

SUPRA SAEINDIA 2016

DESIGN REPORT

(Place Team/College logo at this location within this space only)

Team ID : <Team ID>

Team Name : <Team Name>

College Name : <College Name>

City : <City, State>

Report Author : <NAME>

Report Co-Author : <NAME>

A. Guidelines for Teams

1. **Teams have to bring the 2 hard copies of their design report during the event.**
2. This design report must include the 100% complete design. All the parameters must be elaborated with sufficient details for evaluation purpose. This document shall be referred during design evaluation at the time of main event.
3. The design report must be prepared in the given format only. Teams are advised to send their complete report PDF copy before last date of submission. After that, no report will be accepted.
4. A penalty of 10 marks per day maximum upto 100 marks shall be applied for late submission of design report and team submitting after 10 days of last date will be considered non submission and that team will not be evaluated for design event during main event.
5. Design Report must be submitted to _____email id only with subject name **Team ID_Design Report_Team Name** and file name **Team ID_Design Report_Team Name**.
6. Do not send the design report to any other email ID until and unless published on SUPRA official website or informed by Technical Committee. If sent to other email IDs, teams shall be solely responsible for any loss/misuse of report data.
- 7.

B. Last Date of Submission

Last date of Design Report submission is _____

It is advised to send the report a sufficient time before the deadline to avoid any connectivity issues. Any request for extension of timeline shall not be entertained.

C. Format of Design Report

Design Report will be of maximum 12 pages (including cover pages, pictures, charts etc). This should be a single file of **maximum file size 5MB in Portable Document Format (.pdf) only.**

Teams should use Times New Roman font with font size 11 and line spacing 1.15 on all A4 pages. Only white background (no image/ watermark etc) is allowed in design report.

1. Cover page:

Cover page format is specified in this format itself at page-1. Teams should give their proper details in the space mentioned. Team/college logo can be displayed at the mentioned space only.

2. Report Details:

Design report should be a complete document describing all details of the whole project. This document should include following points in the following order only.

- i. Introduction
 - a. You need to introduce your college, team and team members.
- ii. Design Goals
 - a. You need to specify Design Goals which you have considered while designing your vehicle. (For example – Drivability, Weight reduction, Manufacturability, etc.)

- iii. Chassis**
 - a. You need to specify the material used for your chassis, along with the reason for using it.
 - b. You need to specify the type of welding used.
 - c. Specify the Roll cage members dimensions
 - d. Rules as mentioned in the rule book for designing Roll cage
 - e. Static and Dynamic Analysis of Roll Cage
 - i. Element Selection
 - ii. Force calculation
 - iii. Type of Analysis performed
- iv. Wheel Assembly**
 - a. Type of Types used and reasons with calculations
 - b. Upright / Knuckle and Hub Analytical calculations along with CAE Analysis with forces and constraints applied
- v. Suspension**
 - a. Type of Suspension used along with Hand calculation and CAE Analysis with graphs
 - b. A-arm calculation if any
 - c. Dampers calculation if any
 - d. Caster , toe, chamber , motion ration calculation
- vi. Steering system**
 - a. Steering system used and reasons with calculation and analysis
- vii. Brakes**
 - a. Brakes mechanism with disc dimensions and calculations
- viii. Engine**
 - a. Engine Selection
 - b. Electronics
 - c. Intake and Exhaust
- ix. Transmission**
 - a. Type of transmission system used with reasoning
- x. Ergonomics**
 - a. CAD images
 - b. Specify the Rules mentioned in the Rule Book
- xi. Safety**
 - a. Equipment's used
 - b. Impact Attenuator calculation and Analysis

3. Pictorial Presentation:

Teams can provide the pictorial illustrations, graphs, CAD models of any sub part of the vehicle.

4. Conclusion: Teams should conclude how they have validated their design with results of validation.