AROVC
Azerbaijan ROV Challenge 2025
Built to Dive. Born to Win.

Rules

AROVC 2025

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Introduction

AROVC – Azerbaijan ROV Challenge is a national technological tournament that encourages youth and technology enthusiasts to develop their knowledge in the STEAM (Science, Technology, Engineering, Arts, and Mathematics) field, experiment with artificial intelligence technologies, learn future engineering principles, and strengthen their analytical thinking abilities. Within the framework of this competition, participants design, program, and test underwater robots (ROV – Remotely Operated Vehicle) to perform tasks based on real-world scenarios. One of the main goals of the competition is to promote the development of artificial intelligence and underwater robot technologies in the country, as well as to create conditions for the dissemination of knowledge and innovative solutions in the field of natural resource protection and national underwater security. Recent academic and industrial research in this area shows that the use of unmanned underwater systems is rapidly increasing to reduce risks and costs.

1. Participation Conditions

1.1. Each team must consist of 3 participants aged 13-18 and one mentor who is 18 years old or above.

1.2. Participating teams are considered to have accepted all changes made by the Scientific Committee of STEAM Azerbaijan and all conditions stated in the rules.

1.3. Late teams or teams that fail to pass inspection **will not be allowed** to participate in the competition.

2. Participant Behavior Rules

2.1. Participating teams must adhere to healthy competition principles, avoid disputes with other participants, refrain from insulting them, avoid physical confrontation or provocative behavior, not intentionally damage other team's projects, and not take their belongings without permission. In case of rule violations, disciplinary measures will be determined considering the nature and seriousness of the infringement.

2.2. Participating teams must be aware of safety rules and refrain from any behavior that risks the safety of their own teams or other participants.

2.3. During the competition, team leaders and accompanying persons are prohibited from entering the competition area, as well as interfering with the competition area from outside in any way. If a team leader or accompanying person provides unofficial support to their team or interferes with the performance of other teams, the judge has the authority to issue warnings, disqualify the team, and apply appropriate disciplinary measures for such cases.

2.4. Repeated registration, fraudulent registration, misrepresentation of a competition participant's age, unauthorized changes to competition participants, etc., are strictly prohibited. If such cases are discovered and duly confirmed, the participant will be disqualified from the competition.

2.5. In case of force majeure events not covered by the rules, decisions will be made by the organizers.

3. Application Method

3.1. Applications will be accepted through the official website of STEAM Azerbaijan. **(https://steam.edu.az/en)**

4. Selection Stage

4.1. Until the registration process is completed, all teams must shoot a video that meets the following requirements and share the link with the organizing committee by uploading it to the **YouTube** platform. **Video quality** must be a minimum of **1080p (Full HD)**. Maximum length: Must not exceed **90** seconds. The video must clearly show **the full immersion of the ROV in water**, **visual proof of its waterproofing**, and **its stable and controlled movement underwater**. This video is considered a key indicator for evaluating the technical readiness level of the teams at the initial stage and determining whether the ROVs are ready for test tasks.

4.2. The video must be shared on the YouTube platform with **hashtags** such as **#AROVC**, **#AROVC25**, **#STEAMAzerbaijan**, and **#AzerbaijanROVChallenge**. The title of the video must be in **English** and must definitely reflect the name and year of the competition.
Example:

AROVC 2025 – Team X – ROV Test Footage (Underwater Demo)

4.3. In the video description section, the above hashtags must be repeated, and the following expressions should also be included as keywords: **ROV test video**, **underwater robot Azerbaijan**, **student ROV competition**

4.4. **The following hashtags must also be shared in the video description section**: (#AROVC #AROVC25 #STEAMAzerbaijan #AzerbaijanROVChallenge #UnderwaterROV #ROVChallenge #StudentROV #ROVDesign #ROVTest #AUVChallenge #SualtıRobot #SualtıTexnologiyalar #TechYouthAZ #AIinRobotics #ROVEngineering #AzerbaijanTech #YouthInnovationAZ #ROVAzerbaijan #SualtıAraşdırma #SualtıMissiya)

4.5. If necessary, the organizers may involve teams in an interview stage. In this stage, the team's work and level of knowledge will be evaluated.

5. Final Stage Evaluation

5.1. The evaluation criteria for the first stage are listed below. The evaluation will be carried out by experts.

CRITERIA	SCORE
Originality (main distinguishing factor, special design, frame, BMS, Safety switch)	45
Propeller manufacturing	15
Body manufacturing	15
Remote control manufacturing	15
Control panel manufacturing (App)	60
TOTAL SCORE	**150**

5.2. Dimensions; (The longest measurement among width, length, and height will be taken as the basis.)

CRITERIA	SCORE
Underwater vehicle ≤ 50 cm	50
50 cm ≤ Underwater vehicle ≤ 70 cm	30
70 cm ≤ Underwater vehicle ≤ 90 cm	20
90 cm ≤ Underwater vehicle	0

5.3. Scores according to the mass of the underwater vehicle are given in the table;

CRITERIA	SCORE
Underwater vehicle ≤ 8kg	50
8kg ≤ Underwater vehicle ≤ 10kg	30
10kg ≤ Underwater vehicle ≤ 15kg	20
15kg ≤ Underwater vehicle	0

6. Final Stage

6.1. Participants must remotely control the underwater vehicle via camera to complete specified tasks within a short time.

6.2. Teams will be given five minutes of preparation time to familiarize themselves with the competition area and test their underwater vehicles.

6.3. In this stage, teams must inspect the pipes installed underwater, identify leaks, mark the leaking section, and enter the finishing zone within the given time.

6.4. If the vehicle malfunctions during the competition, the team will be given a one-time 15 (fifteen) minute repair time.

6.5. The team order in the competition will be determined by drawing lots. Teams will compete in the competition area for 3 minutes. The team's scores will be collected and recorded. Participants can only move their vehicles and perform the task through the camera view.

6.6. Teams competing in the final must move along the pipes, conduct underwater research to detect leaks in the pipes, and mark the leak point with an appropriate marking element (by placing the appropriate element at the leak point). Teams will start the competition with the **"START"** command and will finish the competition by completing the tasks in the competition area within 3 minutes and entering the finishing zone.

6.7. The time for teams will start with the **"START"** command and will stop when the vehicle lands in the **FINISH** zone. If the team stops the underwater vehicle outside the finishing zone, the time will not stop. If the vehicles stop during the competition due to hitting pipes or for any other reason, the participant can restart the underwater vehicle from the location indicated by the judge (a certain distance back from the point where the underwater vehicle malfunctioned).

6.8. If the vehicle cannot reach the finishing zone for any reason, participants can stop the competition at any place and time they wish before the time runs out. In this case, the scores accumulated by the participants until that moment are calculated, and the competition end time is calculated as three minutes.

6.9. It is forbidden for the pilot to look at the pool from outside while controlling the ROV. If the pilot receives support from other teammates during an attempt to slide, the team will be disqualified. If another team member provides support in any way or attempts to provide support, that team may be disqualified.

6.10. Objects that the ROV must manipulate in the final stage. (marking elements)

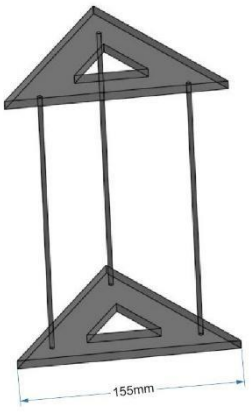

Figure 1.

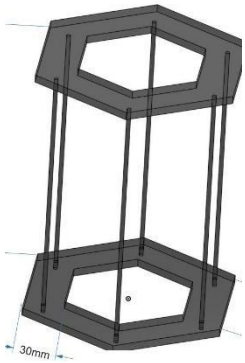

Figure 2.

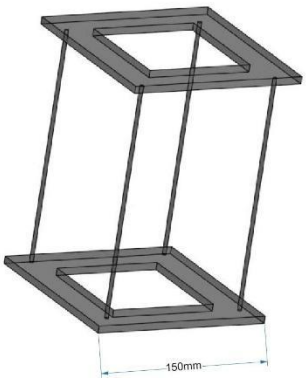

Figure 3.

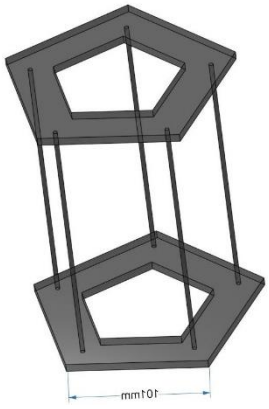

Figure 4.

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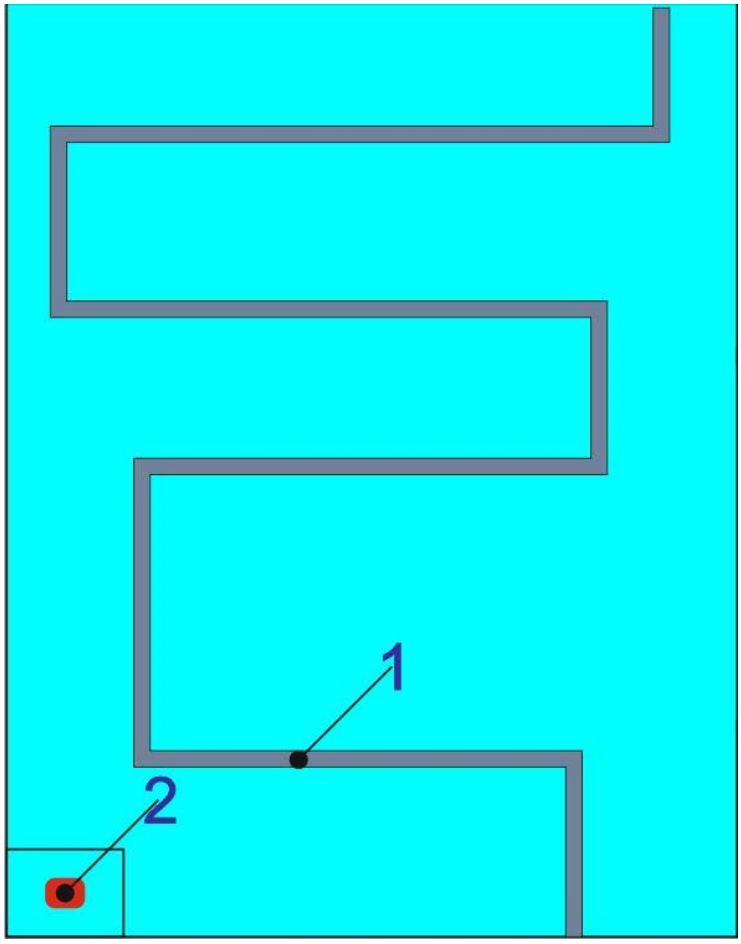

Figure 5.

1- 10 cm diameter perforated pipe Placement: Placed parallel to the bottom of the pool.
2- 3 cm thick Flexiglass (acrylic glass panel) Placement: Placed parallel to the bottom of the pool. START / FINISH board.

7. Score Calculation

7.1. Participants will earn points by finding and correctly marking leaks in the pipes.

CRITERIA	SCORE
Independent and stable movement	30
Placing a marking element at a leak point (there will be 4 leak points)	20
Full descent - The vehicle"s base touching the bottom of the pool at the designated point	45
Incomplete descent - The vehicle"s base not touching the bottom of the pool at the designated point	15
TOTAL SCORE (MAXIMUM)	**155**