

MUFFAKAM JAH COLLEGE OF ENGINEERING.

Mechanical Engineering Department

Report on SAE – MJCET Team participation in SAE – BAJA 2020 Competitions.

SAE-India is India's leading resource for mobility technology and BAJA is a flag ship event of it . Over the years, BAJA has grown in popularity and has become a bigger event nationally. It serves as a platform for young Engineering students to showcase their talent, skills and acquire a real time experience while over coming obstacle and challenges. The 13th edition of BAJA SAE-2020 is different scenario in terms of the level of vehicles, testing tracks and competitions. The event is organized at NATRAX, Peethampur, Indore, MP state during 22nd – 26th January 2020. Team MJCET participated in the event and the details are reported as follows..

Virtual BAJA (Pre selection) :

In the month of July 2019, MJCET team has prepared a detailed design report and appeared for virtual BAJA selections at CHITKARA UNIVERSITY, PUNJAB. The team has cleared aptitude and technical tests and presented design report. The team got short listed. Team has then registered for main BAJA 2020 conventions.

Vehicle fabrication:

Team has fabricated the ALL TERRAIN VEHICLE in three months. They have procured engine from Briggs & Stratton, CVT and differential gear box from OEM supplier in Pune. Fox suspension shock absorbers are purchased from BITS Pilani and IIT Rurkee. The tyres and Aluminum rims are procured from dealer. Roll cage is fabricated in welding section of our College using TIG welding process. Components like driving shafts, knuckles, hubs, steering rack and pinion are machined at outsource. Other parts are manufactured in-house. Driver's safety suit, transponder and other items are used from the available inventory. All the component assembly, body works and painting are carried out in the SAE laboratory. The vehicle is tested in the college campus for about two weeks. Vehicle un-veiling and flag off was organized on 10th January 2020 and vehicle got dispatched by road transport on 18th January 2020. The team has reached at the conventions and registered for the competitions. Total of 176 teams have registered for M – BAJA and E – BAJA categories.

Technical Inspection:

Team has prepared the vehicle and appeared for Technical Inspection, where in all parameters and specifications as per rule book are thoroughly inspected by the judges. Certain deviations were raised like CVT cover, brake caliper cover, battery box, CVT mounting bolt, drain pipe, accelerator pedal adjustment and engine speed governor adjustment, driver seat belt adjustment and fire wall gap adjustment. All these deviations were rectified by the team and the vehicle has successively cleared Technical Inspection and got certified. The vehicle net weight is measured to be 188.8 Kgs. MJCET team has taken 2 days to clear the Technical Inspection of their vehicle.

Static events:

Team along with vehicle appeared for static events like cost evaluation, Design Evaluation and Marketing strategy Evaluation and scored well in these presentations. They could not appear for two events like go-green and innovation as they were not ready with content and missed those scores.

Brake test:

Soon after completing Technical Inspection, team went for Brake test on 25th January 2020. All the wheels are not instantaneously locked in the brake test in the first two attempts. Brake fluid was leaking from pressure switches. Team rectified the leakages and performed bleeding of brake fluid and again presented the vehicle for brake test. Thus, vehicle and team cleared the brake test successfully in third attempt and got certified.

Dynamic events:

After clearing the brake test, team has presented the vehicle for dynamic events like acceleration, maneuverability, suspension & tracks and rock crawl. Team could not participate in dynamic events, as the reporting time was over. This happened due to delay in clearing Technical Inspection and brake test. We missed the scores for Dynamic events.

Final Endurance:

Final endurance test started on 26th January 2020 after National flag hoisted. Total of 76 teams are qualified and lined up their vehicles. Final endurance test has lasted for 4 hrs from 10AM to 2PM. Our vehicle has completed the race till the end without any brake-

downs. It has completed 21 laps in 4 hours of drive on the off road mud terrain. Most of the other vehicles have failed to finish endurance due to their vehicle break downs. Maximum no. of laps completed by the winner team is 28 laps. The factors that have contributed in the success of Endurance test are vehicle sturdy design, low weight, driving skills and fitness of the driver. Team spirit, hard work and persistence helped us to achieve the favorable results. Valedictory function was conducted in the afternoon, where in winner and runner teams have received their prizes. In the evening team has packed the vehicle and tools in the truck and sent back to the College.

Final Results:

MJCET team stands at **7th rank** in the final endurance test nationwide and achieves **1st rank** in Telangana and Andhra Pradesh States in the overall ranking.

Recruitment drive:

Five students of MJCET are short listed in the aptitude test and psychometric test. Technical and HR interviews are conducted on 27th and 28th January 2020. Two students are selected in the recruitment by reputed automobile companies at SAE – BAJA 2020 conventions, like Anand Motors and ARAI, Pune.

Funding:

MJCET management has sanctioned a fund of Rs. 5, 00,000/- in the month of September 2019. The fund is used for the vehicle fabrication and transportation.













