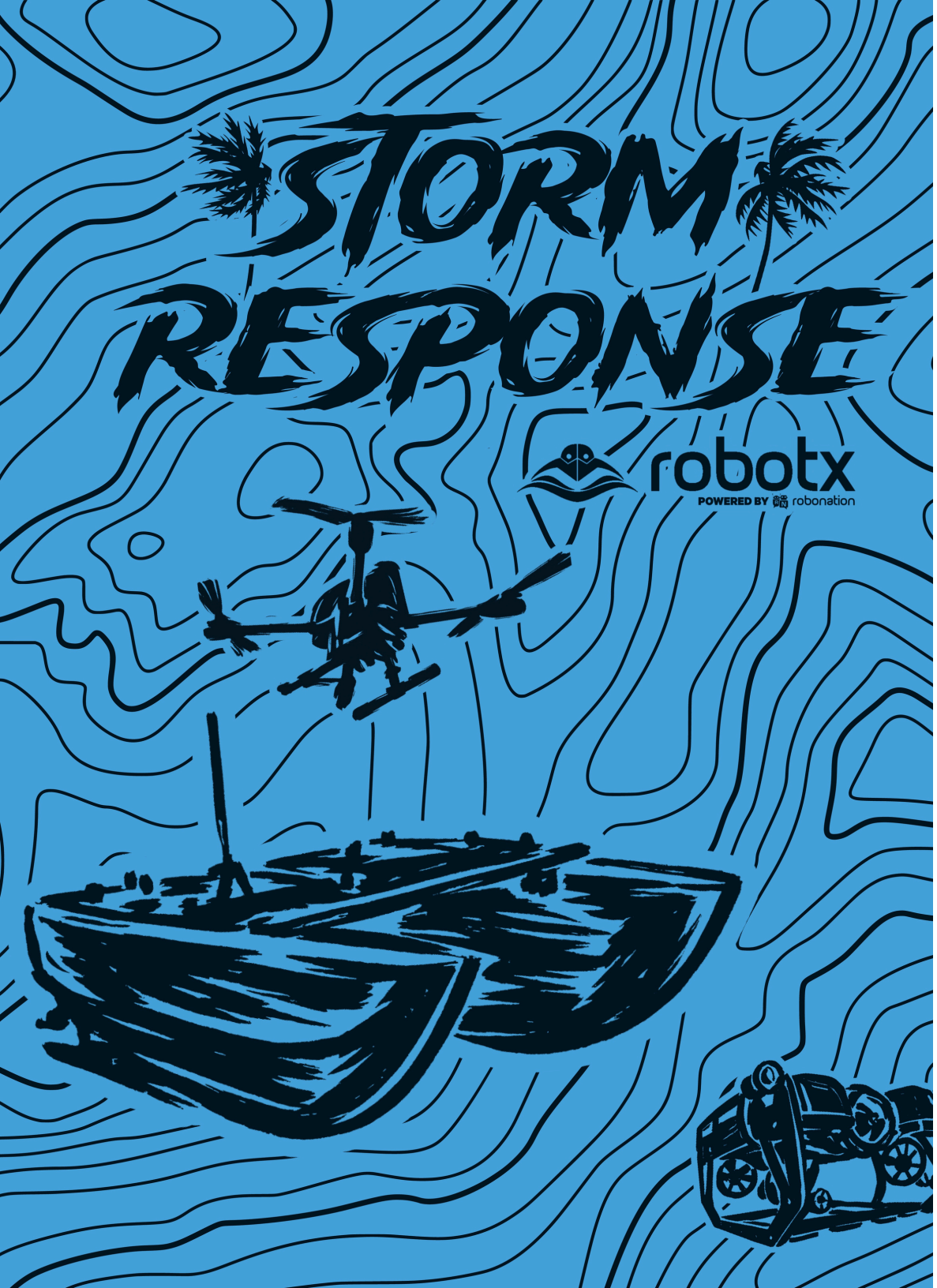
6th biennial

RobotX 2026

November 2026

Primer & Task Ideas



Technology in Action for Recovery and Relief

Storm Response explores the power uncrewed systems play in recovery, resilience, and discovery in disaster relief efforts. Framed as an opportunity, not just to restore what was lost, but to rebuild smarter and reimagine the future; this season's challenges reflect the real-world role of robotics in helping communities respond to and recover from storms and other natural events. Through hands-on missions grounded in post-disaster scenarios, teams will apply technology with purpose – restoring harbor operations, assessing underwater infrastructure, supporting exploration, and unlocking new possibilities.

robotx

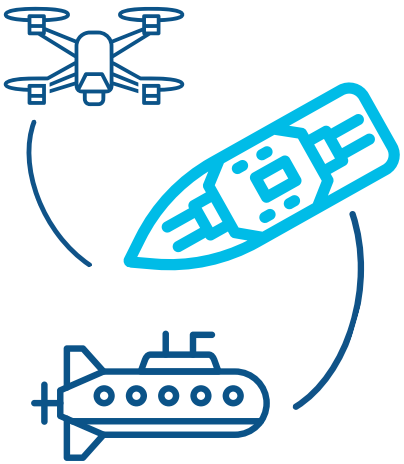
Why RobotX?

- Increase technical proficiency;
- Establish valuable professional connections; and
- Enjoy learning and collaborating while competing at a world-class level.

The nominal winners are teams that score the most points. The real winners are participants who learn lasting lessons about working together to create an autonomous System of Systems* to accomplish a challenging mission in a complex environment.

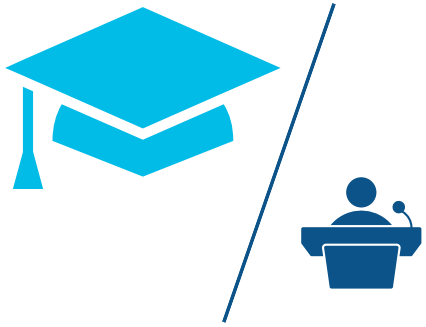
*SoS = System of Systems

ELIGIBILITY



Multi-Domain System of Systems:
Teams must build an integrated system of systems built around:

- All teams must compete with at least one Uncrewed Surface Vessel (USV)
- In addition to the USV, teams must incorporate an Uncrewed Underwater Vehicle (UUV) and/or an Uncrewed Aerial Vehicle (UAV)
- Participation in all three domains is needed to complete the full mission

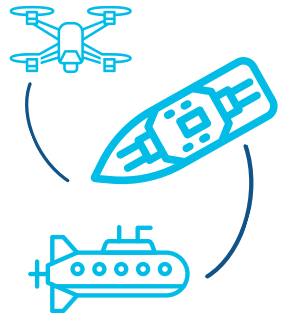


Team Composition:

- Teams are composed of students, faculty, industry partners, and/or government partners.
- Majority of team members must be undergraduate through post-grad students. Teams may also include high school students. Interdisciplinary teams are encouraged.

Find out more.
Contact RoboNation at competitions@robonation.org

COMPETITION



Autonomy Challenge

Build a system of systems to showcase collaborative autonomous performance.

Design Documentation

Prepare documentation showcasing system design and competition strategy.

- *Team Website*
- *Technical Design Report*
- *Team Intro Video*
- *Design Presentation (in-person)*
- *System Assessment (in-person)*

What's New for RobotX 2026

- **One Cohesive Story |** RobotX is no longer a set of disconnected tasks, but a mission vignette simulating real-world maritime autonomy. This is a shift from isolated skill evaluation to holistic mission execution and evaluation.

- **Vehicle Requirements |** Teams must prepare a System of Systems:
  - All teams must compete with at least one Uncrewed Surface Vessel (USV)
  - In addition to the USV, teams must incorporate an Uncrewed Underwater Vehicle (UUV) and/or an Uncrewed Aerial Vehicle (UAV)
  - Participation in **all three domains** is needed to complete the full mission
- Platforms may be team's own design or commercially available platforms, within the required size and weight restrictions (closely aligned with RoboNation's single-domain competitions: RoboBoat, RoboSub, and SUAS).

- **Capability Levels |** Each mission task has capabilities divided by three levels:
  - ***Core Capabilities:*** Fundamental competencies required for safe and effective baseline autonomous operation.
  - ***Advanced Capabilities:*** Competencies that reflect growth in autonomy sophistication and real-world relevance.
  - ***Disruptive Capabilities:*** Transformative competencies pushing the boundary of autonomous systems—enabling novel or mission-critical applications.

- **Team Collaboration |** Teams may partner across disciplines, campuses, or borders and can formalize those partnerships up to (and during) the event. Joint teams will be treated as a single competition entry for scoring and awards.

- **Granted Platform Application |** To lower barriers for participation, teams can request a granted platform through our partnership with Blue Robotics. Platforms available include the BlueBoat and/or BlueROV2, or a stipend equivalent. Teams should prepare to submit an official signed letter of intent from their school/organization. More information can be found here: robotx.org/2026.

Vehicle Specifications

Vehicles may be team's own design or commercially available systems, within the required size and weight restrictions (closely aligned with RoboNation's single-domain competitions: RoboBoat, RoboSub, and SUAS).

SYSTEM	WEIGHT	SIZE	NOTES
USV **Uncrewed Surface Vehicle**	< 56.7 kg (125 lbs)	Fit within volume 0.9 x 0.9 x 1.8m (3 x 3 x 6 ft)	
UUV **Uncrewed Underwater Vehicle**	< 56.7 kg (125 lbs)	Fit within volume 0.9 x 0.9 x 1.8m (3 x 3 x 6 ft)	
UAV **Uncrewed Aerial Vehicle**	< 7kg (15 lbs)	**Design for transport:** • Fit in Personal Item - 46 x 36 x 20 cm (18 x 14 x 8 in) • Fit in Carry-On - 56 x 36 x 23 cm (22 x 14 x 9 in) • Fit in Check-In - 69 x 53 x 36 cm (27 x 21 x 14 in)	NOTE: Rotary vehicles only

Proof of Readiness | Submissions: April - August 2026

Teams submit the required proof of readiness materials outlined below, based on the domains they select. The materials will be reviewed within 1 week of submission, teams will receive a pass/fail, including any necessary follow-up questions. Teams who receive a fail are permitted to keep submitting attempts up until the close of the submission window.

SYSTEM	MANEUVER	SAFETY SYSTEM	SUBMISSION
USV **Uncrewed Surface Vehicle**	Autonomous navigation: (a) Start 9.8 ft (3m) behind the Gate, (b) pass through the Gate, (c) circle around the Marker, and (d) pass back through the Gate.	Safety overview: (a) kill switch demo and diagram (b) harness (lift/tow points) (c) Mode indicator (auto, manual, kill) (d) Comms heartbeat message/System overview [tentative]	1. Video: Proof of USV Readiness (< 5 min) 2. Supporting Photos/Videos
UUV **Uncrewed Underwater Vehicle**	Autonomous navigation: (a) Start 9.8 ft (3m) behind the Gate, (b) Submerge and pass through the Gate, (c) circle around the Marker, and (d) pass back through the Gate.	Safety overview: (a) kill switch demo and diagram (b) harness (lift/tow points) (c) Mode indicator (auto,manual,kill) (d) Positively buoyant	1. Video: Proof of UUV Readiness (< 5 min) 2. Supporting Photos/Videos
UAV **Uncrewed Aerial Vehicle**	Autonomous proof of flight (a) takeoff, (b) autonomous flight 1+ miles, waypoints, and turn radius, (c) landing	Safety overview: (a) Water safety system (stays on water surface) (b) Mode indicator (auto,manual,kill) [tentative] Proof of Pilot Competence (a) Manual Takeoff to Above 50ft AGL (b) Manual Flight to/from Point > 1000ft from Safety Pilot (c) Manual Landing (d) Proof of Registration (e) Pilot license(s)	1. Video: Proof of Flight Readiness (< 5 min) 2. Video: Proof of Pilot Competence (< 3 min) 3. Supporting Photos/Videos

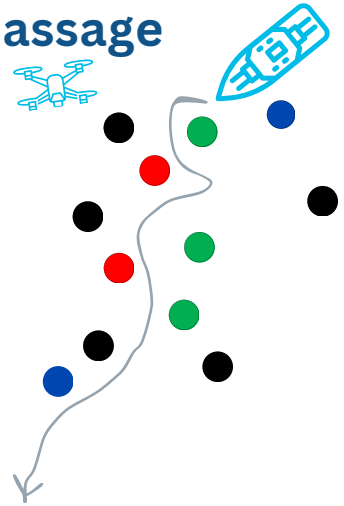
RobotX 2026 Tasks Overview

Communications & Reporting

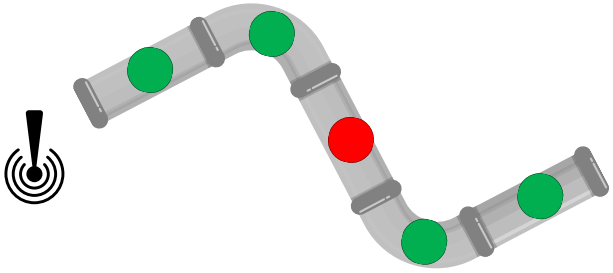
All systems must be capable of receiving and transmitting reports to each system and the competition server.

Mission Task 1: Safe Passage

A random path is generated for the system of systems to discover, report, and navigate a safe pathway to begin the survey and relief mission.



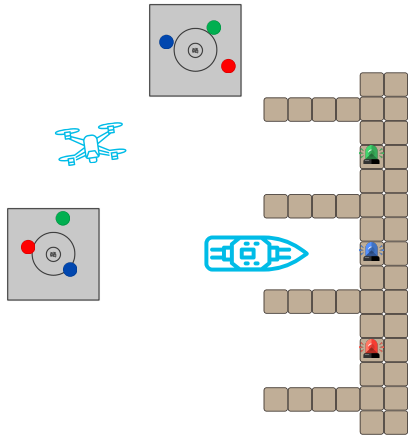
Mission Task 2: Infrastructure Survey & Repair



An underwater pipeline is located by acoustic signal, surveyed, and “repaired” with a magnetic probe.

Mission Task 3: Coordinated Logistics

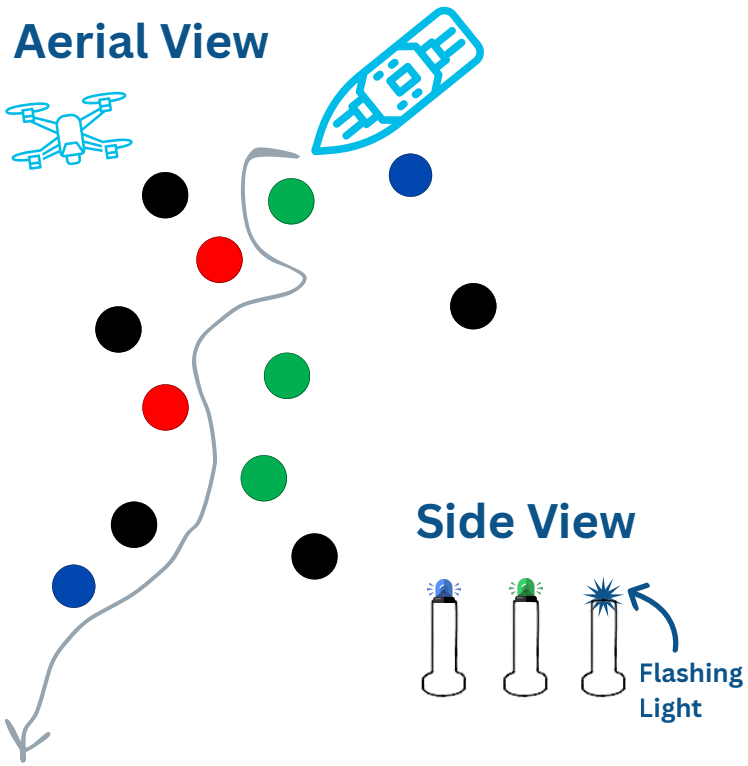
The system of systems coordinates a delivery of a colored tin to a delivery platform, showcasing reporting, docking, and payload delivery.



Mission Task 1: Safe Passage

The maritime systems must safely enter the recovery area in order to begin survey and relief efforts. There are hazards to surface and underwater vessels, represented by buoys in the transit area. Light beacons on top of the buoys will represent elements of the mission.

At the start of a run, a random path is generated and defined as a safe path.



Core: The UAV must conduct a flyover of the area and report the location of the start and end points of the safe passage.

- A flashing BLUE light indicates safe entry point.
- A solid BLUE light indicates safe exit point.

The USV and/or UUV must then transit safely through the passage, as indicated by red and green indicators.

- Pass GREEN markers to port.
- Pass RED markers to the vessel's starboard.
- Avoid contact with all markers.

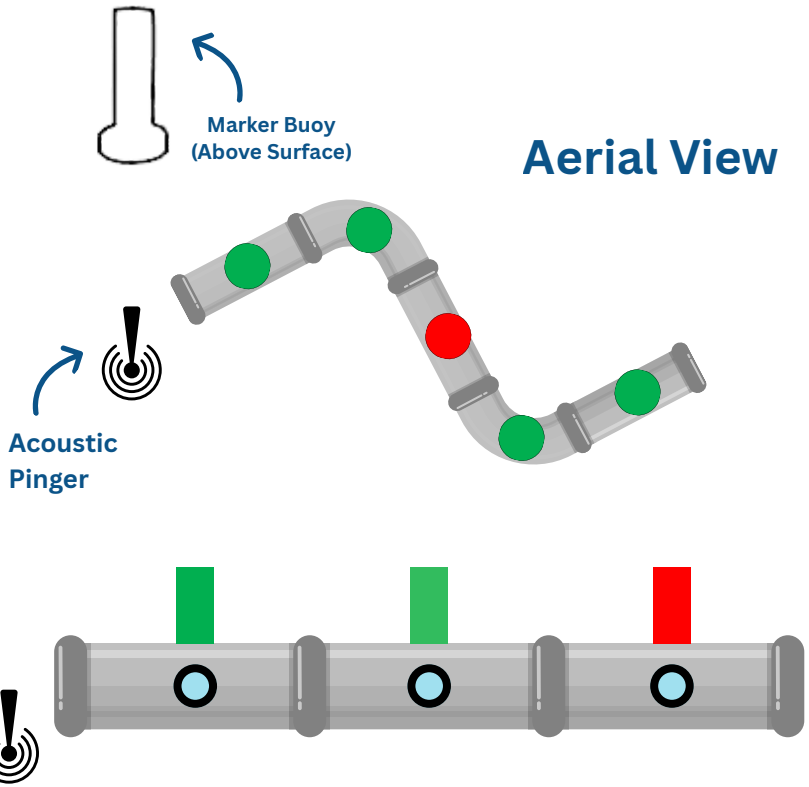
Advanced: UAV must complete Core Tier, and successfully report RED/GREEN locations to competition server and USV for execution.

- The USV or UUV must use data to successfully navigate path (buoy colors will NOT be visible to the USV).

Disruptive: Adding to Advanced Tier, the UAV must remain on station to guide the USV or UUV because safe passage buoy indicators may change mid-run, forcing the systems to communicate and adapt.

Mission Task 2: Infrastructure Survey & Repair

An underwater pipeline needs to be surveyed and repaired.



Core: UUV locates the active acoustic pinger, follows pipeline, reports sequence of lights, and tags the red light(s) with a magnetic probe.

- There are two pipelines, one with an active acoustic pinger indicating the pipeline to be surveyed.
- Once the probe is placed, the pipeline will notify the competition server and the light color will change.

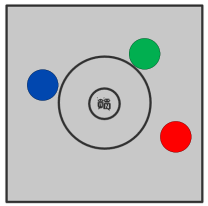
Advanced: UUV must complete Core Tier, but the UAV or USV first locates the surface indication of start point of underwater pipeline, reporting to UUV for execution.

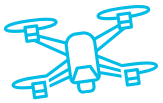
- The start point will be indicated by a buoy and/or an acoustic pinger. (teams notified in advance of which)

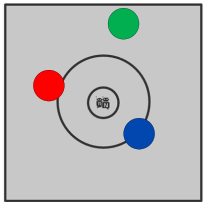
Disruptive: This tier requires systems to operate in all three domains. Once the task activates, either an acoustic or optical indicator will turn on and the UAV or USV must locate the start point of the task, then call in the UUV to complete the base mission. (teams will not be notified of which indicator in advance)

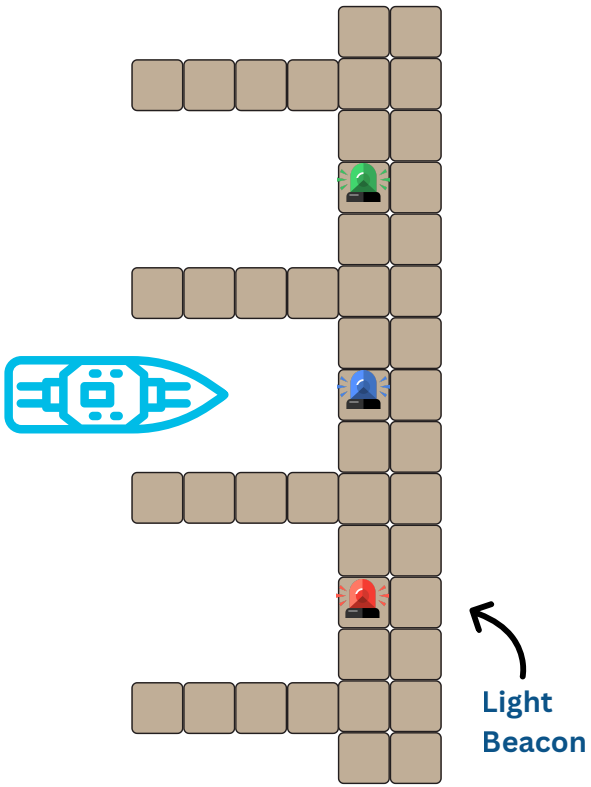
Mission Task 3: Coordinated Logistics

Aerial View









Core: USV must locate the floating delivery platform and report a color that corresponds with a docking bay.

- UAV must deliver the tin to the correct colored platform. Payload is pre-loaded on UAV.

Advanced: USV must dock in the correct bay and report to the UAV the correct delivery docking bay and that it is ready to receive.

- UAV deploys with tin on board and must deliver the tin to the correct docking bay.

Disruptive: USV must dock in the correct bay and report to the UAV the correct delivery docking bay and that it is ready to receive.

- The correct color for the tin will be given to the USV when it reports successful docking. The USV must report the correct color tin to the UAV.
- The UAV must retrieve the correct colored tin and deliver to the bay in which the USV is/was docked.

Preliminary Schedule

Early November 2026

SEPTEMBER 2026	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6
Pre-Competition Submission Deadlines	Team Orientation *(mandatory)*	Practice & Qualifications		Semi-Finals		Third-Chance & Finals
	Design Presentations / System Assessments					
	Overnight Pool Testing (Tentative @ Event Hotel)					Awards

Stay Updated

ALL THINGS ROBOTX

For all the latest information and updates for the competitions season, visit the RobotX website!

robotx.org

DISCORD

Stay connected and updated with the RobotX Discord. Scan the QR code to get started!

JOIN TODAY!

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- Select the RobotX role
- Turn on notifications!

robonation.org/discord

RoboNation is a 501c3 nonprofit organization whose mission is to provide a pathway of hands-on educational experiences that empower students to find innovative solutions to global challenges. Working together with the industry, research and educators, we have grown to include over nine student competitions and programs and engage more than 250,000 students per year.

For more information contact competitions@robonation.org