

Informative 07

October 19th, 2020

Design Event

Dear Participants,

As previous years, the design event will be broken down in five events, divided in two Phases:

- Phase 1:
 - Design Validation (100 points)
 - Design Presentation (150 points)
 - Management and Budget Presentation (100 Points)
 - Business Presentation (80 Points)
- Phase 2:
 - Design Finals (70 Points)

The 3 best scoring teams in Phase 1 will qualify to Phase 2 if they also meet the following criteria:

- Approval on Safety Event
- Submission of Deliverable 5 up to November 30th, 2020

If a top-3 team does not comply with the previous criteria, then another team meeting the criteria will be selected, based on Phase 1 points, from highest to lowest. In an event of tie for the last position, both teams will qualify.

All deliveries must be written in English (TSS, DV, presentation files and any other document), any document delivered partially or totally in any language other than English will have a 30% deduction from their score.

Design Validation

Deliverables 1 to 4 are indicated on Informative 04. Deliverable 5 is detailed at the end of this Informative.

Design Presentation

Design Presentation will follow the same format adopted in the past years, with an oral presentation in Portuguese about the vehicle development. The team should be able to present concisely all engineering considerations and processes used during every system development, that description should include but is not limited to: Objectives, client requirements, considered solutions (ex: manual transmission x CVT; independent rear suspension x dependent rear suspension, etc.), improvements over past designs, calculations, analysis, test results, costs considerations, etc.

The presentation material must be delivered to the committee in advance and its size is limited to 150MB.

Due to the digital format, the presentation will be held in a Google Meets, a link will be sent to the team captain who attended the briefing conference at the beginning of the Design Presentation day. The presentation will be in a closed format for each team: Only judges and registered members of the presenting teams may join the presentation conference. Connection issues may arise, so be prepared to have back-up internet sources and presentation file. The time watch will continue to run despite a member disconnection.

Each team presentation will occur in the following order:

1. 12 minutes presentation
2. 8 minutes question and answers
3. 10 minutes feedback

The presentation will be made by up to two team members. Other team members are only allowed to answer during the question and answers part should one of the presenting pair request their assistance.

The presentation order will be defined randomly and the link to the briefing conference will be sent to the team captain's e-mail.

The items to be evaluated are listed below and should be presented in the following order:

1. Roll Cage / Ergonomics
2. Steering
3. Suspension
4. Powertrain
5. Brakes
6. Electronics

Teams will also be evaluated by the presenters' behavior, presentation clarity and performance during Q&A phase.

Scores will be published as below:

- Sub-items – Scores between 0 and 10.
- Design Presentation – Scores between 0 and 150.
- The design presentation final score is not a direct sum/mean of all sub-items scores.

Submission Procedure

The presentation file must be uploaded to Google Drive (no other way will be accepted) and the generated links should be sent to the committee through the email:

bajasaene@gmail.com meeting the deadlines on **Submission Dates** topic. The email should have the following standard title:

BNE20– Presentation Files – Car ## – Team YYYYYY

It is recommended that the team also have the files on the hard disk of the device used to connect on the presentation day.

Management and Budget Presentation

This event has the same procedure as the Design Presentation described above (file size, Google Meet, presentation duration etc). The next paragraph will inform only the specificities to the Management and Budget Presentation.

The teams are expected to make an oral presentation, in Portuguese, explaining:

- **Management practices**, tuned to the reality of each team, focusing on policies for record-keeping, preservation and dissemination of knowledge; project management; and strategies to increase efficiency, minimize rework and eliminate activities that add little or no value to the project.
- **People management aspects**, with considerations on the processes to improve technical and behavioral skills of the team members while maintaining and raising the standards of the team, ensuring its continuity.
- **Budget plan** with considerations to money raising, comparison to planned and real spending, yearly financial reviews, cash flow, balance sheet and futurization when applicable.
- **Prototype reduction budget**, the team needs to present ideas to reduce by 10% the Prototype Allocated Budget goal defined in Deliverable 1. The team must propose modifications and quantify its savings toward the 10% reduction goal, aiming to minimize performance losses due to this cost saving request from the board of directors.

Business Presentation

Objective and Audience

In this event the team has to roleplay a corporate scenario. Continuing the team startup company idea of the last year event, the team should consider that they have been bought by a group of corporate executives. The roleplay scenario is described in the next paragraph.

According to the last customer expectations research, your company has identified a potential market in a 4x4 Baja SAE vehicle for a global project. Now, the board of directors has requested to you a viability study of this concept. Therefore, their interests include, but are not limited to:

- Will the vehicle have a good performance in the National market?
- How about an international market? Does it have better odds?
- Can the current 4x2 vehicle design (Your current Baja SAE design) be adapted to a 4x4? Or it will need an entire new project?
- Which type of training our engineering team would need to partake in order to be competent to design a 4x4?
- Manufacturing plan. Which adaptations are needed in the assembly line?
- Marketing plan. What would make our 4x4 unique?
- Financials. How much is the initial investment? When is the payback?
- Your final advice. Is it viable or not?

Format

The business presentation will be sent in advance through a video uploaded by the team to the judging committee; up to two team members may be presenting on the video, which should be limited to a maximum of five (5) minutes. The oral presentation may be done in English or Portuguese while all the written information on the video must remain in English.

Submission Procedure

The Business Presentation must be submitted as a video file. The team must upload the presentation privately to YouTube and send the link to bajasaene@gmail.com by the submission deadline.

Further Considerations

Please bear in mind that the same behavioral criteria used to be evaluated during on-site presentations still are going to be evaluated through video. In this sense, the presentation should flow smoothly and post-production processes such as video cuts should be kept to a minimum, since they may jeopardize the entire understanding of the presentation.

Even though organization of the presentation and effectiveness of visual aids will be evaluated, as long as it is possible to clearly read and hear the presentation content, video quality will not play any role when it comes to scoring.

Design Finals

(Valid only for teams that posted the Deliverable 5 up to November 30th, 2020)

The teams qualified to the Design Finals will be given the opportunity to have a deep dive evaluation, each team will have a 45 minutes time frame in which the design judges may ask about any subject related to the project, deliverables, design presentation, management and budget presentation and any project related items even if they have not been presented before.

Each team will receive unique links to conference rooms based on a vehicle system and should allocate up to two members for each room. The design judges may join the room and leave to go to another, but the intention will be to always have at least one judge in each room. The systems are:

- Roll Cage / Structural Analysis
- Steering & Suspension
- Powertrain
- Brakes
- Electronics
- 4x4 Concept (Deliverable 5)

On Design Finals the teams will not present again their projects, it will be more as a conversation with design judges. Anyway, the Teams are expected to have a presentation with the topics concerning the system. The team may also use other supporting material such as excel files, videos, opening a CAE result and so on. The materials used for the Design Finals must be in English.

Submission Dates

The Design Events files should be submitted according to the dates below.

Design Validation (Delays not accepted):

- Deliverable 1 – August 28th, 2020 up to 13h59min (Brasilia time);
- Deliverable 2 – September 18th, 2020 up to 13h59min (Brasilia time);
- Deliverable 3 – October 16th, 2020 up to 13h59min (Brasilia time);
- Deliverable 4 – October 30th, 2020 up to 13h59min (Brasilia time);
- Deliverable 5 - November 30th, 2020 up to 13h59min (Brasilia time);

Business Presentation:

- No penalty – November 28th, 2020 up to 13h59min (Brasilia time);
- 25% penalty – November 29th, 2020 up to 13h59min (Brasilia time);
- 50% penalty – November 30th, 2020 up to 13h59min (Brasilia time);
- Files sent afterwards will not be assessed.

Design Presentation and Management & Budget Presentation:

- No penalty – December 4th, 2020 up to 13h59min (Brasilia time);
- 25% penalty – December 5th, 2020 up to 13h59min (Brasilia time);
- 50% penalty – December 6th, 2020 up to 13h59min (Brasilia time);
- Files sent afterwards will not be assessed.

The SAE Brazil and the Technical Committee will not take any responsibility for delays that might occur during the uploading due to issues on the internet connection. We strongly recommend teams to not leave the files' submission to the end of the deadline, there will be no tolerance.

The upload of the requested documents is imperative for the evaluation. The delivery time will be considered the exact time when the last document version has completed its upload that appears in the system.

Deliverable 05 – Due date: November 30th, 2020

4x4 Concept (0 points)

The submission of Deliverable 05 is a prerequisite to eligibility for Design Finals. Deliverable 05 consists of a presentation file containing a concept study for a 4x4 Baja SAE vehicle. Please keep in mind the difference between a Concept and a Project. We do not expect teams to dimension 4x4 components, specify supplier parts or have frozen CAD design.

A successful team will be able to demonstrate through early stage drawings, calculations and schematics:

- Which type of 4x4 would they choose?
- What envelope would the 4x4 system take into your vehicle?
- Estimations of performance gains and losses due to 4x4.
- Which new tests and simulations would be required to validate the new 4x4 system? What target performance is sought for those tests?

Presentation files judged as poor quality by the judge board (lack of relevant images, generic information etc) will also be considered ineligible for Design Finals.

Deliverable 05 submission will also be made through email (bajasaene@gmail.com). It should be submitted by the teams as a single document in PDF format following the standard title below:

BNE20 – Deliverable X – Car ## – Team YYYYYY

The teams are allowed to update the files by making a new upload until the deadline, only the latest submission will be considered as official and the appropriate penalties will be applied.

If the team qualifies for Design Finals, this presentation file (PDF or PPT file) must be used in one of the conference rooms during the Design Finals event.

Baja SAE Brazil – Northeast Phase Committee