occur during the competitions, another team may prepare in a part of the area by taking the necessary security measures. Those of the teams in the queue who are in a position to disturb the other team for reasons such as signal interference or visual pollution shall notify the coordinator of this situation on the first day of the competitions. Otherwise, no excuse will be accepted.
- In order to prevent loss of time, teams whose turn is approaching during non-flight hours should make preparations such as taking coordinates from the area and placing/forming the auxiliary platforms needed. Announcements can be made to announce the times when preparatory work can be done. It is the responsibility of the teams to follow the announcements.
- It is essential that the teams perform their flights within the specified area. It is forbidden to go outside the specified area for security reasons.

- If the UAV crosses the buffer zone, the referee may request the flight to be stopped if he/she feels a safety hazard. In this case, the vehicle is switched to FAIL-SAFE mode and asked to land safely.
- The maximum flight height in competitions is 120 metres. However, for the sake of safety and accurate observation, it is recommended that flights do not exceed this height.
- Teams cannot fly with harmful biological, chemical, etc. substances that may endanger human health and safety in the competition areas.

10. CONTACT US

Contestants are required to ask their questions by selecting their categories from the information menu after logging into the https://robot.meb.gov.tr/ system. All questions other than category messages will remain unanswered and only the contestant team is responsible for this situation. For all your questions, please read the competition guide first. The guide has been prepared to answer almost all questions that may arise. It will be useful to read the guide again and carefully when necessary.