Virtual BAJA SAEINDIA 2014 – Guidelines to participating teams

The Virtual BAJA SAEINDIA is a pre-qualifier to participation in the BAJA SAEINDIA event. This event is scheduled on 26th & 27th July 2013.

The teams would be selected based on their knowledge of the basic Automotive Design Technology and about the SAE Baja vehicle design and manufacturing requirements.

Time Structure for each team (Total 30 minutes per team)
1) 20 minutes: Presentation by team: No questions will be asked during presentation. Warning bell will ring after 15 minutes. Please make rehearsals to ensure that presentation will be over in 20 minutes. No extra time will be allowed beyond 20 minutes for any team.
2) 5 minutes: Questions by Judges, to be answered by team members.
3) 5 minutes: Team goes out & wait outside Presentation room. Judges discuss scores, in few minutes, the team is called in along with faculty advisor and given a feedback only on shortcomings / improvements required by the lead judge from panel. There will be no discussion either with team or faculty advisor.

Presentation Guidelines
1) Max number of slides is 14 excl 1st & thank you slide. Estimated average time per slide is 1 ½ minutes.
2) During the presentation, team will be judged, based on their basic understanding of automotive engineering and fundamental principles covering entire vehicle and all important aggregates. Showing extensive design calculations/analysis is not necessary at this stage. It is important to show clarity of understanding basic design approach/principles.
3) Old Teams, which have participated earlier, need to show case their lessons learnt and difference in their new vehicle design compared to earlier vehicle design.
4) Innovation does not carry any score as such during Virtual BAJA. However, weightage will be given during selection if new innovative feasible ideas are showcased.
5) Faculty Advisor, if present, will be silent observer & will not participate in Presentation by team or any discussions with Judges.

Structure of Presentation: (Slide Sequence)
1) Preliminary Technical Specifications & Overall Performance Targets. 2D / 3D views of the proposed BAJA Vehicle design.
2) Knowledge of rulebook –Main dimensions/structural and safety requirements / material of roll cage
3) Design Methodology for Roll Cage, Proposed Engineering process for FEA – load cases and constraints, criteria for Factor of Safety & deformations. Actual FEA results may be presented but not mandatory.

4) Ergonomics knowledge related to vehicle cockpit layout – Driver seating layout, ease of egress, vision and controls.

5) Suspension – Design Methodology for Suspension Springs, Dampers, Links / arms design, wheel geometry (caster, camber, toe in, toe out) etc. Centre of gravity, Roll centre, methods to determine and its importance.

6) Steering - Design Methodology & considerations for selection of steering gear, turning circle etc.

7) Brakes - Design Methodology & considerations for brakes type selection (Disc / drum brakes), brake circuit layout/actuation, Dynamic Load Transfer, Stopping distance, deceleration, pedal effort etc.

8) Power train (Engine to wheel including tyres) & mounting / packaging considerations, Vehicle performance prediction e.g. Vehicle speed, Acceleration, Maximum Gradient etc.

9) Manufacturing processes required for various important vehicle aggregates, machine tools/hand tools and other facilities required. Facilities available in the college workshop.

10) One page important technical parts list for the vehicle. Overall weight and cost elements/estimates and financing for the project.

11) Team size, Responsibilities assigned, Project Plan – including Validation test schedule.

12) Design verification/Quality process and Validation procedure (Road Tests etc.)

**Scoring:** Max 150 marks

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<thead>
<tr>
<th>Evaluation criterions</th>
<th>Max</th>
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<tr>
<td>Preliminary Technical Specifications, Overall Performance Targets, 2D / 3D views</td>
<td>15</td>
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<tr>
<td>Knowledge of rulebook –Main dimensions / material for roll cage</td>
<td>20</td>
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<tr>
<td>Design Methodology for Roll Cage, Proposed Engineering process for FEA</td>
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<tr>
<td>Suspension, Steering &amp; Brakes – Design Methodology &amp; Considerations</td>
<td>30</td>
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<tr>
<td>Power train (Engine to wheel incl. tyres) &amp; mounting considerations, performance prediction</td>
<td>15</td>
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<td>Driver Ergonomics knowledge</td>
<td>10</td>
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<tr>
<td>Manufacturing processes, College workshop facilities &amp; Engg BOM/ weights/cost Estimate</td>
<td>20</td>
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<tr>
<td>Design verification/Quality process/ Validation schedule &amp; Project plan up to main Baja Event</td>
<td>20</td>
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**Reporting and decorum Guidelines:**

1) All the teams must report one hour prior to the registration time of their slot i.e. 7:00 am for the morning slot and 11:00 am for the afternoon slot.

2) If a team fails to report on the designated time, that team would be evaluated at the end of the complete Morning/Afternoon slot, as applicable.

3) The presentation must be in PDF format sent to BAJA mail id bajasaeindia2014@gmail.com on or before 24th evening 5pm. Please keep the subject line <Team ID No.> <Team name>. Also team need to bring along in a formatted Pen Drive.

All teams must carry the following things and produce them at the time of their registration:

1) College ID Card
2) SAE ID Card
3) Passport size picture
4) A print out of the Participation Form # 7 to submit at the registration counter
5) Valid SAEINDIA Membership cards or nos.
6) An MS Excel Sheet stating the names of the team members the way they want it on the certificates.

It’s a humble request to the teams to kindly come to the venue in strictly accordance to their respective slots as allotted.

Please make sure that you conform to all the above mentioned rules and regulations. Non Compliance will lead to unwanted actions, including disqualification.

With Warm Regards,
Organizing Committee

15 July 2013