

# Baja SAE Virtual Handbook

2020 Competition Season

*This is a living document and will  
updated as information becomes  
available*

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The 2020 SAE Aero Design West Virtual event will take place in two parts:

**1. Static Presentations** – All teams will be assigned a time slot to present to judges via WebEx. Teams will be emailed the WebEx details. Static Schedule is to be determined and each team will be sent an email for their oral presentation time. Static Schedule will also be provided in this handbook.

Static Judging will consist of multiple days for each static event:

Sales Presentation Judging will take place on **Tuesday, May 26th - Friday, May 29th**

Design Judging will take starting on **Monday, June 1st - Friday, June 4th**

**2. Virtual Event Day** – the event day will consist of the career fair, sponsor skillshops, expert chats and more. We are also planning to work gamification into this event for students to compete against each other for prizes. The date is still tentative currently. We will communicate the official date once finalized on the newsfeed at [www.bajasae.net/go/news](http://www.bajasae.net/go/news)

SAE would like to make the following clarifications regarding the 2020 Virtual Events:

- **Team Eligibility for the 2021 “Pre-Registration” Opportunity:** teams must participate in both the Part 1: Static Presentations and Part 2: Virtual Event Day to be eligible for the 2021 Pre-Registration opportunity.
- **Definition of participation in ‘Part 1: Static Presentations’:** teams must be submitting all required documents per rules and action deadlines.
- **Participating in ‘Part 2: Virtual Event Day’:** Our sponsors are excited to network with you in their sponsor booths; as well as see you attending their skillshop presentations. In addition, SAE will also be hosting several technical sessions and more in the expert room. All team members are encouraged to participate even if your team is not participating in static judging.

## 2020 Baja SAE *Virtual* Design Evaluation Procedures

The Design Evaluation for 2020 will follow a virtual format, but the content and judging criteria of the evaluation will be essentially the same as the on-site events in the past with a small change to the score percentages (details below). Below you will find the procedure and general information regarding the Design Evaluation portion of the competition. Please familiarize yourself and your team with the process and the design section of the rules (C3.1) for an effective and efficient Design Evaluation.

### Procedures

In initial (pre-Finals) Evaluation, each team will be evaluated once, at one bay, by one integrated panel of Design Judges. The score sheet is posted at [www.bajasae.net/go/downloads](http://www.bajasae.net/go/downloads) However, the total points will be determined by the judging panel as a whole, since the vehicle is judged as whole, and therefore may not match the sum of the categories.

The virtual design evaluation will be presentation format using a WebEx Teams meeting. A recommended .ppt template is posted at [www.bajasae.net/go/downloads](http://www.bajasae.net/go/downloads). If your team prefers to use a different format, that is allowed, but it is encouraged that the presentations follow a similar flow. Please convert the .ppt to a .pdf and submit on BajaSAE.net by May 28, 2020. There aren't any points specifically tied to this submission, however it will mitigate potential challenges should they arise.

The overall flow of the design evaluation should be like previous onsite events. Each competition team will begin its evaluation period by presenting a design overview of the car, delivered by one (or more) person (probably the Captain) to the entire judging panel (covering users, needs, specifications and values that guided the design process; key concept and configuration outcomes).

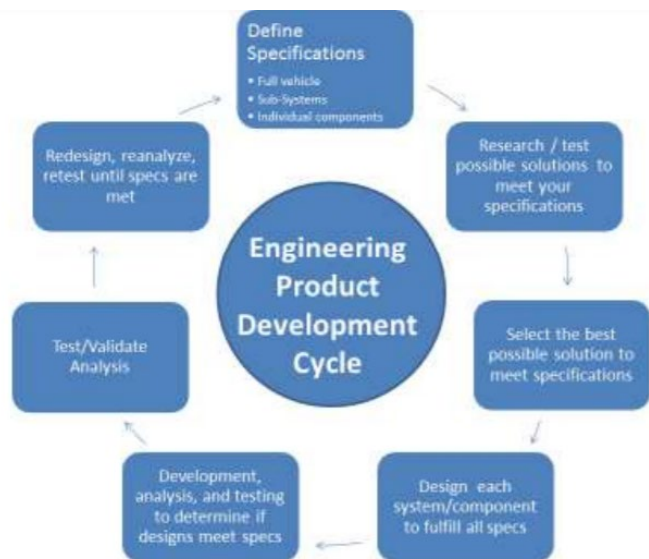
The members of the judging panel each have a specialty: drivetrain, chassis/ergonomics, steering/suspension/brakes, and the bay leader (which will be evaluating the whole vehicle as well as system integration). "Students will be judged on the creation of design specifications and the ability to meet those specifications, computer aided drafting, analysis, testing and development, manufacturability, serviceability, system integration and how the vehicle works together as a whole. Each of these parts of the engineering

### ***Note on Testing/Validation and Correlation of Analysis and Testing:***

We realize that many Baja SAE cars were not finished and thus much of the planned full vehicle testing could not be completed. Instead of evaluating testing and validation that was executed as we typically would during an onsite event, we will be evaluating the teams' testing and validation plans and how the teams planned to correlate their analysis and testing. The scoring percentages have been adjusted as a result. Please see Virtual Design Event Score Sheets at [www.bajasae.net/go/downloads](http://www.bajasae.net/go/downloads).

# DESIGN

The Design Judges all have significant engineering experience and most have substantial experience in the design of Baja SAE vehicles. One advantage of a virtual event is the ability to have judges from all over the United States participate in the design event, however keep in mind each judge has dedicated a significant time commitment in order to contribute to Baja SAE educational outcomes in engineering education. Competition teams should strive to give the judging panels their professional best. Each competition team's Design Report has been read and scored by the same Design Judges as will staff that team's judging panel for Design Evaluation at competition.



## Staging and Timeline

All teams will be assigned a Design Evaluation time, date (June 1st, 2nd or 3rd) and Bay. Please join the WebEx and be ready for the event at least 15 minutes prior to your design time. In the event that a team misses their time slot, there is no guarantee that the team will be evaluated, so please be prompt. We will do our best to accommodate changes, but there is no guarantee that we can change your time slot.

## Evaluation Layout

There will approximately 14 design evaluation bays. Judging panels will remain in one bay and will not interchange members. Each team will be evaluated in a 45-minute period. Details of that period are listed below.

- **Format**

- 5 minutes for a vehicle overview (whole team and all 4 judges in same WebEx).
- 10 minutes for subsystem presentations (students and judges go into breakout rooms for each subsystem; Overall Package / System Integration, Suspension, Steering, Brakes, Drivetrain/Powertrain, Chassis and Ergonomics)
- 5 minutes for questions from judges (students and judges stay in breakout rooms)
- 15 minutes for judges to score students (judges go to scoring breakout room)
- 10 minutes for feedback (whole team and all 4 judges in same WebEx).

# DESIGN

Example queue with timing:

Start Time	End Time	Description			
3:00 PM	3:05 PM	Overview			
3:05 PM	3:15 PM	Overall Breakout Presentation	SSB Breakout Presentation	Drivetrain Breakout Presentation	C/E Breakout Presentation
3:15 PM	3:20 PM	Overall Breakout Questions	SSB Breakout Questions	Drivetrain Breakout Questions	C/E Breakout Questions
3:20 PM	3:35 PM	Scoring			
3:35 PM	3:45 PM	Feedback			

## Design Finals:

Teams with the top Design Evaluation scores will compete in Design Finals. Design Finals will be held on June 4<sup>th</sup> and after all initial design evaluations have occurred.

The Virtual Design Finals procedure will be slightly different than the previous onsite events and will follow a similar format to 2020 Virtual Initial Design. Each team will be evaluated in a 20-minute period. Details of that period are listed below.

- **Format**

- 5 minutes for a vehicle overview. This is expected to be the same presentation that was given during initial design (whole team and all design final judges in same WebEx).
- 10 minutes for Overall Package / System Integration presentations. This is expected to be the same presentation that was given during initial design (whole team and all design final judges in same WebEx).
- 5 minutes for questions from judges (whole team and all design final judges in same WebEx).
- Scoring will take place after all design finals presentations have been given.
- There will not be additional design finals feedback. The panel of finals judges will examine each finalist team from an overall perspective and determine the ranking of the finalists and bonus points.

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## 4wd / Awd

**2020 Bonus points:** If your team planned to compete with a 4wd/Awd vehicle in the 2020 season there are still 25 bonus points up for grabs. Each team that presents a 4wd/Awd vehicle in the design competition will be awarded 25 bonus points.

### 4wd / Awd Design Evaluations:

The Virtual 4wd / Awd Design Evaluation procedure will follow a similar format to 2020 Virtual Initial Design. Each team will be evaluated in a 20-minute period. Details of that period are listed below.

- **Format**

- 10 minutes for 4wd / Awd presentations (students and judges in same WebEx)
- 5 minutes for questions from judges (students and judges in same WebEx)
- 5 minutes for feedback (students and judges in same WebEx).
- **important Note:** The bonus points will be applied to your Overall score, not the design event score.

**Virtual Design Documents:** All documents to support the virtual design events can be found under Series Resources at [www.bajasae.net/go/downloads](http://www.bajasae.net/go/downloads). The design docs can be found in the design subfolder within the 2020 Virtual Event Docs folder. This includes:

- 2020 Virtual Design Template
- Virtual Design Evaluation Procedures
- Score Sheets

# SALES PRESENTATION

## Baja SAE Sales Presentation Event Description

**Date:** May 26- 29, 2020

**Location:** via WebEx appointments

**Timing:** Sales presentation judging will take place on Tuesday, May 26th through Friday, May 29th between the hours of 3:00 PM EST and 7:00 PM EST. Finals are happening, but TBD on exact days and times

## Judging

Operations: 45-minute time slots assigned for judging

## 2020 Virtual Sales Presentation Details

### Introduction

The Sales Presentation for 2020 will follow a virtual format, but the content and judging criteria of the evaluation will be essentially the same as the on-site events in the past.

For an effective and efficient presentation, please familiarize yourself and your team with the Sales Presentation section of the rules (Article 5). The Judge Score Card and Rubric/guideline are also recommended resources to review. They can be found in the Sales Presentation section at:

[www.bajasae.net/go/downloads](http://www.bajasae.net/go/downloads)

### Required Content

Required content to provide by May 10th for the virtual Sales Presentation event: new to the virtual event, teams are required to turn in their Sales presentation slides ahead of time. Please convert your presentation to a .PDF and upload it to your team's document submission page at [www.bajasae.net](http://www.bajasae.net). Judges will use them for reference during judging deliberation and a back-up in case of technology issues. It is understood and expected that the presentation content could change between what is submitted and what is presented. We also understand that converting to a .PDF may limit your presentation but is required due to file size. Your team will not be assigned a presentation time slot without a submitted presentation.

### Objective and Audience

The objective and audience of the Sales Presentation remains unchanged for the virtual format:

- **Objective**  
“...for the team to persuade the “executives” of a hypothetical manufacturing company to invest in the team’s Baja SAE vehicle design, manufacturing, sales, and distribution. The team should assume they will be producing the vehicle at a rate of 4,000 units per year. See the judging rubric for further context.”
- **Audience**  
“...teams are to assume that the judges are to be a mixed group of corporate executives who may have experience in marketing, production and finance as well as engineering.”

# SALES PRESENTATION

## Presentation Format

The format remains primarily unchanged, but there are some differences:

- All teams will be assigned a Sales Presentation time and date (May 26, 27, 28, or 29). They will also receive access to a WebEx link for their specific room. Please join the WebEx and be ready to present at least 15 minutes prior to your scheduled time. In the event that a team misses their time slot, there is no guarantee that the team will be evaluated, so please be prompt. We will do our best to accommodate changes, but there is no guarantee that we can change your time slot.
- The number of Sales Presentation rooms is still being determined. Judging panels will remain in one room, and will not interchange members. Each team will be evaluated in a 45-minute period. Details of that period are listed below.
- One or more team members may make the presentation to the judges.
- The presentation itself is limited to a maximum of ten (10) minutes (whole student team and all judges in same WebEx).
- Following the presentation there will be an approximately five (5) minute question period (whole student team and all judges in same WebEx).
- Only the judges are permitted to ask questions. Any team member on the presentation floor/stage may answer the questions even if that member did not speak during the presentation itself.
- Fifteen (15) minutes for judges to score students (judges go to separate scoring breakout room for discussion. Students stay in the main presentation room)
- Ten (10) minutes for feedback (whole student team and all judges in same WebEx).

## Scoring

Scoring remains unchanged: “The Sales Presentation event will be scored based on such categories as: 1) The content of the presentation, 2) The organization of the presentation, 3) The effectiveness of the visual aids, 4) The speaker’s delivery, and 5) The team’s responses to the judge’s questions.” The organizers reserve the right to use a method of their choice to normalize scores across rooms if they deem necessary.

## Finals

Sales Finals dates are TBD at this time. The top three teams to present will be notified. The top three teams to present will be notified by May 28th. The format will be consistent with the regular presentations: WebEx meeting invitation with a ten minute presentation. Differences being it will be open for any student teams to watch (we encourage other schools come watch). A new panel of judges will selected for finals and there will be no question-answer session. Those teams watching remotely are not allowed to record the finals presentations.

## Baja SAE Virtual Cost Competition

The Baja SAE cost team has produced three activities for the virtual competition this year.

- 1. The first event will be the audit, the cost judges will review the final submitted cost report due on June 1<sup>st</sup> and will select teams to be audited.** The teams may be audited for a single subsection or multiple subsections depending on the review completed by the cost judges. Teams will be notified that they have had their cost report adjusted and will have the option to accept the result of the findings or challenge the findings. If a team decides to challenge the results, a virtual meeting will be arranged for the team with a cost judge to discuss and possibly adjust the findings.
- 2. The second event will be based on the final cost report submitted on June 1<sup>st</sup>.** The cost judges will be looking at reports to see if there are opportunities for teams to improve their cost score for future seasons. If the cost judges determine a team might benefit from coaching, a limited time opportunity will be given for teams to sign up for a slot with a one on one meeting with a cost judge. We hope that teams who have traditionally struggled with the cost report and would like a chance to learn and improve for future years will elect to take part in this program.
- 3. The third event will be open to all teams and will be part of the new virtual program.** The event will ask teams to take a component that they prototyped for their Baja vehicle and look at ways to change the design of the part to reduce cost, including but not limited to changing the material or process of making the part.

The teams will be allowed to submit a one-page document outlining how they would change the design and reduce the overall cost of the vehicle through optimization. Teams will also be allowed to submit one additional page made up of images or drawings to help explain the redesign. The document format should follow the same format used for design reports.

**TBA SOON**

# TECHNICAL INSPECTION

## **Technical Inspection Quiz**

As part of the Baja SAE virtual event teams can take, complete and get a score for the Technical Quiz on [www.bajasae.net](http://www.bajasae.net)!

### **Timeframe:**

The quiz will be open May 11<sup>th</sup> through the 18<sup>th</sup>

Scores from the quiz WOULD have been used to generate ENGINE CHECK line numbers for the top 40 teams at each competition, meaning that teams would only have take this quiz once per year despite being registered for multiple competitions. However, this year the quiz is just for fun and bragging rights.

The quiz is timed, but based on the elapsed time from when you start your first attempt NOT when the quiz opens. Be sure to start when you are ready and have a good internet connection.

### **Things to know about the quiz:**

- Scores from the quiz WOULD have been used to generate ENGINE CHECK line numbers for all registered competitions, meaning that teams would only have take this quiz once per year despite being registered for multiple competitions.
- We will be moving forward with using the Technical Inspection quiz in 2021.
- Waitlist teams are able and encouraged take the quiz as well.
- ENGINE CHECK line order number would have been assigned based on the best score/best time.
- Teams will have a max of 4 attempts to get a perfect score with elapsed time counted from the start of the first quiz attempt.
- Questions will be multiple choice.
- Quiz will have 20 questions.

# AWARDS

## Polaris Design Award

- **Baja SAE Arizona** - Top three scores in design event combined paper and onsite judging scores.
- **Baja SAE Louisville** - Top three scores in design event combined paper and onsite judging scores.
- **Baja SAE Illinois** - Top three scores in design event combined paper and onsite judging scores.

## Sales Presentation Award

- **Baja SAE Arizona** - Top three scores in Sales Presentation event.
- **Baja SAE Louisville** - Top three scores in Sales Presentation event.
- **Baja SAE Illinois** - Top three scores in Sales Presentation event.

## Cost Award

- **Baja SAE Arizona** - Top three scores in the cost event.
- **Baja SAE Louisville** - Top three scores in the cost event.
- **Baja SAE Illinois** - Top three scores in the cost event.