2025-2026
The Judging Process For EPs and Coaches

Presented by:

Ben Mitchell
Program Director
Competition Judging Committee Lead

Bobbi Mitchell
Regional Support Manager

ROBOTICS EDUCATION & COMPETITION FOUNDATION
SUMMIT
VEX ROBOTICS PROGRAMS

REC FOUNDATION
VEX ROBOTICS

THE IMPORTANCE OF JUDGING

WHY OFFER JUDGED AWARDS AT EVENTS?

- The Judging Process gives students an opportunity to:
  - Practice written and verbal communication skills through the Team Interview and Engineering Notebook
  - Demonstrate values of the REC Foundation **Code of Conduct** and **Student-Centered** policies
- Judged awards can qualify teams to higher levels of competition
- Judging recognizes and celebrates what teams have learned and the hard work they have put into the competition as an educational activity

JUDGING ROLES

Event Partner (EP)

- Recruits a Judge Advisor able to objectively manage the judging process
- Determines which awards to offer
- Collaborates with a Judge Advisor in recruiting sufficient Judges
- Provides secure, quiet, spacious room for Judge deliberations (Judges' Room)
- Provides judging supplies such as clipboards, rubrics, etc.
- **Does not directly participate in any deliberations**

Judge Advisor (JA)

- Completes **Judge Advisor Certification** course
- Organizes and oversees the overall judging process at an event
- Prepares a judging schedule based on event size and agenda
- Manages conflicts of interest of Judge volunteers with teams at the event
- **Facilitates deliberations** and delivers the final award winners to Event Partner / TM Operator
- JA disposes of judging materials at the end of the event

Judge

- Takes direction from the Judge Advisor
- Evaluates teams to determine eligibility for judged awards
- Conducts one or more activities at the event, as assigned by the Judge Advisor:
  - Evaluate Engineering Notebooks
  - Interview teams
  - Observe teams / robots
  - Present awards
- Work together to deliberate the award winners
- Recommended but not required to complete the Judge Training course

WHAT IS THE ENGINEERING DESIGN PROCESS?

There is no single universally accepted design process. Most engineers have their own twist for how the process works. However, it always starts with a 'problem' and ends with a solution!

IDENTIFY THE PROBLEM

At the start of each design cycle, **identify the** game and robot design **challenges** IN DETAIL, using words, pictures, and diagrams

State goals for accomplishing the challenge

BRAINSTORM SOLUTIONS

List **three or more** possible solutions to the game or robot design challenge with labeled diagrams IN DETAIL

Citations provided for ideas from outside sources like videos or other teams

REPEAT DESIGN PROCESS

Show that the design process is repeated **MULTIPLE TIMES** to improve performance on a design goal, robot, or game performance

SELECT BEST SOLUTION

Explain **why** the solution was selected - by design matrix? by testing?

Fully describe IN DETAIL **the plan** to implement the chosen solution

TEST SOLUTION

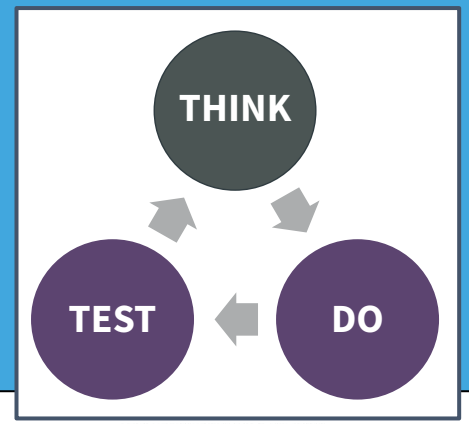
Record **ALL STEPS** IN DETAIL to test the solution

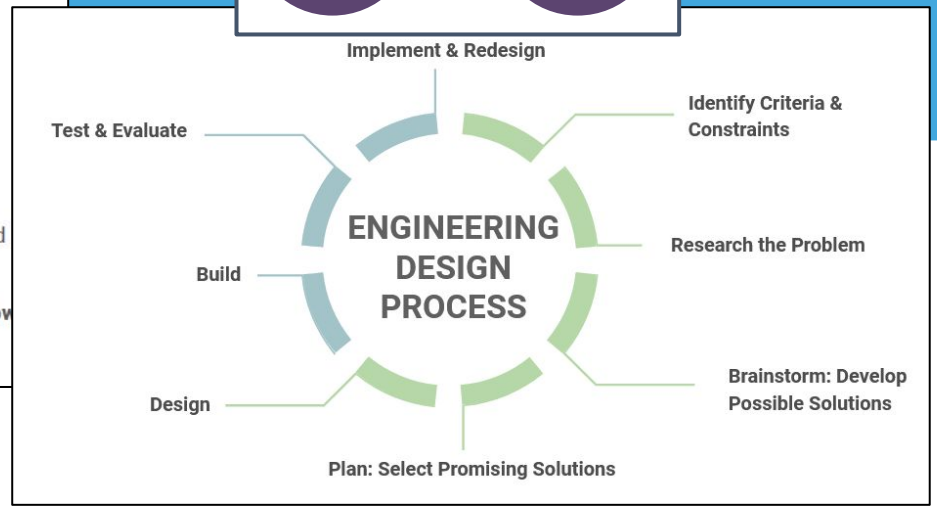
Record the **results** of testing
Record notes and observations from competition performance

BUILD AND PROGRAM

Record IN DETAIL the **steps** to build and program the solution

Include enough detail for reader to **follow logic and recreate** the design





THE ETHOS OF JUDGING

CORE PRINCIPLES FOR JUDGES

Confidentiality
Discussions and notes are kept confidential

Impartiality
Judges disclose any conflicts of interest and avoid impropriety

Consistency
Teams evaluated under similar conditions using the same materials

Qualitative Judgement
Judges use their judgment to evaluate teams

Opportunity
ALL teams must be given an opportunity to be interviewed

Balance
No team can earn more than one JUDGED award

Integrity
Awards should go to the teams that earn them

Youth Protection
Safety of students is top priority

Student-Centered Teams
Judging recognizes student-centered teams

Independent Inquiry
Teams should be doing the work of the entire design process

Team Ethics and Conduct
Teams must abide by the Code of Conduct

THE BIG PICTURE OF JUDGING

Engineering Notebook Evaluations

1

Engineering Notebook Evaluations

- Engineering Notebooks are collected and either reviewed digitally (more on remote judging later) or, more commonly, sent to a private judging room for judges to review
    - Notebooks that do not meet a minimum threshold are put aside and not evaluated further
- The Engineering Notebook rubric is used for an initial sorting of notebooks that meet the threshold and for initial triaging. **Rubric scores do not determine award winners.**
- Judges will further review and rank notebooks compared with one another for a final ranking

UPDATED ENGINEERING NOTEBOOK RUBRIC

Engineering Notebook Rubric (Page 1 of 2)

Team # _____ **Grade Level** ☐ **ES** | ☐ **MS** | ☐ **HS** | ☐ **University Judge Name** _____

Directions: Determine the point value that best characterizes the content of the Engineering Notebook for that crit
Write that value in the column to the right. This rubric is to be used for all Engineering Notebooks regardless of for
(physical or digital). Please refer to Section 5 of the Guide to Judging for information on how to use this rubric.

Note: Any student-centered or academic honesty concerns, such as plagiarism, should be brought to the attention
Judge Advisor and/or Event Partner.

CRITERIA	PROFICIENCY LEVEL		
ENGINEERING DESIGN PROCESS	**EXPERT** (4-5 POINTS)	**PROFICIENT** (2-3 POINTS)	**EMERGING** (0-1 POINTS)
IDENTIFY THE PROBLEM / DESIGN GOAL(S)	Clearly identifies the problem / design goal(s) in detail at the start of each design process cycle. This can include elements of game strategy, robot design, or programming, and should include a clear definition and justification of the design goal(s), criteria, and constraints.	Identifies the problem / design goal(s) at the start of each design cycle but is lacking details or justification.	Does not identify the problem / design goal(s) at the start of each design cycle.
BRAINSTORM SOLUTIONS	Explores several different solutions with explanation. Citations are provided for ideas that came from outside sources such as online videos or other teams.	Explores few solutions. Citations provided for ideas that came from outside sources.	Does not explore different solutions or solutions are recorded with little explanation.
SELECT BEST SOLUTION	Fully explains the "why" behind design decisions in each step of the design process for all significant aspects of a team's design.	Inconsistently explains the "why" behind design decisions.	Minimally explains the "why" behind design decisions.
BUILD AND PROGRAM THE SOLUTION	Records the steps the team took to build and program the solution. Includes enough detail that the reader can follow the logic used by the team to develop their robot design, as well as recreate the robot design from the documentation.	Records the key steps to build and program the solution but lacks sufficient detail for the reader to follow their process.	Does not record the key steps to build and program the solution.
ORIGINAL TESTING OF SOLUTIONS	Records all the steps to test the solution, including test results. Testing methodology is clearly explained, and the testing is done by the team. Original testing results are explained and conclusions are drawn from that data.	Records the key steps to test the solution. Testing methodology may be incomplete, or incomplete conclusions are recorded.	Does not record steps to test the solution. Testing or results are borrowed from another team's work.
REPEAT DESIGN PROCESS	Shows that the design process is repeated multiple times to work towards a design goal. This includes a clear definition and justification of the design goal(s), its criteria, and constraints. The notebook shows setbacks that the team learned from, and shows design alternatives that were considered but not pursued.	Design process is not often repeated for design goals or robot/game performance. The notebook does not show alternate lines of inquiry, setbacks, or other learning experiences.	Does not show that the design process is repeated. Does not show setbacks or failures, or seems to be curated to craft a narrative.

NOTES:

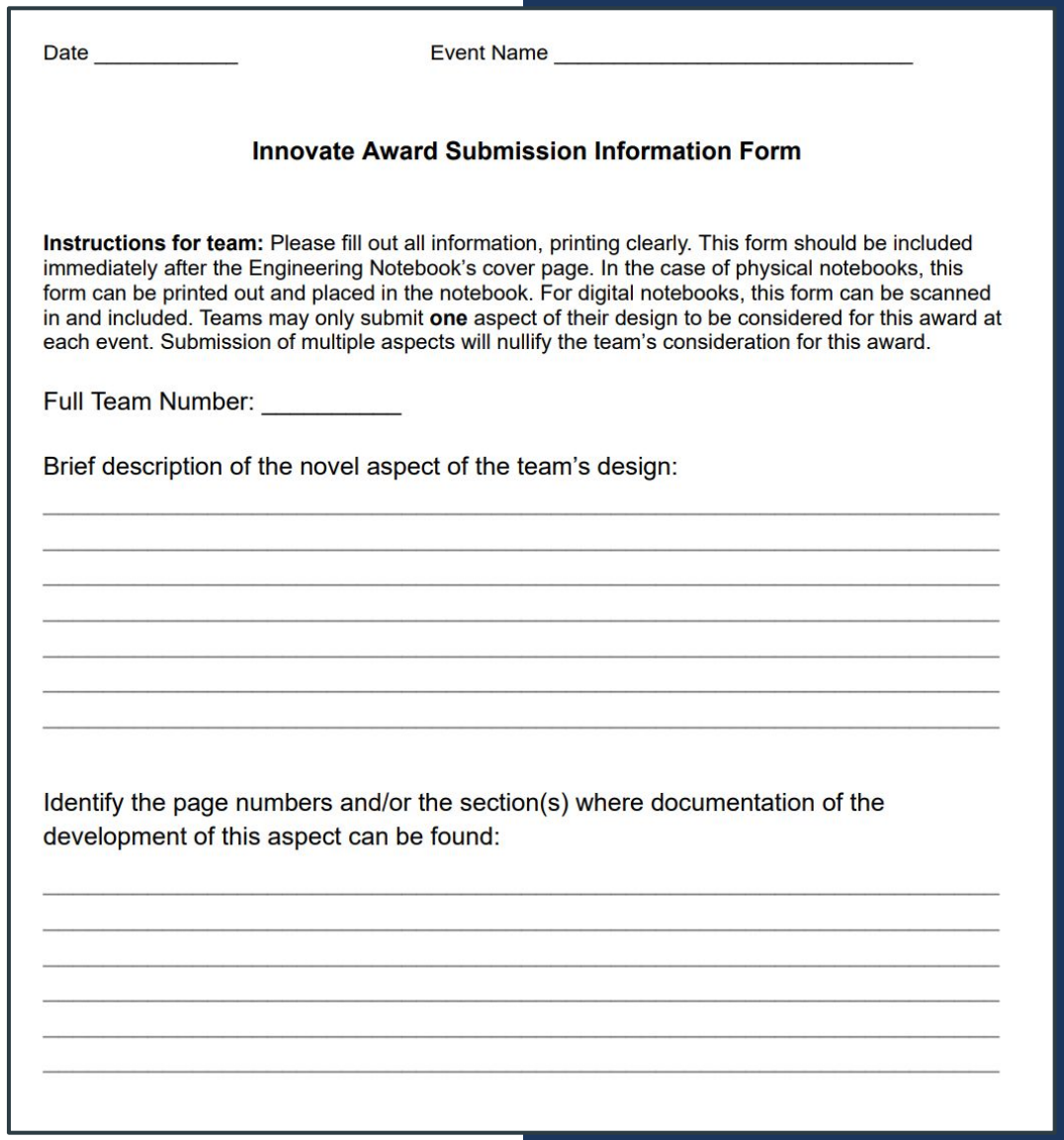
Engineering Notebook Rubric (Page 2 of 2)

ENGINEERING NOTEBOOK FORMAT AND CONTENT	EXPERT (4-5 POINTS)	PROFICIENT (2-3 POINTS)	EMERGING (0-1 POINTS)
INDEPENDENT INQUIRY	Team shows evidence of independent inquiry from the beginning stages of their design process. Notebook documents whether the implemented ideas have their origin with students on the team, or if students found inspiration elsewhere.	Team shows evidence of independent inquiry for some elements of their design process. Ideas and information from outside the team are documented.	Team shows little to no evidence of independent inquiry in their design process. Ideas from outside the team are not properly credited. Ideas or designs appear with no evidence of process.
USABILITY & COMPLETENESS	Records the entire design and development process with enough clarity and detail that the reader could recreate the project's history. Notebook has recent entries that align with the robot the team has brought to the event.	Records the design and development process completely but lacks sufficient detail. Documentation is inconsistent with possible gaps.	Lacks sufficient detail to understand the design process. Notebook has large gaps in time, or does not align with the robot the team has brought to the event.
ORIGINALITY & QUALITY	Cited content is kept to relevant information and all cited content longer than a paragraph is located in appendices to the Engineering Notebook. Information originating from outside the team is always properly cited in the notebook with the source and date accessed. Most or all Engineering Notebook content is original to the submitting team members.	Cited content is mostly kept to relevant information. Information originating from outside the team is properly credited. Cited content is paraphrased with some original content describing the team's design process.	Cited content is excessive and/or is not kept in appendices, or non-original content is not cited. Plagiarised content should be noted to the JA and through the REC Foundation Code of Conduct process.
ORGANIZATION / READABILITY	Entries are logged in a table of contents. There is an overall organization to the document that makes it easy to reference, such as color coded entries, tabs for key sections, or other markers. Notebook contains little to no extraneous content that does not further the engineering design process.	Entries are logged in a table of contents. There is some organization to the document to enhance readability. Notebook contains some extraneous content that does not further the design process, but it does not severely impact readability.	Entries are not logged in a table of contents, and there is little adherence to a system of organization. Excessive extraneous content makes the notebook difficult to read, use, or understand.
RECORD OF TEAM & PROJECT MANAGEMENT	Provides a complete record of team and project assignments; contains team meeting notes including goals, decisions, and building/programming accomplishments; design cycles are easily identified. Resource constraints including time and materials are noted throughout. Notebook has evidence that documentation was done in sequence with the design process. Entries include dates and names of contributing students.	Records most of the information listed at the left. Level of detail is inconsistent, or some aspects are missing. There are significant gaps in the overall record of the design process. Notebook may have inconsistent evidence of dates of entries and student contributions.	Does not record the design process in a way that shows team progress. There are significant gaps or missing information for key design aspects. Notebook has little evidence of dates of entries and student contributions.

INNOVATE AWARD NOTES (optional):

INNOVATE AWARD SUBMISSION FORM

- Assists Judges in finding the Innovate Award information quickly in the notebook
- Teams self-identify what they want to submit for the award
- The form or a copy of it is required - we ask teams to place
  it behind the front cover of their notebook.
  - The goal is for the form it be located in a standardized place for judges to look.
  - Digital notebooks may need to make a section for it



Date _____ Event Name _____

Innovate Award Submission Information Form

Instructions for team: Please fill out all information, printing clearly. This form should be included immediately after the Engineering Notebook's cover page. In the case of physical notebooks, this form can be printed out and placed in the notebook. For digital notebooks, this form can be scanned in and included. Teams may only submit **one** aspect of their design to be considered for this award at each event. Submission of multiple aspects will nullify the team's consideration for this award.

Full Team Number: _____

Brief description of the novel aspect of the team's design:

_____

_____

_____

_____

_____

_____

_____

Identify the page numbers and/or the section(s) where documentation of the development of this aspect can be found:

_____

_____

_____

_____

_____

_____

ENGINEERING NOTEBOOK: PURPOSE AND ACADEMIC HONESTY

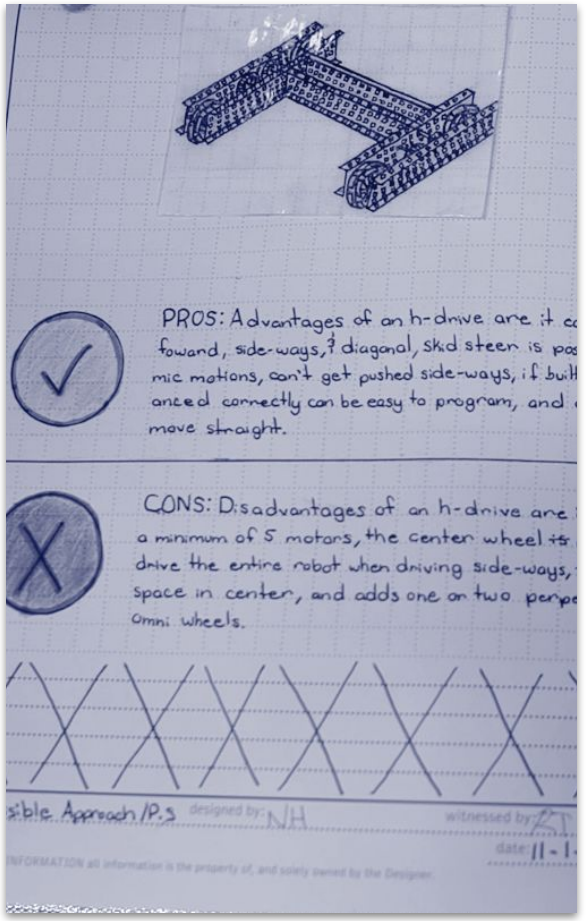
Educational Importance

Statement explaining the educational value of creating and maintaining an Engineering Notebook

Prohibition of AI tools

The use of generative AI in creating and/or organizing Engineering Notebook content is explicitly prohibited

- Expanded section of the Guide to Judging
- Statement explaining the educational value of creating and maintaining an Engineering Notebook
- Explains Academic Honesty and why it is important to abide by it in the notebook:
    - Instructs teams to cite sources and properly credit work that is not their own
- Informs teams that by using common notebook content, they are at risk for misrepresenting work
- Outlines a policy regarding AI-generated content



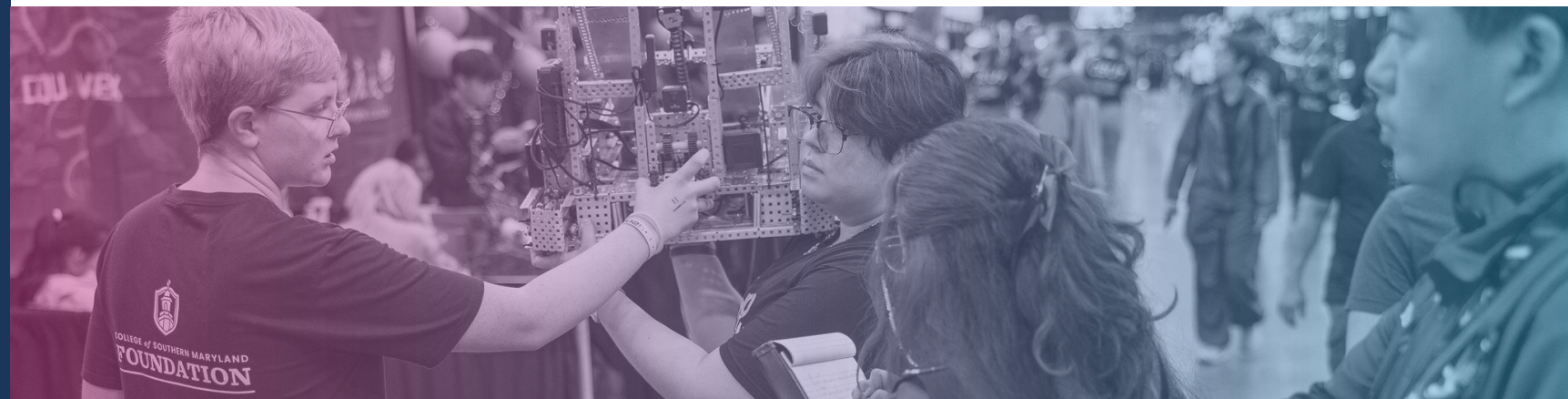
THE BIG PICTURE OF JUDGING

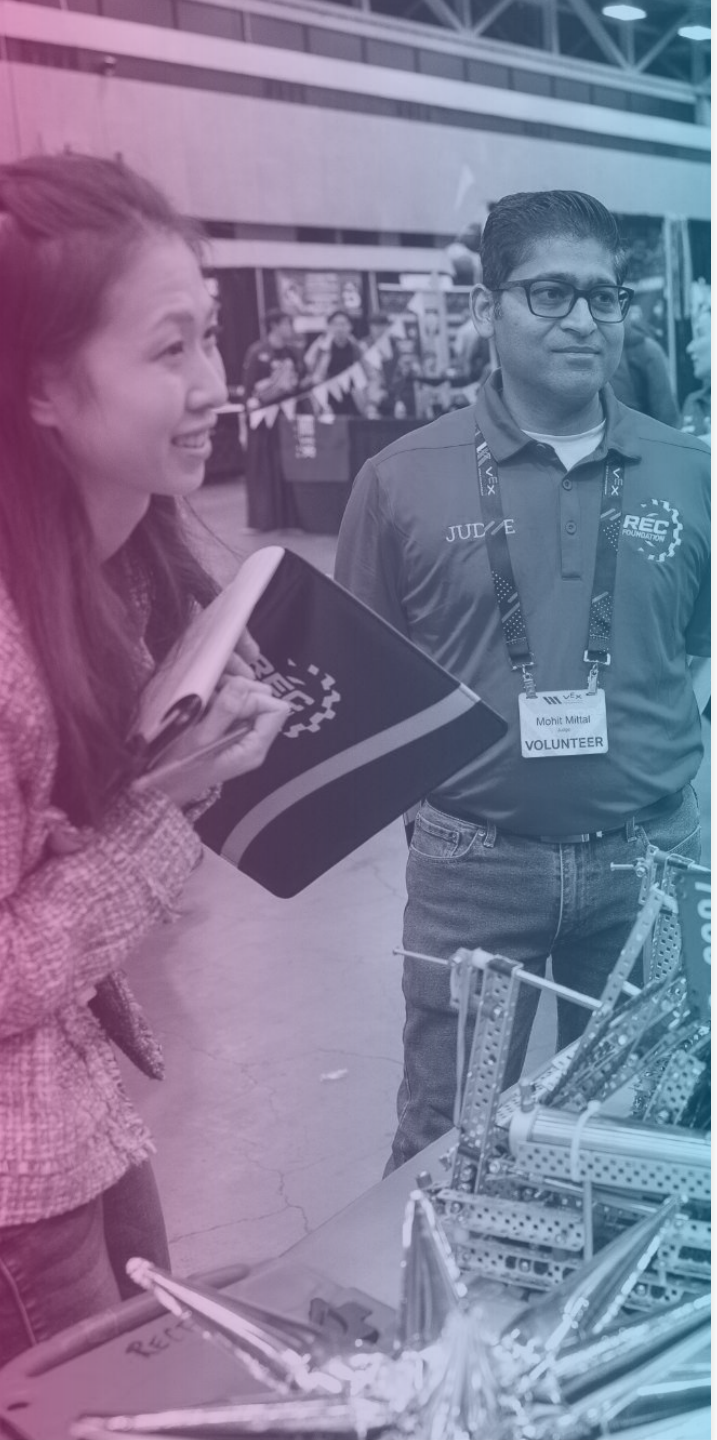
Team Interview Evaluations

2

Team Interview Evaluations

- Judges will work in groups of 2-4 to interview a set of teams (recommended 8-10), asking them open-ended questions about their robot and team in order to gain an understanding of the team's design process, team dynamics, and what they have learned throughout the season
- ALL teams must be given the opportunity to be interviewed
- ALL interviews are scored using a rubric, and notes are taken by judges for future reference. **Rubric scores do not determine award winners.**
- Interview scores are used to help with initial sorting
- Judges will further review and rank teams compared with one another for deliberations





TEAM INTERVIEW RUBRIC/NOTES

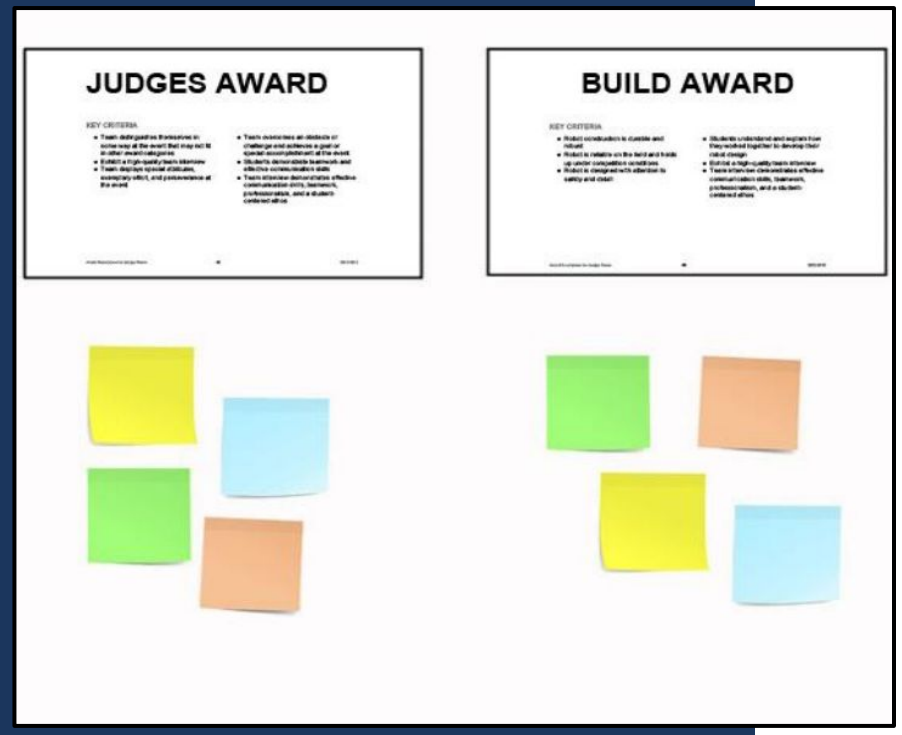
CRITERIA	PROFICIENCY LEVEL		
	EXPERT (4-5 POINTS)	**PROFICIENT** (2-3 POINTS)	**EMERGING** (0-1 POINTS)
ENGINEERING DESIGN PROCESS *All Awards*	Team shows evidence of independent inquiry from the beginning stages of their design process. This includes brainstorming, testing, and exploring alternative solutions.	Team shows evidence of independent inquiry for some elements of their design process.	Team shows little to no evidence of independent inquiry in their design process.
GAME STRATEGIES *Design, Innovate, Create, Amaze*	Team can fully explain their entire game strategy including game analysis.	Team can explain their current strategy with limited evidence of game analysis.	Team did not explain game strategy/strategy is not student-directed.
ROBOT DESIGN *Design, Innovate, Build Create, Amaze*	Team can fully explain the evolution of their robot design to the current design.	Team can provide a limited description of why the current robot design was chosen, but shows limited evolution.	Team did not explain robot design, or design is not student-directed.
ROBOT BUILD *Innovate, Build, Create, Amaze*	Team can fully explain their robot construction. Ownership of the robot build is evident.	Team can describe why the current robot design was chosen, but with limited explanation.	Team did not explain robot build, or build is not student-directed.
ROBOT PROGRAMMING *Design, Innovate, Think, Amaze*	Team can fully explain the evolution of their programming.	Team can describe how the current programs work, but with limited evolution.	Team did not explain programming, or programming is not student-directed.
CREATIVITY / ORIGINALITY *Innovate, Create*	Team can describe creative aspect(s) of their robot with clarity and detail.	Team can describe a creative solution but the answer lacks detail.	Team has difficulty describing a creative solution or gives minimal response.
TEAM AND PROJECT MANAGEMENT *All Awards*	Team can explain how team progress was tracked against an overall project timeline. Team can explain management of material and personnel resources.	Team can explain how team progress was monitored, and some degree of management of material and personnel resources.	Team cannot explain how team progress was monitored or how resources were managed.
TEAMWORK, COMMUNICATION, PROFESSIONALISM *All Awards*	Most or all team members contribute to explanations of the design process, game strategy, and other work done by the team.	Some team members contribute to explanations of the design process, game strategy, and other work done by the team	Few team members contribute to explanations of the design process, game strategy, and other work done by the team.
RESPECT, COURTESY, POSITIVITY *All Awards*	Team consistently interacts respectfully, courteously, and positively in their interview.	Team interactions show signs of respect and courtesy, but there is room for improvement.	Team interactions lack respectful and courteous behavior.
SPECIAL ATTRIBUTES AND OVERALL IMPRESSIONS *Judges, Inspire*	Does the team have any special attributes, accomplishments, or exemplary effort in overcoming challenges at this event? Did anything stand out about this team in their interview? Please describe:		

NOTES:

CRITERIA	CRITERIA EXPLANATION	JUDGE'S NOTES
ENGINEERING DESIGN PROCESS *All Awards*	How well does the team explain the process they used to create their robot design?	
GAME STRATEGY *Design, Innovate, Create, Amaze*	Can the students explain their game strategy, how they came up with it, & how well it fits with their robot design?	
ROBOT DESIGN *Design, Innovate, Create, Amaze, Build*	Do students demonstrate ownership of the design process? Is the robot well designed to accomplish their goals?	
ROBOT BUILD *Innovate, Build, Create, Amaze*	Do students demonstrate ownership of the build process? Is the robot well-built and robust?	
CREATIVITY / ORIGINALITY *Innovate / Create*	Does team describe creative aspect(s) of their robot with clarity and detail?	
ROBOT PROGRAMMING *Think*	Do students demonstrate ownership of the robot's programming? How well can they explain their code?	
TEAM & PROJECT MANAGEMENT *All Awards*	Can students explain how they managed their time, resources, and people to work effectively?	
TEAMWORK, COMMUNICATION, PROFESSIONALISM *All Awards*	Do all team members share in the work of being a successful team? Does everyone contribute in some way?	
RESPECT, COURTESY, POSITIVITY *All Awards*	Did students answer respectfully and courteously?	
SPECIAL ATTRIBUTES *Judges, Inspire*	Does the team have any special attributes or accomplishments?	

THE BIG PICTURE OF JUDGING

Deliberations



3

Deliberations

- Each judging pair/group will nominate some of the teams they interviewed for the different awards offered at the event.
    - Some teams may appear as candidates for multiple awards.
- Different judging groups may then go out and cross-interview these candidates to be able to compare them with one another and put the candidates for each award in a ranked order.
- For the Design and Innovate Awards, the Engineering Notebook ranking will be factored into the deliberations for those awards. For some others, they will be checked but do not need a particular Engineering Notebook ranking.
- Performance information is factored into Design Award finalists to determine Excellence Award finalists.
- Once award winners are determined, they are entered into Tournament Manager, which then can generate award scripts. Winners are posted to the event's information page on RobotEvents.com once the event is finalized.

THE BIG PICTURE OF JUDGING

Deliberations

3

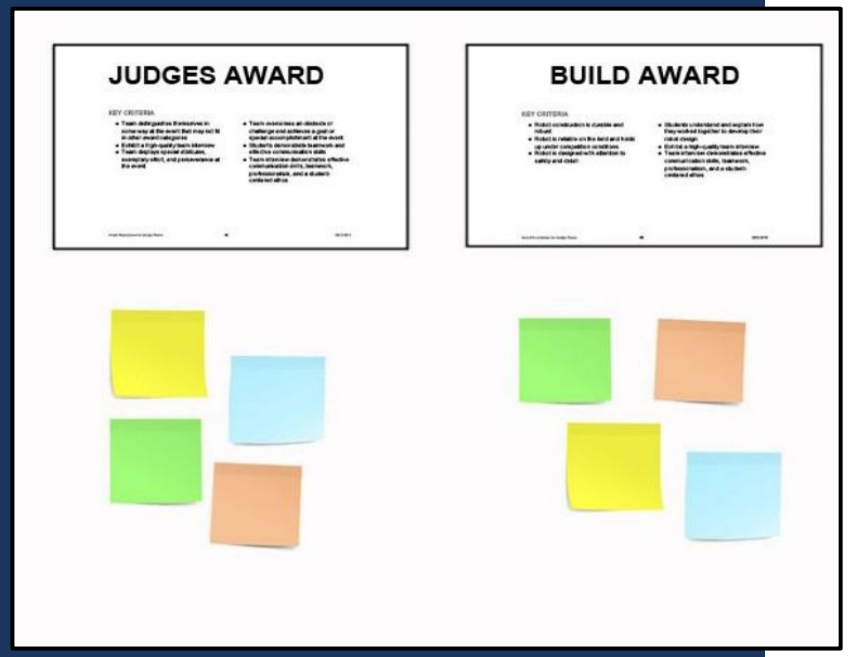
Deliberations

Excellence Award (Required Award)
Team A

Design Award (Required Award)	Innovate Award	Think Award	Judges Award (Required Award)
1. ~~Team A~~	1. ~~Team B~~	1. ~~Team A~~	1. Team E
2. Team B	2. Team D	2. ~~Team B~~	2. Team X
3. Team C	3. Team E	3. Team C	3. Team Z
4. Team X	4. Team Z	4. Team X	4. Team D
5. Team Z	5. Team C	5. Team Z	5. Team Y

Figure 2: After Excellence Award Determination

REMOTE JUDGING



Remote Judging

- Remote Judging follows the same rules as in-person judging, but Initial Team Interviews and/or Digital Engineering Notebook evaluations are done before the event.
- All require in-person judgings to complete deliberations, working from the results of remote judges.
    - This includes Engineering Notebook evaluations as well as team interviews - for many awards, the Engineering Notebook must be checked to ensure the teams meets the requirement for the award
- All teams at the event must be judged in the same way - teams cannot skip a remote interview to be interviewed in person, or submit a physical notebook instead of a digital one.
    - **Consistency** principle - teams should not be given an advantage or disadvantage over other teams based on the judging format.
- Remote Judging requires extra layers of organization to coordinate judges and teams before the event, but for larger events may be beneficial.

JUDGING Q&A & UPDATE SCHEDULE

Next Scheduled Update
August 2025

Email
judging@recf.org

Official Judging Q&A
robotevents.com/judging/2025-2026/QA

Official Judging Documents
REC Library Articles (including individual PDFs of documents such as rubrics) and Downloadable PDF of complete Guide to Judging

Contact

We are here for you

Event Partners, Coaches, and Volunteers are the core of our Programs here at the REC Foundation. Please reach out to us with any questions or concerns. Thank you for all of your support.

Address

1519 Interstate 30 West
Greenville, Texas 75402

Email

Judging@recf.org

Resources