ARC Championship Participant Manual

2025 - 2026

V1.2

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Release Notes

Date	Version	Release Notes
March 28, 2026	1.2	Clarified requirements in section 4.1
February 1, 2026	1.1	Fixed formatting after PDF export
October 28, 2025	1.0	Initial Release

1. Competition Terms

Safe and respectful conduct is crucial for the growth and longevity of the ARC Championship. All teams registered for the competition and their members are expected to read and abide by the following guidelines.

1.1 Conduct

Discrimination, sexual harassment or misconduct, bullying or indimitation, threats or violence (verbal or physical), disruptive or unsafe behavior, vandalism, disrespect, racism, or *any* behavior that undermines a safe and inclusive environment will not be tolerated.

Team members may not take or damage competition property, including but not limited to projectiles, official projectile reloaders, armor plate ID reset tools, field elements, RFID cards, etc. Teams of members who are found to be taking or damaging competition property will be billed for the loss/damage, and their team may be penalized.

All team members must comply with the laws and regulations of their country or region and the country or region where the competition is held.

Robots built by teams will only be used for ARC Robotics and related functions, such as outreach or education. Robots will not be illegally modified or used for any illicit purpose(s).

1.2 Safety

All team members are responsible for ensuring their actions, including the design, testing, and use of robots, will not cause any injury or damage to their teammates, members of the opposing teams, referees, competition staff, audience, equipment, venue, the competition field, or anything/anyone else.

All teams must ensure that the design of their robots will not hinder pre-match Inspection.

Team members must fully cooperate with competition staff and follow the rules, including wearing proper personal protective equipment, at all times.

All teams must obey all manufacturer recommendations for safe operation of Lithium batteries.

In the event of accidents resulting from technical faults of robots or any other unexpected circumstances, all liability and losses shall be borne by the team causing the accident.

2. Season Schedule

⚡	The following season schedule is for reference only. The specific time is subject to the latest announcement by the ARC Operations Group.

Table 2-1: Season Schedule

Description	Time	Submission Details
Team Registration	October 27, 2025 23:00 PDT - November 30, 2025 23:00 PST	Fill out form on arc-robotics.org
Event Registration	January 11, 2026 23:00 PST - March 15, 2026 23:00 PST	Fill out form on arc-robotics.org
Late Registration	March 15, 2026 23:00 PST - May 24, 2026 23:00 PST	Email operators@arc-robotics.org to request
ARCTIC Intent to Submit Period	March 1, 2026 23:00 PST - March 29, 2026 23:00 PDT	Submit on Google Forms
Referee System + Rules Assessment	March 29, 2026 23:00 PDT - April 5, 2026 23:00 PDT	Multiple choice exam. Linked on arc-robotics.org
ARCTIC Short Paragraph Feedback	April 5, 2026 23:00 PDT	Email from program chair
ARCTIC Initial Submission Period	April 5, 2026 23:00 PDT - May 3, 2026 23:00 PDT	Submit on Google Forms
Final Assessment	April 5, 2026 23:00 PDT - May 3, 2026 23:00 PDT	Video and PPT Submission
Final Assessment Results & Feedback	May 10, 2026 23:00 PDT	Results will be posted on arc-robotics.org on a rolling basis
ARCTIC Acceptance Notification	May 10, 2026 23:00 PDT	Email from program chair
ARCTIC Final Materials Due	June 21, 2026 23:00 PDT	Submit on Google Forms

PDT = Pacific Daylight time (UTC-7); PST = Pacific Standard Time (UTC-8)

ARC Calendar Link

2.1 Community Office Hours

Office hours will be held virtually in the community Discord. Curious about how the competition is run? Want to know what ARC Staff and Operators do, or how you can get involved? Office hours are a great place to ask questions and for us to get to know each other.

Table 2-2: Office Hours

Event Title	Time
Winter Office Hours	January 18, 2025 16:00-20:00 PST

PDT = Pacific Daylight time (UTC-7); PST = Pacific Standard Time (UTC-8)

3. Team and Member Eligibility

All team members for the 2026 ARC Championship must be active University, College, or post-secondary students pursuing a degree at the time of registration.

3.1 Registration

Only ARC teams affiliated with a university, college, or other post-secondary institution are eligible to register. Teams may register as a union team representing multiple institutions, but union teams must be declared at the time of Team Registration. Registered teams are not permitted to re-register as part of a union team in the same season after the Team Registration period closes.

3.2 Competition Material Purchases

To qualify for educational discounts in offline orders, teams must first complete Team Registration. After registration, teams can contact rmna@yindividual.com for information on offline orders (for motors, boards and other components) and purchasing referee systems.

3.3 ARCC Participation

To be eligible to compete at ARCC, you must do the following:

- Complete Team Registration
- Complete Event Registration
- Pass the Referee System + Rules Assessment
- Pass the Final Assessment

3.4 Registration Fee

Registration fees will be due at the time of Event Registration. The registration fees for the 2026 Season are as follows:

Table 3-1: Event Registration Fees

Event	Fee
3v3 Match	$450
1v1 Match	$150
Engineer Challenge	$150
ARCTIC	$0

Instructions on payment submission will be included in the Event Registration form. Registration fees are non-refundable.

4. Technical Assessments

Teams must pass all exams on time in order to be eligible to participate in ARCC. This is to ensure that teams are prepared for the competition. For the submission periods, please refer to the season schedule. Always refer to the most recent version of this document.

4.1 Referee System and Rules Quiz

The link to take the Referee System and Rules Quiz will be released via email and on the arc-robotics.org website at the opening of the submission period.

The format for the assessment is a multiple choice exam.

- 90% required to pass
- Each team is required to have the following number of unique passing submissions depending on the events they are competing in. Teams participating in multiple events are required to have the cumulative number of passes. For example, a team participating in 3v3 and 1v1 events must have 10 total passes. Teams that do not have enough members to complete the necessary submissions may be granted an exception at the discretion of ARC Operations.

⚡	It is recommended for all pit crew members to take and pass the Quiz.

Table 4-1: Referee System and Rules Quiz Pass Requirement

Event Type	Number of Passes Required
3v3	7
1v1	3
Engineer	3

4.2 Final Assessment

The Final Assessment consists of a video and powerpoint submission showing that the robot is ready for competition, and compliant with the rules. This promotes a quick and efficient processing of teams through Pre-Match Inspection and ensures fair and competent matches.

The Final Assessment consists of a strict pass-fail criteria. Teams which do not pass the assessment in their initial submission will receive a list of all failing criteria within 1 week of their submission.

Each team has one resubmission attempt after receiving feedback from ARC Operations. The resubmission must also be submitted by the Final Assessment deadline.

The submission portal will be released via Email and on the arc-robotics.org website at the opening of the submission period.

4.2.1 Powerpoint Submission

All teams are required to submit a powerpoint presentation documenting the legal installation of all referee system components. Please download the template and follow its instructions to complete that portion of the assessment.

To pass the powerpoint submission, the robot must not contain any illegal designs based on the ARCC Robot Building Specifications.

4.2.2 Video Submission

The video submission consists of a demonstration of key robot functions per Table 4-2, along with the passing criteria. Additional criteria for the video are:

- All video clips must be played at 1x speed
- The time limit for the video shall be 5 minutes total. Any content beyond the time limit will not be considered.
- The video shall be uploaded to Youtube. It is optional to make the video unlisted with “link only” access. Any password-protected videos will be rejected and automatically fail.
- All video clips must feature the “ARC Championship 2026 Temporal Enforcement” image physically present on printed paper, which will be released after the opening of the submission period.
- All video clips should have a subtitle describing which Robot and Task is being Performed

Table 4-2: Final Assessment Criteria

Task ID	Applicable Robot(s)	Task	Passing Criteria
1	Infantry, Hero, Sentry	Starting at (x,y) = (0,0) meters, move in a 1m square pattern through the points (1,0), (1,1), (0,1). Using the Power Management Module, or other power measuring device, calculate and show the power consumption of the chassis.	Robot is able to successfully translate Robot Chassis power consumption is less than 120W while moving
2	Infantry, Hero, Sentry	Starting at (0,0) facing <1,0>, the launcher of the robot shall sweep 360 degrees of yaw/azimuth, and pitch/elevate up and down to the maximum extent possible	Robot is able to stably aim the turret across the full range of motion
3	Infantry, Sentry	Aiming at an armor plate (or other equivalent 100mm x 100mm object) from a distance of 5 meters, launch 50 17mm projectiles and calculate the hit percentage	Robot is able to launch 50 projectiles Hit percentage must be at least 2%
4	Hero	Aiming at an armor plate (or other equivalent 100mm x 100mm object), launch 10 42mm projectiles and calculate the hit percentage	Robot is able to launch 10 projectiles Hit percentage must be at least 2%
5	Sentry	Fully Autonomously: starting from a stop, rotate the chassis, translate the chassis, and recognize, follow, and shoot at an armor plate.	Robot is able to autonomously perform at least one action (moving, spinning, aiming, shooting).

6	Engineer	Pick up an Ore cube from a resource island (or equivalent) vertically. Deposit the ore cube into a level ‘A’ receptacle (or equivalent) placed at least 1 meter away.	Robot is able to pick up the cube and drive.

5. ARC Technical Innovation Conference [ARCTIC]

5.1 Program Chairs

Table 5-1: Program Chairs

Name	Contact Email
Michael Owens	michael.owens@arc-robotics.org

5.2 Introduction and Goals of ARCTIC

The ARC Technical Innovation Conference is a competitive forum to share technology and learnings made for ARCC. The goals of ARCTIC are as follows:

- To encourage innovation in the ARC community by rewarding those who present.
- To share novel / uncommon / strange technologies within the ARC community.
- To prevent teams from going down costly R&D routes that other teams know are dead ends by sharing research experiences.
- To create high-quality open-source materials in English, which new and existing teams can use and build upon.
- To create an open portfolio of materials that teams can use to show sponsors and other stakeholders how ARC is creating opportunities for students to learn and innovate.
- To create another avenue for skill expression in ARCC.

Each team is allowed to submit up to **three** different Submissions.

Between each stage of submission, presentations are not guaranteed to pass and be accepted into the next phase. Submissions should not be low-effort, hastily assembled, or non-serious.

5.3 Scoring

Scoring is done on the Final Submission only. The Intent to Submit and Initial Submission are pass/fail and serve to provide feedback for submitters to iterate their submissions.

Scoring is done by a panel of three non-ARC-affiliated robotics experts based on criteria in Appendix B. After the conference, aggregate statistics for acceptance/rejection/scoring decisions will be released.

5.4 What to Submit

ARCTIC Submissions have 4 steps:

1. Intent to Submit
2. Initial Submission
3. Final Submission
4. Live Presentation (Presentation format is described in the Events Manual)

Please refer to Appendix A: ARCTIC Submission Checklists

5.5 FOSS Requirements

These requirements are the minimum that submissions must disclose to be accepted. Additional materials may be submitted beyond the requirements. All the below materials with the exception of code must be provided under a CC-BY-4.0 or CC0 license.

Not following these requirements for the final materials submission will result in your acceptance being revoked. Please ensure your final materials conform to these requirements. In exceptional circumstances, please contact the program chair.

5.5.1 Mechanical Contributions

If the proposal focuses on the design/production of a specific mechanical/mechatronic system, a 3D STEP file of the system OR a simplified version must be provided. This simplified version is not required to be manufacturable, well-designed, or have extraneous details like electronics mounting as long as it has the key dimensions and ideas of the mechanism.

5.5.2 Electrical Contributions

If the proposal focuses on the design/production of a specific PCB for ARC, a schematic of the board OR a simplified schematic that retains the underlying functionality must be provided.

Layout is NOT required. The schematic should be exported from EDA software in PDF format; a diagram created in another non-EDA software is not acceptable.

5.5.3 Software Contributions

Non-trivial: This is a disclosure requirement meant to reduce writing of simple code for the submission. Example: a non-feedforward PID controller to actuate a pitch mechanism would be considered as trivial. However, unique or innovative implementation details for trivial software cannot be waived.

If the proposal has a **non-trivial** software component that is key to the functionality of the system, you must disclose code that can be used for this component. Code can be simplified and does not have to be verbatim code deployed on fielded robots, but it must be functional. The code disclosure must be structured as follows:

- The code is disclosed as a Git repo on GitHub or GitLab and will be mirrored at a later date. There is no requirement to retain the commit history.
- The code must run/compile and run an understandable and explicit example that showcases its use case.
- There must be detailed instructions on how to build and run the code with the example above in a README (in English).
- The code **must** be permissively licensed under an OSI-approved license. If your code does not already have a license, please use MIT. We understand that this is not possible in all cases, for example, code based on Taproot or HuskyBot must be GPLv3 or AGPLv3.

5.5.4 Manufacturing Contributions

If your proposal focuses on a manufacturing technique, you must provide a detailed written example procedure (PDF) that you used to produce a real part described in your presentation. This procedure can describe how to manufacture some test geometry with your technique, as long as the same manufacturing technique is used and the procedure produces a real and successful part. Pictures are not required but are appreciated.

5.5.5 Design Contributions

If your proposal focuses on approaches to the design of parts, whether that be CAD or EDA, an example file that shows the design techniques must be provided. For instance, if you highlight length matching as a technique in PCB design, you must provide a PCB layout file that has some length-matched traces. If your presentation references a technique, but that technique is

not the main focus of your presentation, there is no need for such a design file. A design file can contain multiple techniques.

5.5.6 Other Topics

If your presentation describes something not covered under these cases, please contact the Program Chairs for more details.

5.6 ARCTIC Desk Rejection Guidelines

The program chair reserves the right to desk reject submissions that are extremely weak, or for the sake of Conference event capacity.

5.6.1 Multiple Proposals From a Team

If a team submits multiple proposals, we will use the criteria in “4.7.3 Contribution to ARC Community” to rate them. Proposals may be rejected to meet event capacity constraints based on this ranking. Each team will have at least 1 submission not rejected for this purpose.

5.6.2 Out-of-Scope Topics

The following types of submissions will not be accepted:

- General Robotics Work (Unrelated to ARC rules or competition)
    - Example: "Our custom omni-wheel drive – no ARCC context."
- Software Tutorials Without Practical ARCC Application
    - Example: "Nav2 for Dummies" (without ARCC-specific scenarios)
- Non-Practical or Excessively Expensive Manufacturing Techniques
    - Example: "Our school used a $30,000 wire EDM – not feasible for most ARCC teams."
    - Example: "We made this part out of plastic—just don’t shoot it with a 42mm."
- Design Techniques Unrelated to ARCC
    - Example: "How to Use SolidWorks" (without ARCC-specific applications)

5.7 Review Guidelines for the ARC Technical Innovation Conference

Each submission will be evaluated based on the following criteria:

5.7.1 Technical Soundness

Prompt: *Please assign a numerical rating on the following scale to assess the soundness of the technical claims, experimental methods, and research methodologies. Consider whether the core claims of the presentation are well-supported with evidence.*

Table 5-2: Technical Soundness Scoring Rubric

Points	Technical Soundness
4 (Excellent)	The technical content is rigorous, well-validated, and thoroughly supported by experiments or research.
3 (Good)	The claims are generally sound, with minor limitations or gaps in validation.
2 (Fair)	The presentation has notable weaknesses in methodology or lacks sufficient supporting evidence.
1 (Poor)	The technical content is flawed, misleading, or lacks adequate justification.

5.7.2 Presentation Quality

Prompt: *Please assign a numerical rating based on the clarity, structure, and writing style of the presentation. Consider how well the material is explained and contextualized relative to prior ARC work.*

Table 5-3: Presentation Quality Scoring Rubric

Points	Presentation Quality
4 (Excellent)	The presentation is well-structured, highly readable, and effectively communicates complex ideas.
3 (Good)	The material is clear and well-organized but could be refined for better readability or flow.
2 (Fair)	The explanation is somewhat unclear, disorganized, or missing key context.
1 (Poor)	The presentation is difficult to follow, poorly structured, or lacks coherence.

5.7.3 Contribution to ARC Community

Prompt: Please assign a numerical rating to evaluate the significance of the work in advancing ARC. Consider whether the presentation introduces novel ideas, shares valuable research experiences, or helps teams avoid unnecessary R&D pitfalls.

Table 5-4: ARC Community Contribution Scoring Rubric

Points	Contribution to the ARC Community
4 (Excellent)	The work presents innovative ideas, valuable insights, or impactful lessons for the ARCC community.
3 (Good)	The presentation is useful and relevant but may not introduce significantly novel concepts.
2 (Fair)	The contribution is somewhat useful but has limited applicability or originality.
1 (Poor)	The presentation does not offer meaningful insights or contributions to ARCC.

6. Awards

The following section describes the awards given out at ARC Championship 2026. Additional awards may be given out at the competition that are not listed in the manual. Teams who withdraw from, fail to compete in (ex. failing to check in), or receive a disqualifying penalty (See Section 8.1.2 of the ARCC 2026 Events Manual) from an Event will not be eligible for awards for that Event.

6.1 3v3 Match

Each Team will receive a single certificate showing their final tournament result.

Table 6-1: 3v3 Match Awards

Ranking	Award Name	Award Format
1st Place	3v3 1st Place	A3 Printed Certificate and Physical Trophy
2nd Place	3v3 2nd Place	A3 Printed Certificate and Physical Trophy
3rd Place	3v3 3rd Place	A3 Printed Certificate and Physical Trophy
4-8th Place	3v3 Top 8	A3 Printed Certificate
Remainder	3v3 Participant	A3 Printed Certificate

Additional Awards are given for the Most Valuable Players for each robot type. The statistics used to determine the MVP robot include but are not limited to: Damage Dealt, Remaining HP, Victory Points remaining and deducted, Robot Kills. Due to the disparity in the number of rounds

played between the group stage and knockouts, all statistics will be gathered from the Group Stage Matches only.

Table 6-2: Robot Awards

Award Name	Given To	Award Format
MVP Infantry	Robot Pilot & Lead Engineer	A4 Printed Certificate
MVP Hero	Robot Pilot & Lead Engineer	A4 Printed Certificate
MVP Sentry	Robot Pilot & Lead Engineer	A4 Printed Certificate

6.2 1v1 Match

Each Team will receive a single certificate showing their final tournament result.

Table 6-3: 1v1 Match Awards

Ranking	Award Name	Award Format
1st Place	1v1 1st Place	A3 Printed Certificate and Physical Trophy
2nd Place	1v1 2nd Place	A3 Printed Certificate and Physical Trophy
3rd Place	1v1 3rd Place	A3 Printed Certificate and Physical Trophy
4-8th Place	1v1 Top 8	A3 Printed Certificate
Remainder	1v1 Participant	A3 Printed Certificate

6.3 Engineer Challenge

Each Team will receive a single certificate showing their final tournament result.

Table 6-4: Engineer Challenge Awards

Ranking	Award Name	Award Format
1st Place	Engineer Challenge 1st Place	A3 Printed Certificate and Physical Trophy
2nd Place	Engineer Challenge 2nd Place	A3 Printed Certificate and Physical Trophy
3rd Place	Engineer Challenge 3rd Place	A3 Printed Certificate and Physical Trophy

4-8th Place	Engineer Challenge Top 8	A3 Printed Certificate
Group Stage	Engineer Challenge Participant	A3 Printed Certificate

6.4 ARCTIC

Table 6-5: ARCTIC Awards

Ranking	Award Name	Award Format
Top 30%	Outstanding Presentation Award Certificate and Trophy	A3 Printed Certificate and Physical Trophy
Bottom 70%	Acceptance Certificate	A3 Printed Certificate

6.5 Other Awards

Additional awards will be given out to teams based on the following criteria, as selected by the tournament staff. Throughout the event, teams are encouraged to nominate their peers for various awards to ARC Operations.

Table 6-6: Other Awards

Award Name	Criteria	Award Format
Outstanding Sportsmanship	Given to the team that demonstrates outstanding sportsmanship during the competition	A4 Printed Certificate and a firm handshake
Best Team Aesthetic	Given to the team with the best Aesthetic among their entire robot lineup	A4 Printed Certificate and a firm handshake
Most Creative Robot Design	Given to the team with the most unique and innovative solution to a design challenge	A4 Printed Certificate and a firm handshake

Appendix A: ARCTIC Submission Checklists

For each stage of Submission, the following are the bare minimum requirements to pass.

A.1 Intent to Submit

A.1.1 Materials List

- Full author list
- Short paragraph, 200-500 words, describing your presentation topic.

A.1.2 Submission Checklists

- ☐ Short paragraph
  - ☐ Is the paragraph 200-500 words?
  - ☐ Does the paragraph tell the prospective reader what the article is about, in language appropriate to the field?
  - ☐ Does the paragraph state the principal results and conclusions of the article? (When they are of a nature that permits brief statement)
  - ☐ Does the paragraph clearly describe how the contribution is connected to ARC?
  - ☐ Does the paragraph describe a technology that has been successfully implemented for your robot(s) or a non-technical contribution used in your team?

A.2 Initial Submission

The initial submission does not have to be complete, as long as it states main points and lays a path forward to completion (for instance if you haven't run an experiment but plan to show a video of it by the final submission).

A.2.1 Materials List

- Short paragraph
- Presentation in .pptx format
- Related materials as described in Section 5.5 FOSS Requirements

A.2.2 Submission Checklists

- ☐ Presentation
  - ☐ Is the presentation no more than 20 minutes?
  - ☐ Is the presentation exported as a .pptx? Is it 16:9?

- [ ] Do all the figures and text use colors that show up well on a projector? (thick lines, high color contrast)
- [ ] Does the presentation effectively communicate technical ideas?
- [ ] Does the presentation have sufficient detail on the slides/speaker notes for the reviewer to make an admission decision?
    - [ ] Are the speaker notes visible in the .pptx file?
- [ ] How completed are the initial submission slides? Is there a planned path to the final presentation if not in a final state?

- [ ] Short paragraph
    - [ ] You can update it if you want at this point
- [ ] Related materials
    - [ ] Do the disclosed materials follow the requirements described in FOSS Requirements?

A.3 Final Submission

A.3.1 Materials List

- Short paragraph
- Presentation
- Related materials as described in the FOSS Requirements section

A.3.2 Submission Checklists

- [ ] Presentation
    - [ ] Has the presentation integrated feedback from the review process?
    - [ ] Includes all items from Section A.2.2
- [ ] Short paragraph
    - [ ] Has the presentation integrated feedback from the review process?
    - [ ] Includes all items from Section A.2.2
- [ ] Related materials
    - [ ] Has the presentation integrated feedback from the review process?
    - [ ] Includes all items from Section A.2.2