GLOBAL ROBOTICS CHALLENGE

RULE BOOK 2026

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GO DIVE DERBY

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1. Technical Introduction:

The Go Dive Derby (GDD) – Underwater Robotics Challenge is a global platform in the field of underwater robotics (ROVs). It aims to enhance creativity, refine design and programming skills, and strengthen teamwork among students.

The competition is based on integrating theoretical knowledge with practical application, where participants are tasked with designing and building remotely operated underwater vehicles to perform missions simulating real-world challenges in various fields such as:

- **Scientific and archaeological exploration: Searching for sunken ships and documenting ancient ports.**
- **Marine environmental protection: Combating pollution and monitoring ecosystems.**
- **Marine infrastructure: Installing and maintaining underwater cables and pipelines.**
- **Scientific research and development: Monitoring climate change and supporting sustainable energy projects.**

Competition Concept:

The competition focuses on simulating real marine challenges faced by industrial and research institutions through missions that include:

- ❖ **Exploration and data collection.**
- ❖ **Handling waste and contaminated objects.**
- ❖ **Performing underwater installation and maintenance operations.**
- ❖ **Contributing to the study of submerged human heritage.**

The competition aims to:

1. **Develop technical skills: such as mechanical design, electronics, programming, and control.**
2. **Enhance critical thinking and problem-solving skills: through designing practical solutions for complex missions.**
3. **Instill teamwork and collaboration: by engaging students in multidisciplinary teams.**
4. **Promote environmental awareness: through challenges linked to marine conservation.**
5. **Bridge education with the job market: as participants gain practical experience that simulates real industrial and research projects.**

2. Team Composition:

- **Team members: 3 to 7 Students, guided by a Coach.**
- **Age categories:**

- **Discover: Ages 8–12.**
- **Junior: Ages 13–17.**
- **Senior: Ages 18 and above.**

3. Challenge Phase :

❖ **Submission – Before Challenge Day:**

Only the Junior and Senior categories are required to submit the following documents (the Discover category is exempt):

- ❖ **Technical Report (70 points): A comprehensive report describing the design, construction, and testing of the ROV, to be submitted before the competition date.**
- ❖ **Cost Analysis (20 points): A report outlining the costs of building the ROV (components, equipment, software, etc.).**
- ❖ **Safety Document & Software (20 points): A detailed document of safety procedures related to the ROV, in compliance with the safety section.**

❖ **Challenge Day:**

The competition is divided into three main phases:

- ❖ **Safety Check (20 points): Each team must undergo a safety inspection based on the specifications in the safety section. Teams that fail cannot participate. Each team has two trials, each subject to a separate safety check.**
- ❖ **Missions:**
  - **Senior: 300 points distributed across 3 missions.**
  - **Discover & Junior: 200 points distributed across 2 missions.**
  - **Each trial consists of:**
    - **5 minutes for equipment setup inside the station.**
    - **15 minutes for performing the underwater missions.**
    - **5 minutes for clearing the station.**
- ❖ **Presentation (50 points): Each team must deliver a 10-minute presentation explaining their work before the judging panel, followed by a 10-minute Q&A session.**

4. Challenges Description:

- **Challenge one: Exploration of Submerged Heritage in the Red Sea (Historical Shipwrecks)**

General description :

The Red Sea is rich in submerged cultural heritage, with numerous shipwrecks and archaeological sites spanning centuries. Recently, the Saudi Heritage Authority, in cooperation with King Abdulaziz University, the University of Naples, and KAUST Red Sea Research Center, launched a project to survey submerged heritage from Ras Sheikh Humaid to Umluj, identifying more than 25 archaeological sites.

Notable discoveries include:

- **Umluj Shipwreck: Over 100 years old, containing pottery, Chinese porcelain, and metals.**
- **Ras Sheikh Humaid Shipwreck: Dating back to the 18th century, with hundreds of sunken artifacts.**

This heritage demonstrates the Red Sea's historical significance in trade and navigation and highlights Saudi Arabia's role as a cultural hub.

ROV Role:

Teams must design and operate an ROV capable of:

- **Surveying & Exploration: Using cameras to identify wreck locations and capture images of artifacts.**
- **Artifact Collection: Retrieving small samples (e.g., cubes or objects) and placing them in a designated Artifacts Box.**
- **Documentation & Mapping: Using reference markers to simulate mapping wreck sites and organizing collected data.**

Educational Goal:

- **Teach students about submerged heritage in the Red Sea.**
- **Link modern technologies (ROVs, sonar, photogrammetry) to marine archaeology.**
- **Strengthen precision, control, and data collection skills.**

• Challenge Two: Harmful Algal Blooms – (HABs)

- ❖ **Harmful algal blooms pose a major threat to aquatic life and human health. Some algae grow rapidly and release toxins into the water. These blooms can last from a few days to several months. The danger increases when the algae die and decompose, consuming large amounts of oxygen, creating what is known as dead zones, where oxygen levels drop so low that massive fish and marine life die, destroying entire ecosystems.**
- ❖ **In marine environments, this phenomenon is often called "Red Tides" due to the change in water color. Causes can be natural or human-induced. Nutrients such as nitrogen and phosphate play a major role, often sourced from agricultural activities, industrial pollution, excessive use of fertilizers, or urban runoff. High temperatures and low water circulation also worsen the issue.**
- ❖ **ROV Role in the Challenge:**
  ROVs are used for monitoring and early detection, equipped with:
  - **Specialized sensors to measure algal concentration and water quality.**
  - **Tools for water sampling and analysis.**
  - **Early warning systems to enable rapid response, reducing risks to ecosystems and human health.**
- ❖ **Health Risks of Harmful Algae:**
  - **Alexandrium: Can contaminate seafood, causing paralytic shellfish poisoning leading to paralysis or even death.**
  - **Pseudonitzschia: Produces domoic acid, which may cause vomiting, memory loss, seizures, and in severe cases, death.**
  - **Microcystis (in freshwater): Produces dangerous liver toxins and causes gastrointestinal diseases.**
- ❖ **High-risk groups: children, the elderly, and communities that depend heavily on seafood.**

Therefore, monitoring and mitigating this phenomenon is critical to protecting public health and ensuring the safety of food and water sources.

• Challenge Three: Underwater Internet Cables

- **Submarine cables, also known as undersea cables, are the lifeline of global communications. They are the backbone of the internet, transmitting massive amounts of data between continents and connecting the world into one integrated network.**
- **These cables are made of ultra-thin fiber optics (thinner than human hair), protected by layers of metal and reinforced plastic to withstand harsh underwater conditions. They transmit data as light pulses at very high speeds, enabling services such as high-speed internet, live streaming, cloud computing, and global communications.**
- **Installation Process:**
  - **Special cable-laying vessels carefully plan routes considering depth and seabed conditions.**
  - **Cables are lowered to the seabed using ROVs or divers, then secured to avoid damage from currents or fishing activities.**
- **Global System:**

  This network spans thousands of kilometers, connecting cities and tech hubs through landing stations on coastlines, which link the submarine cables to terrestrial networks.
- **Risks Facing Submarine Cables:**
  - **Natural disasters (earthquakes, volcanic eruptions).**
  - **Anchors from ships and fishing activities.**
  - **Sabotage or cyberattacks.**
- **Maintenance:**

  Advanced monitoring and maintenance systems are used to quickly detect and repair faults, minimizing downtime and ensuring uninterrupted global connectivity.

5. Discover Category Challenges :

5.1 Challenge 1: Exploration of Submerged Heritage (100 points)

In this challenge, participants act as underwater archaeologists. The ROVs are tasked with searching inside historical shipwrecks and discovering their contents.

The missions include four interconnected stages:

1. **Discover the sunken ship and document what is written on it.**
2. **Detect and arrange the submerged pottery and vessels.**
3. **Inspect the treasure chest and count its contents.**
4. **Enter a narrow passage and discover the hidden symbol at its end.**

Educational Goal:

To train participants in precise observation, documentation, and working in a style that simulates archaeological exploration tasks in real marine environments.

5.1.1 Mission 1: Discovering the Sunken Ship (25 points)

- **Description:**
  A shipwreck model is placed at the bottom of the pool, engraved or printed with a symbol/name/number representing historical data (e.g., year, merchant's name, or a unique mark).
- **Task:**
  The ROV must approach the ship, use its camera to capture the symbol or text, and record the information on the answer sheet.
- **Educational Goal:**
  To simulate archaeological research of shipwrecks and document their data.

5.1.2 Mission 2: Submerged Pottery (25 points)

- **Description**:
  Several pottery or vessel models (PVC or colored plastic) are placed in the pool in a specific arrangement.
- **Task**:
  The ROV must detect the arrangement and redraw it on the answer sheet.
- **Educational Goal**:
  To enhance visual observation and accuracy in documenting archaeological sites.

5.1.3 Mission 3: The Treasure Chest (25 points)

- **Description**:
  A treasure chest made of PVC is placed in the pool. Inside, a dangling chain holds rings and pearls (small plastic balls).
- **Task**:
  The ROV must approach the chest, count the number of rings and pearls, and record the results.
- **Educational Goal**:
  To simulate the discovery and inventory of valuable artifacts underwater.

5.1.4 Mission 4: Crossing the Archaeological Passage (25 points)

- **Description**:
  A passage made of PVC pipes is created, and at its end is a panel with a shape/symbol (e.g., ancient Arabic inscriptions, a marine symbol, or a design inspired by Saudi heritage).
- **Task**:
  The ROV must enter the passage, reach the end, observe or photograph the symbol, and then redraw/describe it on the answer sheet.
- **Educational Goal**:
  To train participants in precision navigation in a narrow simulated environment, linked with archaeological exploration.

5.2 Challenge 2: Marine Infrastructure (100 points)

This challenge simulates the role of ROVs in inspecting and maintaining underwater infrastructure such as submarine cables and pipelines, which are critical for global communications and energy transmission.

Participants will learn how to detect faults, navigate narrow passages, and demonstrate creativity through a short performance.

5.2.1 Mission 1: Inspecting Submarine Cables (40 points)

- **Description:**

  Four vertical cables (PVC pipes) are placed at the bottom of the pool. Some of these cables are faulty, marked with a red section to simulate damage requiring maintenance.

- **Task:**

  The ROV must approach the cables, use the camera to inspect them, and identify the faulty cables to the referee.

- **Scoring:**

  40 points for correctly identifying all faulty cables.
  Partial points awarded for each correctly identified cable.

5.2.2 Mission 2: Passing Through Circular Pipelines (50 points)

- **Description:**

  A simulated underwater pipeline is created using five PVC circles, fixed at different depths and diameters. The circles are not aligned in a straight line, making navigation more challenging and requiring precise control.

- **Task:**

  The ROV must pass through all five circles in order.

- **Scoring:**

  10 points for each circle successfully passed, for a total of 50 points.

5.2.3 Mission 3: Performance Show (10 points)

- **Description**:
  Teams are given the opportunity to perform a short one-minute demonstration using their ROV. This mission showcases the creative side of vehicle control.
- **Task**:
  Perform creative maneuvers (such as spins, dives, or unique movements) to impress spectators and judges.
- **Important Note**:
  Choosing this mission ends the round immediately, meaning the team cannot continue with the other missions afterward.

6. Junior Category Challenges:

6.1 Challenge 1: Exploration of Submerged Heritage (100 points)

Participants act as underwater archaeologists, with ROVs tasked to explore inside shipwrecks and discover their contents.

The missions include four interconnected stages:

1. **Discover the sunken ship, document its writing, and simulate how to ensure returning to it again.**
2. **Detect and arrange the submerged pottery.**
3. **Inspect the treasure chest and count its contents.**
4. **Enter a narrow passage and discover the hidden symbol at its end.**

Educational Goal:

To train participants in careful observation, documentation, and practicing exploration similar to real-world underwater archaeology.

6.1.1 Mission 1: Discovering the Sunken Ship (25 points)

- **Description**:
  A shipwreck model is placed at the bottom of the pool, engraved or printed with a symbol/name/number representing its historical data (e.g., year, merchant's name, or a unique mark).
- **Task**:
  The ROV must approach the ship, capture the information with the camera, and record it on the answer sheet.
  Then, the ROV ascends to the pool surface, retrieves a tracking device (PVC piece attached to a rope), and attaches it to the ship's structure to simulate tracking and future accessibility.
- **Educational Goal**:
  To simulate archaeological research and modern tracking techniques for wrecks.

6.1.2 Mission 2: Submerged Pottery (25 points)

- **Description**:
  Several pottery or vessel models (PVC or colored plastic) are placed in the pool in a specific arrangement.
- **Task**:
  The ROV must detect the arrangement and redraw it on the answer sheet.
- **Educational Goal**:
  To enhance visual observation and accuracy in documenting archaeological sites.

6.1.3 Mission 3: The Treasure Chest (25 points)

- **Description**:
  A treasure chest made of PVC is placed in the pool. Inside, a dangling chain holds rings and pearls (small plastic balls).
- **Task**:
  The ROV must approach the chest, count the number of rings and pearls, and record the results.
- **Educational Goal**:
  To simulate the discovery and inventory of valuable artifacts underwater.

6.1.4 Mission 4: Crossing the Archaeological Passage (25 points):

- **Description**:
  A passage made of PVC pipes is created, and at its end is a panel with a shape/symbol (e.g., ancient Arabic inscriptions, a marine symbol, or a design inspired by Saudi heritage).
- **Task**:
  The ROV must enter the passage, reach the end, observe or photograph the symbol, and then redraw/describe it on the answer sheet.
- **Educational Goal**:
  To train participants in precision navigation in a narrow simulated environment, linked with archaeological exploration.

6.2 Challenge 2: Combating Harmful Algal Blooms (100 points)

This challenge simulates the role of ROVs in monitoring harmful algal blooms (HABs), which pose serious threats to marine life and public health. Participants carry out a series of tasks involving environmental monitoring, sample collection, and controlling pollution spread.

6.2.1 Mission 1: Estimating Algal Coverage (30 points)

- **Description**:
  A horizontal board (1×1 m^2) at the bottom of the pool is divided into 100 squares. Some squares are green (algae) and others are white (clean water).
- **Task**:
  - Count the green squares and calculate the algae coverage percentage.
  - Compare with a printed A4 image of the same area from one month earlier, and determine if algae increased or decreased.
- **Scoring**:
  - 5 points for correct counting.
  - 10 points for accurate percentage calculation.
  - 5 points for estimating the old image percentage.
  - 10 points for determining the trend (increase/decrease).

6.2.2 Mission 2: Collecting Algal Samples and Identifying Diseases (35 points)

- **Description**:
  Colored threads are fixed in the algae area, each color representing a different type of harmful algae linked to a specific disease.
- **Task**:
  The ROV must collect two samples only and bring them to the surface for analysis.
- **Scoring**:
  - 15 points per sample collected (30 points total).
  - -5 points penalty if a sample is left loose in the pool outside the algae area.
  - Teams are then given a chart matching algae colors with diseases.
  - Correctly identifying the diseases linked to the two samples earns 5 extra points.

6.2.3 Mission 3: Treating the Algae Area (25 points)

- **Description**:
  After identifying the type of algae, the team is asked to implement a plan to treat the affected area and prevent fish from entering.
- **Task**:
  - Insert a red rope (50 cm) into the algae area to represent treatment material (10 points).
  - Place a PVC cube (30×30×30 cm) covered with a net (except the bottom) over the algae area to block fish from entering (15 points).

6.2.4 Mission 4: Performance Show (10 points)

- **Description**:
  Teams are given the opportunity to perform a short one-minute demonstration using their ROV. This mission showcases the creative side of vehicle control.
- **Task**:
  Perform creative maneuvers (such as spins, dives, or unique movements) to impress spectators and judges.
- **Important Note**:
  Choosing this mission ends the round immediately, meaning the team cannot continue with the other missions afterward.

7. Senior Category Challenges:

7.1Challenge 1: Exploration of Submerged Heritage (100 points)

In this challenge, participants act as underwater archaeologists, with ROVs tasked to explore historical shipwrecks and uncover their contents.

The missions include four interconnected stages:

1. **Discover the sunken ship, document its writing, and simulate how to ensure returning to it again.**
2. **Detect and arrange the submerged pottery.**
3. **Inspect the treasure chest and count its contents.**
4. **Enter a narrow passage and discover the hidden symbol at its end.**

Educational Goal:

To train participants in careful observation, documentation, archaeological-style exploration, and integrating modern technologies for precision and tracking.

7.1.1 Mission 1: Discovering the Sunken Ship (30 points)

- **Description:**

  A shipwreck model is placed at the bottom of the pool, engraved or printed with a symbol/name/number representing its historical data (e.g., year, merchant's name, or a unique mark).

- **Task:**

  1-The ROV must approach the ship, capture the information with its camera, and record it on the answer sheet.

  2-Then, it must surface to collect a tracking device (PVC piece attached to a rope), return, and attach it to the ship structure to simulate tracking and ensuring accessibility in the future.

- **Educational Goal:**

  To practice accurate documentation of wrecks and train on modern marine tracking techniques.

7.1.2 Mission 2: Submerged Pottery (25 points)

- **Description**:
  Several pottery or vessel models (PVC or colored plastic) are placed in the pool in a specific arrangement.
- **Task**:
  The ROV must detect the arrangement and redraw it on the answer sheet.
- **Educational Goal**:
  To enhance visual observation and accuracy in documenting archaeological sites.

7.1.3 Mission 3: The Treasure Chest (25 points)

- **Description**:
  A treasure chest made of PVC is placed in the pool. Inside, a dangling chain holds rings and pearls (small plastic balls).
- **Task**:
  The ROV must approach the chest, count the number of rings and pearls, and record the results.
- **Educational Goal**:
  To simulate the discovery and inventory of valuable artifacts underwater.

7.1.4 Mission 4: Crossing the Archaeological Passage (40 points)

- **Description**:
  A narrow passage made of PVC pipes simulates an archaeological tunnel underwater. At the beginning of the passage is an ancient-style gate, and at the end is a panel with an engraved/painted symbol (e.g., ancient Arabic inscriptions, a marine symbol, or a design inspired by Saudi heritage).

❖ **Task**:

- **The ROV must enter the passage and measure the dimensions of the gate (length and width) to check if large artifacts (like a coffin or box) could pass through.**
- **The team must demonstrate to the judge how the measurements were taken, with an allowable error of ±2 cm.**
  - **Correctly measuring one dimension (length or width) = 10 points.**
  - **Correctly measuring both = 20 points.**
- **After measurements, the ROV must continue through the passage, approach the end panel, and capture the symbol.**
- **Recognition of the symbol must be performed using a trained AI model prepared by the team based on provided datasets.**
- **The team must submit no more than 5 pages explaining the model building and results.**
  - **Correct AI recognition = 20 points.**
  - **Manual recognition (redrawing or describing on the sheet) = 10 points.**
- **Total Points: 40 (20 for measurements + 20 for AI recognition).**

❖ **Educational Goal**:

- **Train participants on navigation in narrow underwater environments.**
- **Build capacity for underwater measurement and evaluating accessibility.**
- **Enhance the use of artificial intelligence in recognizing symbols and archaeological inscriptions.**

7.2 Challenge 2: Combating Harmful Algal Blooms (100 points)

This challenge simulates the role of ROVs in detecting and monitoring harmful algal blooms (HABs). Participants must perform tasks combining environmental observation, sample collection, and pollution control.

7.2.1 Mission 1: Estimating Algal Coverage (30 points)

- **Description:**
  A 1×1 m² board is placed at the bottom of the pool, divided into 100 squares. Some squares are green (algae), others white (clean water).
- **Task:**
  - **Count green squares and calculate coverage percentage.**
  - **Compare with an A4 printed image of the same area from a month earlier and decide if coverage has increased or decreased.**
- **Scoring:**
  - **5 points for correct counting.**
  - **10 points for accurate percentage.**
  - **5 points for old image estimation.**
  - **10 points for correct trend (increase/decrease).**

7.2.2 Mission 2: Collecting Algal Samples & Identifying Diseases (35 points)

- **Description:**
  Colored threads placed inside the algae area represent types of harmful algae linked to specific diseases.
- **Task:**
  The ROV must collect 2 samples and bring them to the surface.
- **Scoring:**
  - **15 points per sample collected (30 total).**
  - **-5 points penalty if a sample is left loose outside the algae area.**
  - **Teams then receive a chart linking algae colors with diseases.**
  - **Correctly identifying diseases = 5 bonus points.**

7.2.3 Mission 3: Treating the Algae Area (35 points)

❖ **Description**:

After identifying the type of algae, the team is asked to implement a plan to treat the affected area and prevent fish from entering.

❖ **Task**:

- **Insert a red rope (50 cm) fully inside the algae area (10 points).**
- **Build a vertical net fence using four PVC pillars (¾ inch, 30 cm long) taken from the pool surface.**
- **These pillars are inserted into four fixed PVC bases (2 inches, 10 cm tall) around the algae area to form a fence preventing fish entry (25 points).**

❖ **Educational Goal**:

- **Simulate environmental protection strategies.**
- **Train precision maneuvering and underwater assembly.**
- **Raise awareness about technology's role in protecting marine life.**

7.3 Challenge 3: Infrastructure Inspection (100 points)

ROVs are critical for inspecting and evaluating underwater infrastructure such as pipelines, cables, and offshore platforms. In the Middle East, where oil and gas exploration is significant, ROVs play a vital role in monitoring and detecting leaks or damages.

7.3.1Mission 1: Submarine Cable Maintenance (40 points)

- **Description:**
  There are 2 cables:
  - **A damaged underwater cable (PVC pipe, ½ inch, 50 cm long) marked with red to show the fault.**
  - **A replacement cable on the pool surface, intact and ready.**
- **Task:**
  - **Identify the faulty cable and its location = 10 points.**
  - **Remove the faulty cable by detaching 2 clamps = 10 points.**
  - **Install the new cable and secure it with clamps = 20 points.**

7.3.2 Mission 2: Pipeline Inspection (30 points)

- **Description:**
  A simulated pipeline consists of 3 PVC rings (80 cm diameter, 10 cm above ground), not aligned straight.
- **Task:**
  The ROV must move through all 3 rings as if inside a narrow pipe.
  - **Passing each ring without touching = 10 points.**
  - **The ROV may only rotate inside the rings.**

7.3.3 Mission 3: Retrieving the Lost Cable (30 points)

- **Description:**
  A lost cable (PVC pipe, ½ inch, longer than 1.5 m) is placed somewhere in the pool.
- **Task:**
  - **Locate and identify the cable = 10 points.**
  - **Retrieve it and bring it to the surface = 20 points.**
  - **Teams may use an unmanned auxiliary device (Non-ROV Device) to assist, provided no human interferes with it except to turn it on/off.**

8. ROV and Control Station Specifications:

8.1 Control Station:

- Each team must build a dedicated control station, which is a small room located next to the swimming pool.
- From this room, the ROV is operated using a laptop and remote-control devices, without any direct visibility of the ROV or pool, ensuring realistic simulation.
- Roles inside the control station:
  - Pilot: Responsible for operating and navigating the ROV, executing missions.
  - Co-Pilot: Assists the pilot in monitoring sensors, cameras, and systems, and coordinates tasks for easier execution.
- Roles at the poolside:

  Two team members only, known as Tether Men, are stationed beside the pool.Their responsibilities include:
  - Deploying the ROV into the water at the start of the round.
  - Managing the tether cable to avoid tangling or obstructing movement.
  - Collecting any samples or objects retrieved by the ROV.
- This division of roles ensures a professional simulation of real-world ROV operations, separating piloting from logistical support.

8.2 Power Sources :

- The competition provides AC power supply.
- Each team is given one power source only with specifications:
  - 12V / 30A.
  - XT60H connectors only.
- **For Senior Category (University level)**:
  - Teams may use the provided 12V/30A supply.
  - They are also allowed to bring their own 48V source, provided it passes safety inspection.
  - The organizing committee provides only 12V / 30A.
- **For Junior Category**:
  - Teams are provided 12V / 30A maximum.
  - Teams may bring their own source, but it must pass safety inspection.
- **Important Notes**:
  - All ROV components (motors, valves, cameras, electronics) must run from the main power supply.
  - Voltage conversion (power conversion) is only allowed inside the ROV.
  - Every ROV must include a fuse to protect against overcurrent.
  - Teams must provide power consumption calculations to justify fuse selection.

8.3 ROV Specifications:

- Maximum ROV diameter: **90 cm.**
- Maximum ROV weight: **35 kg.**
- Any ROV exceeding these limits will not be allowed to participate in underwater missions.
- No modifications allowed after official size / weight measurements.
- Use of pneumatic (air pressure) or hydraulic systems is permitted.

9. Safety Regulations:

❖ Safety Criteria:

Each team must comply with the following:

- **Motors must be fully shrouded (covered) to prevent hazards.**
- **All components must be waterproof.**
- **A main fuse must be installed at the ROV's power input, justified by calculations.**
- **No exposed wires allowed.**
- **All devices must have clear safety labels indicating whether they run on AC or DC.**
- **Safety labels must be placed on all critical parts to identify functions and warn of risks.**
- **Any additional devices must be verified for safety.**
- **No sharp edges are allowed in ROV design.**

❖ Safety Check Rules:

- **Only four members per team may participate in the safety inspection.**
- **Each team must perform a dry test before launching the ROV into the pool.**
- **If using a custom power source, it must pass safety checks.**
- **If the ROV uses fluid power systems (air/water pressure), these systems and sources must also be tested.**

❖ Repair Time:

- **If issues are found during safety check, the team is allowed maximum 20 minutes to fix them.**
- **If not repaired in time, the ROV cannot participate in underwater missions.**

❖ Important Notes:

- **Any component causing safety failure reduces the team's safety score, but must be fixed before underwater participation.**
- **Teams passing the safety check receive a Readiness Card, which must be collected by pool referees before any underwater mission.**

10. Penalties and Exclusions:

- **Cheating Attempts:**
  Any attempt to cheat in any form leads to immediate disqualification from the competition.
- **Disrespecting Judges or Organizers:**
  Showing disrespect or inappropriate behavior toward judges or organizers results in direct disqualification from the competition.
- **Failure in Safety Test:**
  If an ROV fails to pass the safety inspection, it will not be allowed to participate in underwater missions.
- **Violation of Size and Weight Standards:**
  - **If the ROV does not pass the official size and weight measurements, it will be disqualified from field missions.**
  - **However, the team is still allowed to participate in the theoretical parts of the challenge (such as the report and presentation).**
- **Unauthorized Participation:**
  If coaches, supervisors, or any person not officially registered in the team interferes in competition activities (missions or safety checks), 5 points will be deducted.
- **Exceeding Pool Exit Time:**
  If a team exceeds the allotted time to leave the competition area (pool/station), 3 points are deducted per extra minute.

11. Arena Specifications:

Click on this link:
https://drive.google.com/drive/folders/1EYUReuFoDjmoOKlW0PdQCceAHArtaHpt?usp=sharing

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Good Luck.