ROBOTICS EDUCATION & COMPETITION FOUNDATION

Judge Guide
2021-2022

For the Judges, the Judge Advisor, the Event Partner, and Teams
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New This Year

- This document includes revised information for Judging at VIQC, VRC, and VEX U events and is focused on the roles of Judge Advisors and Judges.
- Additional Technical and Other Awards for VIQC, VRC, and VEX U revised criteria.
- The 5-point bonus for having a bound notebook has been removed and replaced with a 5-point bonus for submissions of paper, printed, or digital submissions containing evidence that documentation was done in sequence with the design process. This change to the rubric is meant to allow judges to award the 5-point bonus for submissions that provided appropriate evidence of sequential work irrespective of the notebook submission format.
- This revised Judge Guide will provide the most recent judging information as of September 2021; please note where there is any difference between the Judge Guide and the online Judge Certification course, the Judge Guide will take precedence.
- For VIQC, the STEM Research Project is no longer offered at events.
- Skills-Only events may include Judged Awards, but those awards will not qualify teams directly to an Event Regional Championship.
- The Excellence Award criteria for Skills-Only events will not include the qualification ranking criteria.
- Remote Judging options have been added to this guide.
- New verbiage added to the Qualification Criteria: “Events that offer judging must provide the opportunity for all teams to have a judging interview.”

Judging Overview

This Judge Guide is for VIQC, VRC, and VEX U competitions sanctioned by the REC Foundation, including the VEX Robotics World Championship.

The Judge Guide describes the judged award criteria and informs the Judges, Judge Advisor, and Event Partner on their roles and responsibilities in the judging process. Additionally, this guide helps coaches and teams understand the judged award criteria and processes so they may improve their performance on judged awards.

Local qualifying events, and events that qualify teams directly to the VEX Robotics World Championship must follow the criteria and processes in the Judge Guide, or those events will not qualify teams to higher level events. Should anything in the Judge Guide contradict the Game Manuals or Qualifying Criteria Documents, the Game Manuals and/or Qualifying Criteria Documents will take precedence. All qualifying events must use the award descriptions, rubrics, and scoring sheets outlined in this Judges Guide and may not use substitutes.

In the VEX Robotics Competitions, teams of students showcase their knowledge and skills in designing, building, and programming a robot. Students demonstrate their knowledge of the engineering design process by documenting their design process in an Engineering Notebook.

Student drive teams exhibit their driving skills and game strategy during match play and skills challenges. All these activities are to be completed by the students with minimal adult assistance. Students must make the decisions, complete the work, and demonstrate their learning and knowledge for their team to qualify for judged awards.
Overview of Event Judging Formats

- **In-Person Event Judging:** Judges review physically submitted Engineering Notebooks and interview teams in an in-person setting. This has been the traditional format used at past REC Foundation competitions.

- **Remote Event Judging:** Remote Judging allows for Engineering Notebook reviews and Team Interviews to be conducted remotely. Engineering Notebooks are submitted digitally and team interviews are conducted remotely via video calls. Both Engineering Notebooks and Team Interviews can be completed ahead of the day of the event when remote judging is utilized at an event.

Event Partners will determine which judging model they will use and will post this information in their event posting on RobotEvents.com. Event Partners are responsible for communicating with teams regarding the judging model used and any related details (e.g., submission deadlines and judging format).

Where an event must change to a different judging format the Event Partner should contact their REC Foundation Manager to discuss options. Converting an event to a different judging format is allowed but consideration must be given to the amount of time necessary for teams to comply with the submission requirements (e.g., if converting from in-person event judging to remote event judging, teams must be provided sufficient time to prepare the Engineering Notebook for Digital submission).

### Team Interview & Engineering Notebook Formats by Event/Judging Type

<table>
<thead>
<tr>
<th>Notebook Format</th>
<th>In Person Event</th>
<th>Remote Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical/Paper</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Uploaded from Physical/Paper</td>
<td>N/A</td>
<td>Yes (Link)</td>
</tr>
<tr>
<td>Digital</td>
<td>N/A</td>
<td>Yes (Link)</td>
</tr>
<tr>
<td>Printed from Digital</td>
<td>Yes (paper)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interview Format</th>
<th>In Person Event</th>
<th>Remote Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Person Interviews</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Remote Interviews</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Judging at Skills Only Events**

- Skills-Only Events may include Judged Awards, but those awards will not qualify teams to an Event Regional Championship.
- The Excellence Award criteria for Skills-Only events will not include the qualification match ranking criteria.
Judge Advisor Role

- The Judge Advisor must be an adult.
- Organize and oversee the judging process at an event.
- Solicit, assign, and train the Judges to prepare them for an event.
- Use the Judge Guide for reference and to help train the Judges.
- Ensure judging is done in compliance with the Judge Guide.
- Ensure every team at an event has an opportunity to be interviewed by Judges, regardless of their status for a Judged award.
- Ensure correct award winners are uploaded to Tournament Manager and manage presentation of awards.
- Protect the confidentiality of the judging process.

Judge Role

Judges can play multiple roles depending on the assignment, including:

- Observe teams on the competition floor (This assists with observing team behavior and student-centered activity).
- Interview teams (the primary Judge role).
- Deliberate over awards selection as outlined in the Judge Guide.
- Present awards as needed (the Event Partner will decide who presents awards).

Event Partner Role

- The Event Partner oversees the operation of the entire event and provides support for the Judges and Judge Advisor.
- The Event Partner ensures every team at an event has an opportunity to be interviewed by the Judges, regardless of their status for a Judged award.
- The Event Partner recruits a qualified Judge Advisor.
- The Event Partner must know and understand the role of the Judges and the Judge Advisor.
- Decisions on all judged awards are made by the Judges in consultation with the Judge Advisor.
- The Event Partner should do a final check to ensure no team is being given more than one judged award. Teams can earn performance-based awards in addition to a judged award at an event. If a team was assigned two judged awards, the EP should consult with the Judge Advisor to rectify the situation.
- **Event Partners may not recommend or assign judged awards to any team.**
Judging: Recruiting and Preparation

Overview

The Event Partner recruits the Judge Advisor and Judges 1-2 months before the event. Good sources include local professional or technical workers, employees of any event sponsors, teachers, school or district administrators, college students, and local service organizations. The two main skills required for a Judge is an interest in STEM and the ability to converse in a comfortable way with students.

Note: Judge Advisors must always be an adult. For local VIQC qualifying events, adults are preferred as Judges, but high school students may be paired with Judges who are adults. Elementary and Middle School students may not be Judges at VIQC events. At events that qualify teams directly to the VEX Robotics World Championship, all Judges must be adults; anyone age 18 or older and not a high school student is considered an adult for VIQC judging.

For all VRC events, Judges must be adults. No students, except adult college students, are to be Judges. Anyone age 18 or older and not a high school student is considered an adult for VRC judging.

For all VEX U events, Judges must be adults over the age of 21.

Pre-judging Training

The Event Partner and Judge Advisor should agree on the process of recruitment and selection of the Judges well in advance of the event. The Event Partner and Judge Advisor should both have the contact information for the Judges.

The Judge Advisor should ensure that the following is sent to the Judges at least one to two weeks prior to judging to prepare for the volunteer role:

- The Judge Guide.
- Relevant Game Manual (i.e., VIQC or VRC), game introduction video (VIQC; VRC), and one-page game description (VIQC; VRC).
- A list of the judged awards for the event and/or the event page on RobotEvents.com.
- The REC Foundation Code of Conduct and Student-Centered Policy.
- An agenda for judging the event, including expected arrival time and estimated departure time for Judges on the day of the event.
- Ask Judges to wear comfortable closed-toed shoes and comfortable business casual clothing that is team-neutral (i.e., does not show any team numbers or team branding).

All the materials needed for Judges and the judging process should be provided by the Event Partner or Judge Advisor, but is also available online at:

 ➤ https://www.roboticseducation.org/volunteer-downloads/

Pre-judging Preparations

The Judge Advisor guides and is responsible for the judging process at the event. Therefore, it is necessary that the Judge Advisor know and understand the role of Judges and all aspects of the Judge Guide.
Two to three weeks prior to judging the Judge Advisor should:

- Review with the Event Partner the awards to be offered at the event and verify that the Event Partner has ordered the trophies for the event.
- Ensure adequate Judges are recruited and confirm their attendance.
- Prepare a judging schedule based on the number of teams registered and the agenda for the event. The Judge Guide provides a sample judging agenda.
- Consult with the Event Partner on the process for Engineering Notebook submission.
- Confirm the location of the separate Judges Room and that food/refreshments are provided.
- Ensure that you will have judging materials, including clipboards, pens, highlighters, Post-It notes, copies of the Judge Guide, Engineering Notebook Rubric, Team Interview Rubric, Awards Scoring and Ranking Sheet, Team Interview Tips and Sample Questions, and other needed items.

The Judge Advisor should do the following on the day of judging:

- Prepare the Judges Room.
- Train and orient the Judges prior to the start of the event.
- Record which teams have submitted Engineering Notebooks at check-in.
- Ensure Judges sign in on the Judge Sign-In sheet provided in the Judge Guide; also, monitor and manage any team affiliations or potential conflicts of interest noted by the Judges.
- Pair up Judges in teams (may be done prior to the event).
- Print a team list and team schedule for each judging team; match schedules will be ready once check-in is complete.
- Assign Judges a list of teams to interview and ensure all teams have the opportunity to be interviewed.
- Manage time and ensure judging teams are keeping pace to interview all teams on schedule.
- Lead deliberations for judged awards.
- Record the results of all judged awards and transmit the list of award winners to the Event Partner and Tournament Manager operator; also, have Tournament Manager operator print the award scripts to be used at the award ceremony.
- Collect and destroy all judging materials to ensure confidentiality.
- Ensure the process for returning all Engineering Notebooks to teams is completed.

**Judging: Orientation, Training and Scheduling the Day**

Judges should check-in to the event as a volunteer and be directed to the Judges Room by the volunteer coordinator. Once in the Judges Room, the Judges will sign-in on the Judge Sign-in Sheet provided in this Guide and disclose any potential conflicts on that document. Once the Judges are gathered, the Judge Advisor should welcome the Judges, have them introduce themselves, and let them know where the refreshments and restrooms are located.

The Judges will engage in the following activities during the course of the event. The Judge Advisor will give the Judges a short outline for the day with specific times:

- Judges Orientation meeting.
- Interview Teams and sorting Engineering Notebooks.
- Short meeting to regroup and check progress.
- Working lunch to nominate teams for awards.
- Collect reports for Skills Challenge and/or Qualification Match Rankings. Complete Deliberations.
The Judge Advisor will cover the following at Judge orientation:

- The fundamentals of the judging process, including key sections of the Judge Guide.
- Review this season’s game challenge.
- Review and explain the Team Interview Rubric and the Awards Scoring and Ranking Sheet.
- Read through the different sections of the Rubric so they have an understanding of how to record their observations; the team interviews and the Rubric will be covered more in depth in another section.
- Explain how to interview teams.
- Judges are grouped in teams of 2 or more to interview teams. Every team should have the opportunity to be interviewed.
- All interviews should include more than one Judge.
- Use the Team Interview Tips and Sample Questions page to guide the team interview process.
- List the judged awards for the event, then read the descriptions for each of those awards.
- Review how to sort Engineering Notebooks; this is covered more in depth in a later section.
- Review the day’s schedule and explain when the meetings (i.e., check in and deliberations) are and what will be discussed at the meetings.

Make sure the Judges have a copy of the event agenda for the day and a pit map of where teams are located.
Sample Judging Schedules for an event:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 – 8:00 a.m.</td>
<td>Judge Advisor arrives, reviews awards offered, and gathers judging materials.</td>
</tr>
<tr>
<td>8:00 – 9:30 a.m.</td>
<td>Judges arrive and receive training. Judge Advisor assigns Judge Teams and assigns teams to be interviewed. Engineering Notebooks are reviewed, and Judge Teams begin team interviews.</td>
</tr>
<tr>
<td>9:30 – 9:45 a.m.</td>
<td>Judges attend the Opening Ceremony.</td>
</tr>
<tr>
<td>9:45 – 11:30 a.m.</td>
<td>Judge Teams complete the initial interview of assigned teams. Engineering Notebook Judges complete <a href="#">Engineering Notebook Rubric</a> for the select notebooks that qualify.</td>
</tr>
<tr>
<td>11:30 – 12:30 p.m.</td>
<td>Working lunch – initial deliberations – each Judge Team identifies their top candidates for each award and uses post-it® notes to list teams under the award categories. Judge Advisor identifies teams that require follow-up interviews, especially for Design and Excellence awards, and assigns Judge Teams for follow-up interviews.</td>
</tr>
<tr>
<td>12:30 – 1:30 p.m.</td>
<td>Judges observe teams in the pit area and competition area for follow up interviews and observation as necessary to complete rankings for each award category. If possible, several Judge Teams should visit with the top contenders for each award.</td>
</tr>
<tr>
<td>1:30 – 2:30 p.m.</td>
<td>Judges return to the Judges Room to conduct final deliberations and determine judged award winners. Judged award winners should be determined between the last round of qualifying matches and before the first round of VRC Finals matches or before VIQC Finals matches. This allows qualifying rankings to be considered for the Excellence Award and allows awards to be announced during finals matches.</td>
</tr>
<tr>
<td>2:30 – 2:45 p.m.</td>
<td>Judge Advisor oversees entry of judged award winners into Tournament Manager software.</td>
</tr>
<tr>
<td>2:45 – 4:30 p.m.</td>
<td>If possible, Judges attend finals matches and award ceremony. Judges may be asked to read an award script and announce a judged award winner if comfortable doing so.</td>
</tr>
</tbody>
</table>
Sample Remote Judging Schedule

Different Remote Judging Formats:

- Judge Interviews and/or Engineering Notebook reviews conducted remotely either before or during an event.
- Remote Judging can occur at in-person events when Judge Interviews and/or Engineering Notebook reviews are conducted remotely, with the teams being present at the event and the Judges are participating remotely.
- Both Judges and Teams are at an in-person event, but Judge Interviews and/or Engineering Notebook reviews are conducted remotely in separate rooms to maintain physical isolation.

Before the Event Judging begins

Event Partner communicates the judging format to teams and if needed provides information for submitting Digital Engineering Notebooks and for teams to select or be assigned interview times.

Before the Event Judging begins

Judge Advisor meets with Judges for their volunteer training, walk-through of the judging process, and to assign interview times to cover all teams at the event.

Before the Event

The Judges are sent the Digital Engineering Notebook links to review.

3:00 p.m. – 8:00 p.m. (Ahead of the Event)

Judge Advisor and Judges interview teams in half hour increments. The interview itself takes about 10-15 minutes - the additional time allows for teams to connect and for judges to discuss the interview after the team leaves the interview environment. This can take place over several days if needed.

9:00 a.m. – 4:00 p.m. (Day of the event)

Judge advisor and available judges watch matches, review rankings, and complete deliberations for award assignments.

4:00 p.m.

Judge Advisor communicates with Event Partner for the entry of judged award winners into the Tournament Manager software. The Judge Advisor should confirm with the Event Partner that these were entered correctly.

Awards Ceremony

Judges present at the event, may be asked to read an award script, and announce a judged award winner if comfortable doing so.

Student-Centered Teams

The REC Foundation seeks to increase student interest and involvement in science, technology, engineering, and mathematics (STEM) by engaging students in hands-on sustainable and affordable curriculum-based robotics engineering programs across the U.S. and internationally. Judges play an important role in our efforts to ensure that our program remains student-centered. We believe that the student-centered model of learning is aligned with the REC Foundation’s mission and provides effective educational benefits to students.

Teams must be student-centered. There are a variety of definitions for the term “student-centered” in the educational community, and the REC Foundation would like to communicate a definition for student-centered that will apply for teams that participate in the VIQC, VRC, and VEX U competitions to increase the transparency of the expectations and increase the student learning opportunities. The term student-centered is encompassed in both the learning and application settings for REC Foundation events and activities:

**Student-Centered Learning:** Students are actively involved in learning opportunities to increase their knowledge and skills in the engineering design process, mechanical design, programming, and teamwork under the guidance of adult mentorship.
Student-Centered Application: Students have ownership on how their robot is designed, built, programmed, and utilized in match play with other teams and Robot Skills matches.

Through observation and interviews with teams, Judges identify teams that are student-centered. These teams understand that the purpose of the program is to enhance the learning process, not to win at any cost. Judges shall give higher consideration to teams that favor the enhancement of student learning over teams that favor winning at any cost.

Judges, with input from event staff, should identify teams that are not student-centered. Teams that are not student-centered should not receive judged awards.

Additional information and guidance on student-centered teams is found in the REC Foundation’s Student-Centered Policy:

https://www.roboticseducation.org/studentcenteredpolicy/

Judging Concepts and Guidelines

Judges are in a position of trust. To ensure the judging process is an effective, equitable, and positive experience, it is important for Judges to understand these concepts and follow these guidelines:

- **Confidentiality:** The judging process includes frank discussions about teams. These discussions must remain confidential, and Judges should take precautions to ensure that these discussions are not shared with or overheard by teams or other event participants.

- **Impartiality:** Proactively advise the Judge Advisor and Event Partner of any possible conflicts of interest and remove yourself from discussions and decisions in which you may have a personal interest. Event Partners may not recommend, advise, or assign judged awards to any team.

- **Engagement:** Demonstrate your full interest and involvement in discussions with students and your Judge Team by refraining from distractions such as phone usage or side conversations.

- **Youth Protection:** Do not be alone with students. Always work with at least one other Judge and two or more students. Do not meet with teams in a private space.

- **Discretion:** All written judging materials, including Judges notes, Rubrics, awards worksheets, and so on are to be given to the Judge Advisor for disposal after the event. None of these materials are to be given back to teams or given to the Event Partner. Judges should not discuss deliberations, awards, or judging with teams after an event. These discussions are easily misinterpreted or misunderstood by students, coaches, mentors, and parents. Please refer any inquiries about the judging process to the Judge Advisor.

- **Judgement:** Judges are expected to apply qualitative judgement when making final decisions on all judged awards. For example, the Engineering Notebook Rubric is quantitative in nature, but Judges must deliberate and apply qualitative judgement when making a final decision on the Design Award winner.

- **Inclusion:** Only a limited number of teams at an event will earn a judged award. However, every team at an event should be given an opportunity to be interviewed by Judges regardless of their status for a Judged award.

- **Equitability:** No team shall be awarded more than one judged award at an event. Top teams often win robot performance awards in addition to judged awards. Individual awards presented to adults, such as Volunteer of the Year Award, do not affect a team’s eligibility for a judged award.
- **Common Sense:** When reading and applying the rules, criteria, and processes in this document, please remember that common sense always applies.
- **Team Ethics and Conduct:** Ethics is an important part of every engineer’s professional training and practice. The REC Foundation considers the positive, respectful, and ethical conduct of teams to be an essential component of the VEX competition. A team includes the students, teachers, coaches, mentors, and parents associated with a team. Judges will consider all team conduct when determining judged awards.

### Overview of the Event Competition

The competition area is where matches and skills challenges take place. Judges should spend time observing teams in the competition area. Judges can validate statements made by teams during their interview and can evaluate their robot performance and game strategy. Additionally, Judges can assess a team’s sportsmanship, energy, and enthusiasm while observing them in the competition area.

<table>
<thead>
<tr>
<th>VIQC</th>
<th>VRC</th>
<th>VEX U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matches take place on a 6’x8’ competition field. A match lasts 1 minute and is scored by Referees. Teams play 6-8 qualification matches, randomly paired in each match in an alliance with another team. Teams work together to score as many points as possible, and both teams are awarded the same points. After qualification matches are played, teams are paired by ranking in an alliance. Each alliance plays one finals match. The alliance with the highest score in the finals matches becomes the Teamwork Champion. Teams may also demonstrate their own team’s abilities by participating in Programming and Driving Skills Matches. Each type of skills match lasts 1 minute. Teams may run a maximum of 3 of each at an event.</td>
<td>Matches take place on a 12’ x 12’ competition field. A match lasts 2 minutes, including a 15-second programming-only period, and is scored by Referees. Teams play 6-8 qualification matches, randomly paired with other teams. Matches are played with 4 robots on the field: two paired as the Red Alliance and two paired as the Blue Alliance. The two alliance teams work together to score more points than the other alliance, and both teams in the alliance receive a win, loss, or tie for the match. Qualification matches are followed by Alliance Selection and Elimination Rounds, played in a sports bracket format. The alliance that completes Elimination Rounds undefeated becomes the Tournament Champion. Teams may also demonstrate their own team’s abilities by participating in Programming and Driving Skills Matches. Each type of skills match lasts 1 minute. Teams may run a maximum of 3 of each at an event.</td>
<td>Matches take place on a 12’ x 12’ competition field. A match lasts 2 minutes, including a 45-second programming-only period, and is scored by Referees. Teams play 6-8 qualification matches. Matches are played with one team as the Red Alliance and one team as the Blue Alliance. Each alliance works to score more points than the other alliance, and each alliance receives a win, loss, or tie for the match. After qualification matches are complete, teams are ranked and play Elimination Rounds in a sports bracket format. The alliance that completes Elimination Rounds undefeated becomes the Tournament Champion. Teams may also demonstrate their own team’s abilities by participating in Programming and Driving Skills Matches. Each type of skills match lasts 1 minute. Teams may run a maximum of 3 of each at an event.</td>
</tr>
</tbody>
</table>

### Game Details:

**VIQC:** [roboticseducation.org/competition-teams/vex-iq-challenge](http://roboticseducation.org/competition-teams/vex-iq-challenge)

**VRC:** [roboticseducation.org/competition-teams/vex-robotics-competition](http://roboticseducation.org/competition-teams/vex-robotics-competition)

**VEX U:** [roboticseducation.org/competition-teams/vex-u](http://roboticseducation.org/competition-teams/vex-u)
Remote Judging Options

Remote Judging Recommendations

The Event Partner has the discretion to conduct remote team interviews in several different formats - please reach out to your REC Foundation Manager for resources and assistance:

- Remote team interviews may be conducted prior to or during the event.
- Digitally submitted Engineering Notebooks may be submitted and judged prior to the event or printed and submitted at the event.
- The Event Partner has the discretion to create a system for scheduling remote team interviews.
- Remote team interviews may be conducted at the event in a separate room where at least 3 adults are present - one of which is a coach or mentor from the team being interviewed. The coach or mentor should not contribute to student responses.
- Remote team interviews may be conducted by live streaming Judges from a remote location with teams at the event. Teams would be interviewed in an appropriate location.

Remote Judging Requirements

The Engineering Notebook Rubric and Team Interview Rubric must be used for both remote and in-person judging. All qualifying events must use the award descriptions, rubrics, and scoring sheets outlined in this Judges Guide and may not use substitutes.

The remote judging environment is at the discretion of the Event Partner with the following stipulations:

- The REC Foundation Manager must have access to view a remote judging session.
- Access to the remote judging session shall be restricted such that it cannot be accessed or viewed by the public, i.e. the session must be password protected or by invitation only.
- Two adults (18+ years old) who are not team members must be present for the duration of the session. These adults include:
  - One adult must be the Event Partner or an event administrator.
  - The other adult must be the team’s Primary Contact as listed in RobotEvents.com or designee. If the team is using an adult designee, the team’s Primary Contact must provide the name, email address, and phone number of the designee to the Event Partner prior to the session or by the deadline provided by the Event Partner.
- The two adults must be in the remote session before students are allowed to connect. The two adults must be present for the duration of the session.
- Once the interview begins, only the student team members and the judges may speak. Non-Judging adults, such as Event Partners, event administrators, the Primary Contact or adult designee may not participate in the interview.
- No recordings in any form may be made of the judging interview.
The Awards

Awards Overview

There are three types of awards at REC Foundation-sanctioned competitions:

- **Performance Awards**: Based on robot performance on the competition field in match play (Tournament Champion for VRC and Teamwork Champion for VIQC) and skills challenges (Robot Skills Champion). Judges do not determine performance awards.

- **Judged Awards**: Based on the award criteria in this Judge Guide. Judges, in coordination with the Judge Advisor, determine judged awards using the process outlined in this Judge Guide. The number of judged awards may vary between events, but typically include the Excellence Award and Design Award.

- **Individual Awards**: Recognize the contribution of a volunteer or sponsor, and are determined by the Event Partner. Judges do not determine individual awards. Individual awards do not affect a team’s eligibility for other judged awards.

<table>
<thead>
<tr>
<th>Award Name</th>
<th>Award Type</th>
<th>Engineering Notebook Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teamwork/Tournament Champion</td>
<td>Performance Award</td>
<td>No</td>
</tr>
<tr>
<td>Teamwork/Tournament Finalist</td>
<td>Performance Award</td>
<td>No</td>
</tr>
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<td>Robot Skills Champion Award</td>
<td>Performance Award</td>
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<tr>
<td>Excellence Award</td>
<td>Judged &amp; Performance Award</td>
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<tr>
<td>Design Award</td>
<td>Judged Award</td>
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<td>Innovate Award</td>
<td>Judged Award</td>
<td>Yes</td>
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<tr>
<td>Think Award</td>
<td>Judged Award</td>
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</tr>
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<td>Amaze Award</td>
<td>Judged Award</td>
<td>No</td>
</tr>
<tr>
<td>Build Award</td>
<td>Judged Award</td>
<td>No</td>
</tr>
<tr>
<td>Create Award</td>
<td>Judged Award</td>
<td>No</td>
</tr>
<tr>
<td>Judge’s Award</td>
<td>Judged Award</td>
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<td>Energy Award</td>
<td>Judged Award</td>
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</tr>
<tr>
<td>Inspire Award</td>
<td>Judged Award</td>
<td>No</td>
</tr>
<tr>
<td>Sportsmanship Award</td>
<td>Judged Award</td>
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</tr>
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</table>
The Excellence Award

The Excellence Award is the highest award presented in the VEX Robotics competition. This award is presented to a team that exemplifies overall excellence in building a high-quality robotics program. This team is a strong contender in numerous award categories. Key criteria:

- Engineering Notebook must be submitted to judges
- Ranking for the Design Award.
  - Ranking for Qualification Matches.
- Ranking for Robot Skills (does not apply to events that do not offer the Skills Challenge).
- Ranking for other judged awards.
- Quality of the team’s interview with the Judges.
- High-quality robotics program.
- Team conduct.

Specifics on the use of the Engineering Notebook Rubric and the Team Interview Rubric in relation to judging the Excellence and Design Awards is discussed in detail in later sections.

Blended Events

VEX Robotics competitions can be grade-level restricted as follows:

- **VIQC**: Elementary School Only or Middle School Only
- **VRC**: Middle School Only or High School Only

Any event that is grade-level restricted will only offer one Excellence Award.

Events that are open to all grade levels within a platform (i.e., VIQC or VRC) are called Blended Events. Events having at least ten (10) teams at each level registered two weeks prior to the event must offer two (2) Excellence Awards, one for each grade level. For example, a blended VRC event that has 12 middle school teams and 12 high school teams registered two weeks prior to the event, will offer two Excellence Awards: one for middle school and one for high school. Each recipient must meet all the Excellence Award criteria. The Event Partner shall inform the Judge Advisor and Judges if two (2) Excellence Awards are offered at the event.

If two Excellence Awards are offered, it is critical that the Judge Advisor inform the Judges and ensure that the candidates for the Excellence Awards are judged separately by their respective grade levels. For example, at a blended IQ tournament with 20 elementary teams and 15 middle school teams, the judges must judge the elementary teams against elementary teams for the elementary school Excellence Award and middle school teams against other middle school teams for the middle school Excellence Award.
The Design Award

The Design Award criteria is the foundation for the Excellence Award and helps rank teams for other awards. Therefore, the Design Award judging process is fundamental to judged award rankings and deliberations. The Design Award judging process, including the use of Engineering Notebook Rubric and the Team Interview Rubric, is outlined in later sections of this Judge Guide.

The Design Award is presented to a team that demonstrates an organized and professional approach to the design process, project and time management, and team organization. The team’s Engineering Notebook and Judges interview will demonstrate the team’s ability to produce a quality robot with minimal adult assistance. Key criteria:

- Engineering Notebook must be submitted to judges.
- Engineering Notebook demonstrates clear, complete, organized record of robot design process
- Team demonstrates effective management of time, talent, and resources.
- Team interview demonstrates their ability to explain their robot design and game strategy
- Team interview demonstrates effective communication skills, teamwork, and professionalism

Additional Judged Awards – Technical Awards

The Innovate Award is presented to a team with the most effective and efficient design process, a top contender for the Design Award.

Key criteria:

- Engineering Notebook is required
- Engineering Notebook is a clear, complete, and organized document of the design process
- Team demonstrates effective management of time, talent, and materials
- Students understand and explain how they developed an effective game strategy and robot design
- Students understand and explain the engineering design process
- Students understand and explain how they worked together to develop their robot

The Think Award is presented to a team with the most effective and consistent programming strategies and solutions to solve the game challenge.

Key criteria:

- Participation in the Programming Skills Challenge is required
- Autonomous programming is consistent and reliable
- Programs are cleanly written, well documented, and easy to understand
- Team clearly explains the programming strategy used to solve the game challenge
- Team clearly explains their programming management process, including version history
- Students understand and explain how they worked together to develop their robot programming
The **Amaze Award** is presented to a team that has built the most consistently high scoring and competitive robot.

Key criteria:
- Robot design is consistently high scoring and competitive
- Robot construction is high quality
- Robot programming is effective, successful, and consistent
- Students understand and explain how they worked together to develop their robot

The **Build Award** is presented to a team that has built the most durable robot.

Key criteria:
- Robot construction is durable and robust
- Robot is reliable on the field and holds up under competition conditions
- Robot is designed with attention to safety and detail
- Students understand and explain how they worked together to develop their robot

The **Create Award** is presented to a team who has built a robot that incorporates the most creative engineering design solution to the challenges of this season’s game.

Key criteria:
- Robot design incorporates a creative design solution
- Team has demonstrated a highly creative design process and methodology
- Team has committed to ambitious and creative approaches to solving the game challenge
- Students understand and explain how they worked together to develop their robot

**Other Judged Awards**

The following judged awards may be offered at events:

The **Judges Award** is presented to a team that is most deserving of special recognition.

Key criteria:
- Team displays special attributes, exemplary effort, and perseverance at the event
- Team overcomes an obstacle or challenge and achieves a goal or special accomplishment at the event or at some time throughout the season
- Team distinguishes itself in some way that does not fit under other award criteria but nonetheless deserves special recognition
- Students demonstrate teamwork and effective communication skills

The **Energy Award** is presented to a team that shows the most enthusiasm and excitement at the event.

Key criteria:
- Team maintains a high level of enthusiasm and excitement throughout the event
- Team exhibits a passion for robotics competition that enriches the event experience for all
- Students demonstrate teamwork and effective communication skills
The **Inspire Award** is presented to the most passionate and positive team at the event.

Key criteria:

- Team exhibits passion and positive attitude at the event
- Team exhibits integrity, and goodwill toward other teams, coaches, and spectators
- Students demonstrate teamwork and effective communication skills

The **Sportsmanship Award** is presented to a team that has earned the respect and admiration of the volunteers and other teams at the event.

Key criteria:

- Team is courteous, helpful, and respectful to everyone at the event, on and off the field
- Team interacts with others in the spirit of friendly competition and cooperation
- Students demonstrate teamwork and effective communication skills

**Judging: The Engineering Notebooks**

**Using the Engineering Notebook for Judged Awards**

One of the primary missions of the REC Foundation is to help students acquire real world life skills that will benefit them in their academic and professional future. Following the engineering design process and creating an Engineering Notebook helps students practice and develop a variety of real-world life skills including project management, time management, brainstorming, communication, and teamwork. The engineering design process and the Engineering Notebook are used by engineering and design professionals in many different fields.

When teams register with the REC Foundation, they receive a bound Engineering Notebook in the Welcome Kit. It has instructions and examples of sample pages in the front. Teams may use the notebook provided or purchase their own from VEX Robotics or most office supply stores.

Teams can also use online collaboration platforms or cloud based services to create and maintain a digital engineering notebook. Regardless of the format of notebook that a team maintains, or the format of notebook judging (Remote or In-Person), all notebooks are evaluated according to the same criteria and rubrics.

The engineering design process is iterative. Students identify and define a problem, brainstorm design ideas to solve the problem, test their design ideas, and continue to improve their design ideas until a solution is reached. During the engineering design process, students will encounter obstacles, successes, and failures, and learn many lessons. Everything a team does throughout the engineering design process should be documented by the students in their Engineering Notebook.
All Engineering Notebooks should contain these elements:

- Team number on the cover/beginning of document.
- Errors crossed out using a single line (so errors can be seen).
- Notebook has not been edited.
- All pages intact; no pages or parts of pages removed even if they contained errors.
- Each page/entry is numbered and dated in chronological order.
- Each page/entry is signed or initialed by a student author.
- Team meeting notes as they relate to the design process.
- Pictures, CAD drawings, documents, examples of code, or other material relevant to the design process are permanently merged into the notebook (in the case of physical notebooks, tape is acceptable, but glue is preferred). Outstanding Engineering Notebooks should contain these additional elements:
  - Table of contents.
  - Each page is signed by a student witness as well as student author.
  - First entry is the first team meeting, and each team meeting has an entry.
  - Descriptions of brainstorming sessions.
  - Descriptions, sketches, and pictures of design concepts and the design process.
  - Observations and thoughts of team members about their design and the design process.
  - Records of tests, test results, and evaluations of specific designs or design concepts.
  - Team organization practices as they relate to the design process.
  - Project management practices including their use of personnel, financial, and time resources.
  - Notes and observations from competitions to consider in the next design iteration.
  - Descriptions of programming concepts, programming improvements, or significant programming modifications.
  - A person unfamiliar with the team’s work would be able to recreate the robot design based only on information in the Engineering Notebook.

Note: If a team is presenting their engineering notebook to judges in a language that is not common for the region, it is the team’s responsibility to provide a translated copy of their engineering notebook along with the original language version. Adults on a team may assist with the translation of the notebook, but should be translating word-for-word to keep the translation as faithful as possible to the original document created by the students.

Digitally Submitted Engineering Notebooks

Digitally submitted Engineering Notebooks may take any form that is accessible to judges by clicking a link without any special software other than a web browser or PDF reader. Notebooks submitted in this format will be referred to as “Digital Engineering Notebooks,” regardless of their original format. A physical notebook that is scanned as a PDF and uploaded electronically, meets the definition of a Digital Engineering Notebook, as well as a document that is created and stored in a cloud-based service. These are only two examples of an acceptable Digital Engineering Notebook.

In the instance when a team has a Digital Engineering Notebook and is attending an in-person event with physical notebooks being judged, the team must print out their notebook prior to the event and submit a physical copy.
If digital engineering notebooks are being evaluated ahead of the event:

- Submission deadline is at the discretion of the Event Partner; suggested submission deadline is one to two weeks before the event.
- The Event Partner must clearly communicate the submission deadline.
- The Event Partner must clearly communicate the form or method for the coach to submit the team information and the Digital Engineering Notebook (e.g., via a Google Form or email).
- The Event Partner should request the following information:
  - Team number (and possibly team name as well)
  - Organization name
  - Coach name, email, and phone number
  - Secondary contact name, email, and phone number
  - Event name and event code as shown on the event website at robotevents.com
  - The link for the Digital Engineering Notebook
- The Digital Engineering Notebook shall be sent as a link, not as an attachment, by the team’s Primary Contact listed in RobotEvents.com.
- It is the team’s responsibility to ensure the link is accessible. Additionally, it is the responsibility of the team to ensure their submission is legible.

Judging the Design Award – Sorting the Notebooks

Follow steps 1-2 below to evaluate the Engineering Notebooks and identify the outstanding Engineering Notebooks. These teams will be contenders for the Design Award and by extension, the Excellence Award. A separate Judge Team may interview the top contenders for the Design Award, which is outlined in the next section of this Guide.

Note: The Judge Advisor may assign one Judge Team as the Design Award Judge Team, with the primary responsibility of determining contenders for the Design Award.

1. Perform a quick scan of all the Engineering Notebooks and divide them into two categories: **Developing** and **Fully Developed**.
   - Developing Engineering Notebooks contain little detail, will have few drawings, and will not be a complete record of the design process. These are usually turned in by new teams without a fully developed robotics program. These teams will not be contenders for the Excellence and Design Awards. To save the Judge’s time, the Engineering Notebook Rubric will not be completed for these teams. However, the Engineering Notebooks should be retained for consideration of other awards.
Fully Developed Engineering Notebooks will contain much detail, will include detailed drawings, will include tests and test results, will include solutions to problems the team encountered, and will be a complete record of the design process. These are usually turned in by teams with a developed robotics program and a strong emphasis on the design process. These teams may be contenders for the Excellence and Design Awards. These may be roughly the top 10 teams or top 30% of teams (whichever is larger).

The 5-point bonus for having a bound notebook has been removed and replaced with a 5-point bonus for submissions of paper, printed, or digital submissions containing evidence that documentation was done in sequence with the design process. This change to the rubric is meant to allow judges to award the 5-point bonus for submissions that provided appropriate evidence of sequential work irrespective of the notebook submission format.

- Examples of this would include signed and dated entries in a bound notebook, or time stamps generated by digital collaboration platforms. The Judge Advisor will use reasonable discretion to determine whether evidence is sufficient to warrant the bonus, and will apply that standard consistently to all submissions at the event. When there is doubt or question regarding evidence, the benefit of doubt should be given to the team.

2. Complete the first page of the Engineering Notebook Rubric for the Fully Developed Engineering Notebooks and divide them into two categories: Intermediate and Outstanding. The Engineering Notebook Rubric MUST be used for this evaluation:

- Intermediate Engineering Notebooks will lack some details and will not be as complete as Outstanding notebooks. These teams will not be contenders for the Design Award.

- Outstanding Engineering Notebooks will be a complete record of the team’s engineering design process. Outstanding notebooks may be the top 5 teams or top 20% of teams (whichever is larger). A Judge Team shall interview the teams with Outstanding Engineering Notebooks. The Judge Team shall complete the Team Interview Rubric immediately after the interview.

Judging: Team Interview Rubric and Award Scoring Sheet

Overview

The Team Interview Rubric (formerly page 2 of the Design Award Rubric) is used for all team interviews. The Rubric has a 5-point scale to help you score the teams. Write the points in each row for the criterion that best describes the performance of the interview on each topic, then total the points.

Use the Team Interview Tips and Sample Questions in the Judge Guide to assist your team interviews.

Interview teams as assigned by the Judge Advisor. It is recommended that Team Interviews are conducted at the team’s pit area. All teams will be interviewed, but contenders for the Design and Excellence Awards, or other award finalists may be cross interviewed by different Judge Teams. The Judge Advisor will assign additional interviews as needed during the event.
Conducting Team Interviews:

- Complete the Team Interview Rubric and Awards Scoring and Ranking Sheet away from the teams you interview and not during the interview.
- Plan to interview one team every 10-15 minutes when interviewing in-person. Remote interviews will take approximately 30 minutes. The interview itself takes about 10-15 minutes. The additional time allows for teams to join the remote interview environment and for judges to discuss the team interview after the team leaves the interview environment.
- Staying on schedule is important to ensure all teams are interviewed and there is sufficient time to conduct deliberations.
- During In-Person judging, if you are unable to locate an assigned team for an interview after several visits to the team’s pit area, leave a “Judge’s Note to Missed Teams” on their pit table. Indicate that the team should try to find you in the competition or pit area during a break in their match schedule or leave a time you will return.
- For remote judging if a team does not arrive the judge advisor should be notified.
- Observe teams in the competition area during match play and skills play.
- Identify student-centered teams with positive, respectful, and ethical conduct during the team interviews and team observations.
- Take notes during interviews and observations to support your evaluations and assist with deliberations.
- Immediately after interviewing a team, rank them using the Awards Scoring and Ranking Sheets, complete the Team Interview Rubric. Again, please complete the worksheets in private and not in front of the teams or during the interview.
- The Judges will deliberate after team interviews and observation of teams in the competition area to determine judged awards.

Judging the Design Award – Team Interviews

The Team Interview Rubric MUST be used for this evaluation:

- The Judge Team shall compare their notes and Rubrics and discuss the quality of the team interviews. Through this deliberation, the Judge Team shall rank all teams with Outstanding Engineering Notebooks. If two grade-level specific Excellence Awards are offered, the Judge Team shall rank all teams at each level with Outstanding Engineering Notebooks. Refer to the heading titled “Blended Events” for more information on blended events.
- Judges should recognize that Engineering Notebooks will improve during the season, and that early season Engineering Notebooks will include less of the iterative design process. However, even early in the season, notebooks should include documentation of the robot up to its current state in the design process.
- Judges should remember that younger students communicate their ideas differently than older students, and that when judging the notebooks they should consider an age-appropriate level of review.
Judging Additional Judged Awards – Team Interviews

Where additional Judged Awards are offered at an event (beyond the Excellence and Design Awards), the Judge Advisor will provide the Awards Scoring and Ranking Sheet to Judge Teams assigned to interview all teams. The Judge Teams will use both Team Interview Rubric and the Awards Scoring and Ranking Sheet in interviewing teams.

For In-Person judging, Judges will write down the team numbers of the teams they are assigned to interview on the Awards Scoring and Ranking Sheet and highlight the additional Judged Awards being offered at the event. The Judge Teams will then use the spaces provided to rank top contenders for each of the additional Judged Awards being offered at the event.

Teamwork, professionalism, interview quality, and team conduct shall be considered in scoring of all judged awards. Each time you meet a team, fill in a row of scores on the provided Awards Scoring and Ranking Sheet, then rank each team for each award. Compare new teams to the teams you ranked previously and make notes for later use in deliberations.

The Code of Conduct

Team Ethics and Conduct

Ethics is an important part of every engineer’s professional training and practice. The REC Foundation considers the positive, respectful, and ethical conduct of teams to be an essential component of any REC Foundation-sanctioned event. A team includes the students, teachers, coaches, mentors, and parents associated with a team. Judges will consider all team conduct when determining judged awards.

The REC Foundation Code of Conduct can be found here:

roboticseducation.org/codeofconduct/

Feedback to Judges

Any conduct that may be a violation of the REC Foundation Code of Conduct shall be reported immediately to the Event Partner. The Event Partner will contact their REC Foundation Manager to discuss the possible violation.

Any event volunteer may provide feedback to the Judges, Judge Advisor, or Event Partner about the conduct of teams, coaches, mentors, or parents using the “Field Note to Judges” form. Volunteers may report conduct such as a team that helps another by loaning a motor or assisting in some other way. Volunteers may report conduct such as a team that is impolite or consistently late arriving to matches. Judges may also report issues, including circumstances where a team is not student-centered or there are behavior issues with adults.

Removal of Teams from Consideration of Judged Awards

The Event Partner should share any Field Notes to Judges by providing them to the Judge Advisor. The Judge Advisor may speak with the Event Partner, volunteer who reported the issue or other individuals at the event in considering negative reports on teams. When possible, the Event Partner will contact their REC Foundation Manager to discuss the possible violation.
The Judge Advisor, in consultation with the Event Partner, may decide to remove a team from consideration for judged awards where: (1) the behavior is repeated or egregious; and (2) there is sufficient reasonable evidence to support the decision. The decision to remove a team from consideration for judged awards should be done with caution and with a reasonable benefit of the doubt given to the team.

Where a team has been removed from consideration of judged awards at an event, the Event Partner must inform the REC Foundation REC Foundation Manager as soon as possible. The Event Partner must also follow up in writing (i.e., via email) with a summary of the issue and include the name(s) and contact information of the Judge Advisor, team information, and any relevant information for the REC Foundation to review the matter.

**The Do’s and Don’ts of Judging**

Judging is an exciting and rewarding process for both the Judges and the student competitors. While the process may initially feel overwhelming, focusing on making it a student-centered experience is key to the success of the program.

**The Do's of Judging**

**Make sure teams receiving judged awards are student-centered.** Students must do the majority of the work designing, programming, and repairing their robot. Coaches, mentors, and parents may provide minimal assistance but may not do any of this work without students present and involved. Through observation and interviews with teams, Judges identify teams that are student-centered. These teams understand that the purpose of the program is to enhance the learning process, not to win at any cost. Judges shall give higher consideration to teams that favor the enhancement of student learning over teams that favor winning at any cost. Judges, with input from event staff, should identify teams that are not student-centered.

**Positively engage with the student competitors.** Smile and be warm and friendly towards the students. Demonstrate your full interest and involvement in discussions with students and your Judge Team by refraining from distractions such as phone usage or side conversations. Also, encourage parents and coaches to allow the students to answer all questions during the interviews.

**Focus on qualitative assessments over quantitative assessments.** While Judges will consider objective factors as a part of the judging process, the decisions on judged awards ultimately must be based on qualitative deliberations. Judges, under the guidance of the Judge Advisor, should focus on qualitative judgements when reaching consensus on judged awards.

**The Don'ts of Judging**

**Don’t have a real or perceived conflict of interest.** Judges should not judge or interview teams that they have any affiliation with. Judges can judge at an event where they have teams, but they must disclose this proactively to the Judge Advisor and provide this information on the Judge Sign-in Sheet. The Judge Advisor will ensure that any Judge with a potential conflict is screened off of judging any teams they should not interview, and the Judge with the conflict should refrain from any participation in deliberations of that team or teams for which they have a potential conflict.

**Don’t ask the students personal questions during interviews.** Never be alone with students, whether in person or in a remote interview environment. Always work with at least one other Judge and two or more students. Do not meet with teams in a private space.
Don’t look back at other events to see what teams have already qualified to higher levels. Judged awards given at each event are to be given based on the judging at that event. The Judge Advisor and Judges must refrain from looking at which teams may have won awards at previous events or which teams have already qualified to a state/regional/provincial/national championship or the VEX Robotics World Championship in deciding judged awards.

Don’t take the rubrics or judging materials with you or give them back to the team or coaches. The judging process includes frank discussions about teams and the documentation relating to the judging process must be protected from disclosure. These documents and discussions must remain confidential and Judges should take precautions to ensure that these documents and discussions are not shared with or overheard by teams or other event participants.

Don’t "share the wealth" by re-allocating judged awards based on performance awards. Judged awards must be decided based on the Judge Guide. Deliberations should be conducted during the last round of qualifying matches and concluded before the first round of VRC Finals matches or before VIQC Finals matches. Therefore, Judges should not know or look at which teams have won the Teamwork Champions Award (IQ), Tournament Champions Award (VRC) or Robot Skills Champion Award when deciding on judged awards. For example, Judges should not change which team is given the Excellence Award because a team won the Tournament Champions Award or Robot Skills Award. Judged awards and performance awards must be done independently. A team is allowed to win performance awards and one judged award at an event.

Don’t give more than one judged award to a team at an event. No team shall be awarded more than one judged award at an event. Top teams often win robot performance awards (e.g., Robot Skills Champion) in addition to judged awards. Individual awards presented to adults, such as Volunteer of the Year Award, do not affect a team’s eligibility for a judged award.

Don’t let the Event Partner give input or be part of deliberations for judged awards. This does not apply to individual awards, like Volunteer of the Year or Sponsor of the Year, or to instances where there is a reported Code of Conduct issue.

Judging: Deliberations

Overview

Deliberations should begin during the last round of qualifying matches and conclude before the first round of VRC Finals matches or before VIQC Finals matches. Deliberate for the award recipients under the guidance of the Judge Advisor. It is important to get a copy of the match and skills rankings. Just before the last qualifying rounds begin, the Event Partner or Judge Advisor should print a copy of the Qualification Match Rankings and Skills Rankings for consideration during judging deliberations.

- Post or share your top ranked teams for each award as advised by the Judge Advisor. Typically, each Judge Team will post the top five teams for each award or 25% of the judged teams, whichever is greater. A white board, flip charts, or post-it® notes may be used to post the top ranked teams underneath the award descriptions so they are visible to all Judges. Standard award descriptions are included at the end of the Judge Guide.
● Work cooperatively with other Judges to reach consensus on the award recipients. If the judges can’t agree on which team should receive an award, then review and read the description of the award out loud, then look at the criteria for that award to help them make the decision. The Judge Advisor, time permitting, may send additional Judge teams out to cross-interview teams that are leading contenders for awards, especially the Excellence Award or Design Award.

● All deliberations should take place in the Judges Room or a private remote meeting. Deliberations include frank discussions about teams and are confidential. What is discussed in the Judges meeting stays in the Judges meeting. Only Judges are allowed in the Judges meeting.

● Remove yourself from discussions involving affiliated teams or any teams that may present a conflict of interest.

● Share all questions or concerns with the Judge Advisor.

● Leave notes, rubrics, and all other judging materials with the Judge Advisor after deliberations. The Judge Advisor will destroy these materials as they are not to be returned to teams, the Event Partner, or anyone else.

● Do not discuss any judging or deliberations with any teams, the Event Partner, or anyone else. The judging process is confidential.

Judging Process for the Excellence Award

Step One

Judges complete the rankings for the Design Award following the Design Award Judging Process. The top contenders for the Design Award should be considered candidates for the Excellence Award.

Excellence Award candidates should:

● Be at or near the top of the Design Award rankings.

● Be ranked in the top 10 or top 30% of teams (whichever is larger) in qualifying rounds during the last round of qualification matches played.

● Be ranked in the top 5 or top 20% of teams (whichever is larger) in Robot Skills (does not apply to events that do not offer skills).

● Rank among the top teams in other judged awards.

● Exhibit a high-quality team interview with the Judges.

● Exhibit a high-quality robotics program.

● Be student-centered, show positive team conduct and dynamics, sportsmanship, and professionalism.

Note: A team does not have to be among the Teamwork or Tournament Champions or Finalists to receive the Excellence Award but must be competitive in the qualification and skills rankings (skills rankings does not apply to VAIC-HS or VAIC-U).
Step Two
Judges use their best qualitative judgment based on observations and interactions with the teams to choose the team they believe best exemplifies the best overall robotics program at the event. Judges should ask themselves the following questions:

- Has the team met the criteria to be considered excellent?
- Does the team exemplify overall excellence?
- Would the Judges want the team to be emulated by other teams?
- Do the Field Note to Judges forms returned by event volunteers reflect the candidate’s overall excellence?

Excellence Award at the VEX Robotics World Championship

Key Criteria and Judging Process: The key criteria and judging process for the Excellence Award at the VEX Robotics World Championship are the same as for local events and events that qualify teams directly to the VEX Robotics World Championship. Online Challenges are not required to be eligible for the Excellence Award at the VEX Robotics World Championship. However, Judges will consider Online Challenges as part of the overall team evaluation if they are submitted.

Prequalification: To be eligible for the Excellence Award at the VEX Robotics World Championship, a team must have been awarded the Excellence Award at an event that qualifies teams directly to the VEX Robotics World Championship during the current competition season. Eligible teams must submit their Engineering Notebook for the VEX Robotics World Championship. Eligible teams will be notified by email after the second weekend in March.

VEX U, VAIC-HS, VAIC-U: There are no prequalification requirements for the Excellence Award at the VEX Robotics World Championship. Teams must submit their Engineering Notebook for the VEX Robotics World Championship.

Design Award at the VEX Robotics World Championship

Key Criteria and Judging Process: The key criteria and judging process for the Design Award at the VEX Robotics World Championship are the same as for local events and events that qualify teams directly to the VEX Robotics World Championship.

Prequalification: To be eligible for the Design Award at the VEX Robotics World Championship, a team must have been awarded the Excellence Award or Design Award at an event that qualifies teams directly to the VEX Robotics World Championship. Eligible teams must submit their Engineering Notebook for the VEX Robotics World Championship. Eligible teams will be notified by email after the second weekend in March.

VEX U, VAIC HS, VAIC-U: There are no prequalification requirements for the Design Award at the VEX Robotics World Championship. Teams must submit their Engineering Notebook for the VEX Robotics World Championship.

If No Teams Meet the Minimum Criteria for Design or Excellence Award
There may be circumstances where the Judges should not award the Design Award and by extension the Excellence Award to any team at an event. This may happen when either no teams submit an Engineering Notebook, or no Engineering Notebooks include the first three criteria of the Engineering Notebook Rubric (formerly page 1 of the Design Award Rubric). In
either case, the minimum requirements for the Design Award and by extension the Excellence Award have not been met and therefore neither should be awarded to any team at the event.

The Event Partner must be notified as soon as possible if the Design Award or the Excellence Award will not be awarded at the event. The results of the event cannot be published until the Event Partner adjusts the award configurations for the event.

The objective in not awarding Design or Excellence under these circumstances is:

1. To avoid situations where only one or two teams turn in notebooks that consist of a title page and little more being recognized as Design or Excellence winners.
2. To avoid recognizing a team as excellent and worthy of emulation by other teams when no team has yet achieved at least the minimum level of excellence.

This is not meant to punish teams but rather to encourage them to improve. It is expected that these circumstances will be rare and only arise early in the season before teams have had time to organize themselves. If Judges decide not to award Design or Excellence, the Judge Advisor should make an event-wide announcement and remind teams that the Engineering Notebook Rubric and the instructions in the front of the supplied notebook may be used as guides to help teams develop their notebooks.

**Finalizing the Judged Awards at an Event**

After deliberations for judged awards have concluded, the Judge Advisor will record the results of all judged award winners. The Judge Advisor should be careful to accurately record the team number and letter (e.g., Team 123A) for each judged award. The Judge Advisor should promptly inform the Event Partner when judging has concluded and communicate with the Event Partner for the entry of judged award winners into the Tournament Manager software. The Judge Advisor should confirm with the Event Partner that these were entered correctly.

The Judge Advisor will bring the judged award results to the Tournament Manager operator and oversee the entering of the judged awards into the competition software. Some events may provide a tablet or computer for the Judge Advisor to personally enter the results of the judged awards. If this is the case, ensure another Judge reviews the entries for accuracy.

**Awards Presentation:** Once the award winners are entered into Tournament Manager, the Judge Advisor should obtain award scripts from the Tournament Manager operator or Event Partner for each judged award. The Event Partner will decide when the judged awards are announced and will typically ask the Judge Advisor to make some general comments on the judging. Judges and the Judge Advisor may be asked to present awards at closing ceremonies.

**Return the Engineering Notebooks to the teams:** This is usually done by placing the notebooks on a table in the competition area before the finals matches begin and making announcements in the competition area and the pits for teams to pick up their notebooks. The Judge Advisor should ensure the emcee announces where and when the notebooks can be picked up.

**Confidentiality:** Collect all written judging materials, including Judges notes, Rubrics, awards worksheets, and so on. After the event, the Judge Advisor should shred or destroy all of these materials. Under no circumstances are any of these materials to be returned to teams, coaches, or the Event Partner.
Feedback to Teams: We celebrate the student-centered experience of competitive robotics, for which judges serve a key role. However, Judges should be cautious in giving individual feedback to teams as the judging process must maintain confidentiality. Judges should not discuss deliberations, awards, or judging with teams during or after an event. These discussions are easily misinterpreted or misunderstood by students, coaches, mentors, and parents. Please refer any inquiries about the judging process to the Judge Advisor. The Judge Advisor or Event Partner can recommend that teams refer to the blank Team Interview Rubric, the blank Engineering Notebook rubric, the Judge Guide, and the Award Descriptions to use as a reference.
Standard Award Descriptions for Judges Room

The following pages contain VRC award descriptions for use by Judges in the judging room. They list key criteria for each award and are useful in guiding the Judges' deliberations.

Not all events will give out all awards. Each Judge Advisor should consult with their Event Partner to determine which awards will be given out at an event. The Judge Advisor may then print the award descriptions that will be used for a specific event.

Judge Advisors may wish to print these descriptions in color and then laminate them or place them in plastic sheet protectors for use at multiple events.
Excellence Award

Key criteria:

- Engineering Notebook must be submitted.
- Ranking for the Design Award.
- Ranking for Qualification Matches (does not apply if it is a Skills Only Event).
- Ranking for Robot Skills (does not apply if event does not offer Robot Skills)
- Ranking for other judged awards.
- Quality of the team’s interview.
- High-quality robotics program.
- Team conduct.
Design Award

Key criteria:

- Engineering Notebook must be submitted.
- Engineering Notebook demonstrates clear, complete, organized record of robot design process.
- Team demonstrates effective management of time, talent, and resources.
- Team interview demonstrates their ability to explain their robot design and game strategy.
- Team interview demonstrates effective communication skills, teamwork, and professionalism.
Judges Award

Key criteria:

- Team displays special attributes, exemplary effort, and perseverance at the event
- Team overcomes an obstacle or challenge and achieves a goal or special accomplishment at the event or at some time throughout the season
- Team distinguishes itself in some way that does not fit under other award criteria but nonetheless deserves special recognition
- Students demonstrate teamwork and effective communication skills
Innovate Award

Key criteria:

- Engineering Notebook is required
- Engineering Notebook is a clear, complete, and organized document of the design process
- Team demonstrates effective management of time, talent, and materials
- Students understand and explain how they developed an effective game strategy and robot design
- Students understand and explain the engineering design process
- Students understand and explain how they worked together to develop their robot
Think Award

Key criteria:

● Participation in the Programming Skills Challenge is required (does not apply to VAIC-HS or VAIC-U)
● Autonomous programming is consistent and reliable
● Programs are cleanly written, well documented, and easy to understand
● Team clearly explains the programming strategy used to solve the game challenge
● Team clearly explains their programming management process, including version history
● Students understand and explain how they worked together to develop their robot programming
Amaze Award

Key criteria:

- Robot design is consistently high scoring and competitive
- Robot construction is high quality
- Robot programming is effective, successful, and consistent
- Students understand and explain how they worked together to develop their robot
Build Award

Key criteria:

- Robot construction is durable and robust
- Robot is reliable on the field and holds up under competition conditions
- Robot is designed attention to safety and detail
- Students understand and explain how they worked together to develop their robot
Create Award

Key criteria:

- Robot design incorporates a creative design solution
- Team has demonstrated a highly creative design process and methodology
- Team has committed to ambitious and creative approaches to solving the game challenge
- Students understand and explain how they worked together to develop their robot
Energy Award

Key criteria:

- Team maintains a high level of enthusiasm and excitement throughout the event
- Team exhibits a passion for robotics competition that enriches the event experience for all
- Students demonstrate teamwork and effective communication skills
Inspire Award

Key criteria:

- Team exhibits passion and positive attitude at the event
- Team exhibits integrity, and goodwill toward other teams, coaches, and spectators
- Students demonstrate teamwork and effective communication skills
Sportsmanship Award

Key criteria:

- Team is courteous, helpful, and respectful to everyone at the event, on and off the field
- Team interacts with others in the spirit of friendly competition and cooperation
- Students demonstrate teamwork and effective communication skills
Please use this sheet to check in Judges. Record each Judge’s name, email (in the event you want a follow up contact), cell phone number (to reach Judges during the event), and team affiliation (to avoid potential conflicts of interest).

<table>
<thead>
<tr>
<th>Name</th>
<th>Please provide your email</th>
<th>Please give us a cell phone number that you may be contacted at during the event</th>
<th>Please list any team numbers you are affiliated with</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
Judges Note to Missed Teams

Dear Team Number _____________,

We are sorry we missed you. The Judges have come by to interview your team. They will come back at ________________
If you will NOT be available at this time please call ________________

We were here at:

Date: ________________  Time: ________________

Judge’s Note to Missed Teams

Dear Team Number _____________,

We are sorry we missed you. The Judges have come by to interview your team. They will come back at ________________
If you will NOT be available at this time please call ________________

We were here at:

Date: ________________  Time: ________________
# Field Note to Judges

<table>
<thead>
<tr>
<th>MATCH#</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEAM Number</td>
<td></td>
</tr>
<tr>
<td>TEAM Name</td>
<td></td>
</tr>
<tr>
<td>School Name</td>
<td></td>
</tr>
</tbody>
</table>

**GREEN**

Please tell the Judges what you have observed. This may be either positive feedback, which you want judges to know, or reporting a problem that you believe judges should be aware of during their confidential deliberations.

**RED**

---

**Referee**  
**Emcee**  
**Div. Manager**  

Print and sign full name:

**TIME:**
# Engineering Notebook Rubric

**Rubrics are strictly confidential**; they are not shared beyond the Judges/Judge Advisor and shall be destroyed at the end of the event.

**Directions:** Write the points in each row for the criterion that best describes the performance of the Engineering Notebook on each topic. Total the points. This rubric is to be used for both Digitally and Physically submitted engineering notebooks.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Expert (4-5 points)</th>
<th>Proficient (2-3 points)</th>
<th>Emerging (0-1 points)</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engineering Design Process</strong></td>
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</tr>
<tr>
<td>Identify game and robot design challenges and goals</td>
<td>Identifies the game challenge or robot design challenge in detail at the start of each design process cycle with words and pictures. States the goals for accomplishing the challenge.</td>
<td>Identifies the challenge at the start of each design cycle. Lacking details in words, pictures, or goals.</td>
<td>Does not identify the challenge at the start of each design cycle.</td>
<td></td>
</tr>
<tr>
<td>Brainstorm and diagram or prototype solutions</td>
<td>Lists three or more possible solutions to the challenge with labeled diagrams. Citations provided for ideas that came from outside sources such as online videos or other teams.</td>
<td>Lists one or two possible solutions to the challenge. No citations provided for ideas that came from outside sources.</td>
<td>Does not list any solutions to the challenge.</td>
<td></td>
</tr>
<tr>
<td>Select the best solution and plan</td>
<td>Explains why the solution was selected through testing and/or a decision matrix. Fully describes the plan to implement the solution.</td>
<td>Explains why the solution was selected. Mentions the plan.</td>
<td>Does not explain why the solution was selected or does not mention the plan.</td>
<td></td>
</tr>
<tr>
<td>Build and program the solution</td>
<td>Records the steps to build and program the solution. Includes enough detail that the reader could recreate the solution following the steps in the Notebook.</td>
<td>Records the key steps to build and program the solution. Lacks sufficient detail to recreate the solution.</td>
<td>Does not record the key steps to build and program the solution.</td>
<td></td>
</tr>
<tr>
<td>Test solution</td>
<td>Records all the steps to test the solution, including test results.</td>
<td>Records the key steps to test the solution.</td>
<td>Does not record the steps to test the solution.</td>
<td></td>
</tr>
<tr>
<td><strong>Repeat design process</strong></td>
<td>Shows that the design process is repeated multiple times to improve performance on an individual design goal or overall robot or game performance.</td>
<td>Shows that the design process is not often repeated for individual design goals or overall robot or game performance.</td>
<td>Does not show that the design process is repeated.</td>
<td></td>
</tr>
<tr>
<td><strong>Usefulness and repeatability</strong></td>
<td>Records the entire design and development process in such great clarity and detail that the reader could recreate the project’s history and build the current robot from the notebook.</td>
<td>Records the design and development process completely but lacks sufficient detail to fully recreate the entire project or robot.</td>
<td>Does not record the design and development process or lacks sufficient detail to understand the design process.</td>
<td></td>
</tr>
<tr>
<td><strong>Record of team and project management</strong></td>
<td>Provides a complete record of team and project assignments; a bound should be in ink; notes from team meetings including goals, decisions, and accomplishments; name or initials of author; each page numbered and dated. Design cycles are easily identified. Includes Table of Contents and/or Index so anyone can easily locate needed information.</td>
<td>Records most of the information listed at the left. Not written in ink. Organized so that team members can locate most of the needed information.</td>
<td>Does not record most of the information listed at the left. Not organized; needed information difficult to locate.</td>
<td></td>
</tr>
<tr>
<td><strong>Notebook Format</strong></td>
<td>Five (5) points if the notebook has appropriate evidence that documentation was done in sequence with the design process. Examples of this would include signed and dated entries in a bound notebook, or time stamps generated by digital collaboration platforms.</td>
<td>Zero points - insufficient evidence.</td>
<td>Zero points – insufficient evidence</td>
<td></td>
</tr>
<tr>
<td><strong>Describe a few of the best features of the Engineering Notebook:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Total points for Engineering Notebook:

---

**Team #:**

- Program level: □ Elementary □ Middle □ HS/VEX U

**Judges:**
# Team Interview Rubric

**Rubrics are strictly confidential:** they are not shared beyond the Judges/Judge Advisor and shall be destroyed at the end of the event.

**Directions:** Write the points in each row for the criterion that best describes the quality of the interview. Total the points.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Expert (4-5 points)</th>
<th>Proficient (2-3 points)</th>
<th>Emerging (0-1 points)</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design process and Engineering Notebook</td>
<td>Students clearly explain all aspects of the design process and how they recorded their use of the design process in the Notebook.</td>
<td>Students can explain most aspects of the design process and how they recorded their use of the process.</td>
<td>Students can explain only limited aspects of the design process and how they recorded their use of the process.</td>
<td></td>
</tr>
<tr>
<td>Game strategies and robot designs</td>
<td>Students can describe three or more game strategies and robot designs that were considered; students can fully explain how and why the current game strategy and robot design were chosen.</td>
<td>Students can describe two game strategies and robot designs that were considered; students can explain how and why the current game strategy or robot design were chosen.</td>
<td>Students can describe only their current game strategy and design, or they cannot explain how and why the current game strategy or robot design were chosen.</td>
<td></td>
</tr>
<tr>
<td>Project and team management</td>
<td>Students can explain how team progress was tracked against an overall project timeline, and how students were assigned to tasks based on their skills and availability; students can explain management of material resources.</td>
<td>Students can explain how team progress was monitored, or how students were assigned to tasks, or management of material resources.</td>
<td>Students cannot explain how team progress was monitored or how students were assigned to tasks or how material resources were managed.</td>
<td></td>
</tr>
<tr>
<td>Teamwork and communication</td>
<td>Students can explain how multiple team members contributed to the robot design and game strategy. All students answer questions independently.</td>
<td>Students can explain how most team members contributed to the robot design and game strategy. Students support each other as needed to answer questions.</td>
<td>Only one team member answered questions or contributed to the robot design process.</td>
<td></td>
</tr>
<tr>
<td>Respect and courtesy</td>
<td>Students answer respectfully and courteously. Students make sure each team member contributes. Students wait to speak until others have finished.</td>
<td>Students answer respectfully and courteously. Some students attempt to contribute but are interrupted by other students.</td>
<td>Students do not answer respectfully and courteously. Students interrupt each other or the Judges.</td>
<td></td>
</tr>
</tbody>
</table>

Describe a few of the best features of the team interview:

<table>
<thead>
<tr>
<th>Total points for Team Interview:</th>
<th>Total points for Engineering Notebook:</th>
<th>Total points for both rubrics:</th>
</tr>
</thead>
</table>

Team #: □ Elementary □ Middle □ HS/VEX U
Judges:
Awards Scoring and Ranking Sheet

<table>
<thead>
<tr>
<th>Team Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall</th>
<th>Teamwork, interview quality, professionalism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judges</td>
<td>Most deserving of special recognition for special attributes or achievements</td>
</tr>
<tr>
<td>Innovate</td>
<td>Most effective and efficient design process; a top contender for the Design Award</td>
</tr>
<tr>
<td>Think</td>
<td>Most effective and consistent programming strategies and solutions</td>
</tr>
<tr>
<td>Amaze</td>
<td>Most consistently high scoring and competitive robot</td>
</tr>
<tr>
<td>Build</td>
<td>Most durable robot</td>
</tr>
<tr>
<td>Create</td>
<td>Most creative engineering solution</td>
</tr>
<tr>
<td>Energy</td>
<td>Most enthusiastic and excited team</td>
</tr>
<tr>
<td>Inspire</td>
<td>Most passionate and positive team</td>
</tr>
<tr>
<td>Sportsmanship</td>
<td>Most respected and admired by volunteers and other teams</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interview Checklist:</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Record team number</td>
</tr>
<tr>
<td>□ Interview team</td>
</tr>
<tr>
<td>□ Take picture of robot, be sure team number is shown (Optional)</td>
</tr>
<tr>
<td>□ Mark pit sign or team list to show completed interview</td>
</tr>
<tr>
<td>□ Wish team success</td>
</tr>
<tr>
<td>□ Score each award</td>
</tr>
</tbody>
</table>

**Note:** Cross out awards not offered at the event

**Division:**
Team Interview Tips and Sample Questions

Judges need to talk to students, not adults. Occasionally enthusiastic adults may want to answer the Judge’s questions. If this is encountered, politely remind the adult(s) that the Judges are there to interview the students.

Best Practices

- Help put the students at ease by asking them questions about their robot.
- Try not to ask yes or no questions. Encourage teams to elaborate on their answers.
- Be prepared to rephrase your questions. It is important to be mindful of differences in communication style. Also be mindful of students who do not speak the language you are using as their first language.
- Be aware of different age levels and approach students in an age-appropriate way, especially when talking to younger students.
- Be sure all team members are present and include all team members in the interview.
- Being a Judge gives you a unique opportunity to impact students. They will be looking to you for positive reinforcement. Just a few words of encouragement can make their day.
- Be attentive to students and do not engage in other conversations during interviews.
- Take a picture of each team with their robot so the license plate is visible. This will help you identify teams and robots during deliberations.
- Leave the Judge’s Note to Missed Teams at the pit table for teams that you cannot locate.
- After interviewing the team, mark the pit sign or the team list to indicate the team has been interviewed.

Sample Questions

- Did your team turn in an Engineering Notebook? When did you start making entries?
- What does your robot do and how does it score points?
- How did you develop this robot design?
- Which team members built the robot?
- What part of your robot are you most proud of? Why?
- Were there any other robots that inspired your robot design? How?
- What changes did you make to improve your design during the season?
- Did you use any sensors? What are they used for? How do they operate in your autonomous mode? How do they operate in your driver-controlled mode?
- What problems did you have in working on your robot? How did your team solve them?
- If you had one more week to work on your robot, how would you improve it?
- Has your game strategy been effective? How and why?
- Tell us about your robot’s programming. Autonomous mode? Driver control mode? Who did the programming?
- What were the challenges of this year’s game that you considered before designing your robot? How did you design your robot to meet those challenges?
- How many subsystems does your robot have? Who was responsible for integrating them?