



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

An Autonomous Institution with NAAC Accreditation (A Grade)
*Approved by AICTE *Permanently affiliated to JNTUH *NBA Accreditation
Kandlakoya (V), Medchal Road, Hyderabad -501401.

Date:28/08/2019

To
IQAC,
CMRCET,
Kandlakoya (V),
Medchal Road,
Hyderabad-501401.

Respected sir,

Sub: Annual report of the SAEINDIA COLLEGEIATE CLUB CMRCET for the A.Y 2018-19.

Following is the brief information of programs conducted by the SAEINDIA COLLEGEIATE CLUB CMRCET for the A.Y 2018-19.

1.M-BAJA:

The 12th edition of Mahindra BAJA SAE India saw a total of 363 teams registering for this event. Out of the 363 teams only 251 teams qualified for the further rounds. The 251 teams were divided as 120 mBAJA (Conventional fuel vehicles), 50 eBAJA (battery operated vehicles) for the Pithampur round and the rest 81 teams for IIT Ropar round.

After reaching Indore we were guided to our hotel. A networking dinner was organized in the evening, where we were given a briefing about the event and also, we got a chance to interact with the event's organizing committee members. We were given the do's and don'ts about the event which was going to take place the next day.

The next day, we started off early in the morning. The event venue was approximately 40 km from our hotel, and it was a good 1 hr. drive. After reaching the venue we could see all the students running across the venue, all excited and pumped up. The race was flagged off by Mr. Bharat Moossaddee, EVP & CFO, Auto Sector, M&M Ltd. along with Mr. Umesh Shah, Sr. VP & COO (CVRBU), Gabriel India Ltd., Convener – BAJA SAE India 2019, Mr. Rakesh Sood, MD, Trim India, & Dr K.C. Vora, Sr. Advisor, BAJA SAE India and Senior Deputy Director, ARAI. Out of the 170 teams, only a total of 107 teams (85 mBAJA and 22 eBAJA) could qualify for the endurance race round. It was a 4-hr long race with the teams which comprised of engineering college students. The four-day event started with basic Static Evaluation round which comprised of design evaluation, cost evaluation and marketing presentation. In the final round, the teams showcased their prototype of a rugged single seat, off-road recreational four-wheel vehicle and were evaluated on various parameters, including engineering design, CAE, cost and technology innovation. The objective of the competition to simulate real-world engineering design projects and their related challenges. Each team's goal was to create a safe, easily transported, easily maintained and fun to drive prototype without any direct involvement from professional fabricators.

Our team has secured these ranks in each of these events

Design evaluation: In this event the teams are need to explain the panel members regarding them deign procedure and justify their design in different aspects. And later need to answer the questions asked by the judge.

Position in design evaluation: 42nd

Cost presentation: in this event teams need to produce the total cost of the vehicle fabricated including different parts which are manufactured earlier. Every team must produce the bills of each and every part which are evaluated by the judge. The team which fabricates the vehicle in lowest cost gets to win the event.

Position acquired in cost presentation: 21st

Sales presentation: In sales presentation teams are given a task of making 1000 vehicles per year. This event tests the managerial skills of the teams they need to show their factory design and place at which the factory needs to be built. And cost for this all equipment. Then just after the factory design they need to start the vehicle manufacturing and should consider cost for making each vehicle. Then the vehicle needs to be sold for a reasonable price to the customers. Taking all these aspects into consideration teams need to present a report. The team which gives the best performance in this event is awarded

Position acquired in sales presentation: 54th

Just after the static events dynamic events start in dynamic events, we have different competitions like braking test, maneuverability test, suspension and traction test, acceleration test, sledge pull test, go green test and endurance.

Our team secured these positions in each respective event as follows

Brake test: Team need to start from still point and should stop from 45kmph to 0 within 1.5m teams which pass this test are allowed to participate in other dynamic events.

Maneuverability test: In this event vehicles steering is tested where it is made through pass through sharp corners and unsteer able paths. The vehicle which completes this path in shortest time is awarded.

Maneuverability position: Didn't participated



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Suspension and traction test: It is the most difficult event where the vehicle is made to pass through difficult terrains and uneven terrains, logs etc. This event tests the vehicle suspension system, rigidity, strength of the vehicle.

Position in suspension and traction: Didn't participated

Sledge pull: the vehicle is made to pull up to 1ton weight.

Go green award: This event tests the emission level which come out through the exhaust of the vehicle the teams which has the lowest emissions is awarded with go green award.

Endurance: This is the final event where all the vehicles are assembled in and made to complete laps through the given time. The team which makes the highest lap is awarded.

Endurance position: Didn't participated

Overall position: 78th

2. E-BAJA:

The 12th edition of Mahindra BAJA SAE India saw a total of 363 teams registering for this event. Out of the 363 teams only 251 teams qualified for the further rounds. The 251 teams were divided as 120 mBAJA (Conventional fuel vehicles), 50 eBAJA (battery operated vehicles) for the Pithampur round and the rest 81 teams for IIT Ropar round.

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Our team has secured these ranks in each of these events

Design evaluation: In this event the teams are need to explain the panel members regarding them deign procedure and justify their design in different aspects. And later need to answer the questions asked by the judge.

Position in design evaluation: 2nd

Cost presentation: in this event teams need to produce the total cost of the vehicle fabricated including different parts which are manufactured earlier. Every team must produce the bills of each and every part which are evaluated by the judge. The team which fabricates the vehicle in lowest cost gets to win the event.

Position acquired in cost presentation: 2nd

Sales presentation: In sales presentation teams are given a task of making 1000 vehicles per year. This event tests the managerial skills of the teams they need to show their factory design and place at which the factory needs to be built. And cost for this all equipment. Then just after the factory design they need to start the vehicle manufacturing and should consider cost for making each vehicle. Then the vehicle needs to be sold for a reasonable price to the customers. Taking all these aspects into consideration teams need to present a report. The team which gives the best performance in this event is awarded

Position acquired in sales presentation: 12th

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Maneuverability position: Didn't participated



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Position in suspension and traction: Didn't participated

Sledge pull: the vehicle is made to pull up to 1ton weight.

Go green award: This event tests the emission level which come out through the exhaust of the vehicle the teams which has the lowest emissions is awarded with go green award.

Endurance: This is the final event where all the vehicles are assembled in and made to complete laps through the given time. The team which makes the highest lap is awarded.

Endurance position: 13th

Overall position: 15th

3. GO-KART

The motto of Society of Innovative Minds is to expose students to real-world situations, by empowering their minds, and fine tuning their technical skills in such a way that they can tackle any type of scenario. The Society of Innovative Minds offers workshops for students from Engineering Colleges/Universities, to enhance their design, fabrication and mechanical skills, and motivate them to burn some rubber.

The Society of Innovative Minds has, right from its initiation, been looking forward to imparting practical learning, at graduation and under-graduation levels. Siegers Pro Karting Championship is one such initiative by the Society of Innovative Minds, where students from universities all around the globe design and fabricate Go-kart vehicles, to participate in a series of challenging events.

After the grand success of the First and Second seasons of the Pro Karting Championship, the Society of Innovative Minds now launches its Third season.

The event consists of several technical and non-technical rounds, such as Autocross, Sled pull, Acceleration, Costing and Business Plan, as well as a two-hour endurance race.

Brake Test is the qualifier test for all the other dynamic rounds. Teams failing to clear this test will not be allowed to participate in any further dynamic rounds. In Brake Test, the teams will be given 3 attempts. They should clear this test within three attempts.

For the Brake Test, the driver has to accelerate his kart after the whistle and should continuously keep accelerating the vehicle till the end of the acceleration zone. The driver should cover the entire acceleration zone, in maximum 7 seconds, to maintain the speed required for braking. It is advisable to design and validate the brakes at a minimum speed of 35 km/hr, for effective braking.

Whenever front wheels reach the brake line, the driver should apply the brakes (Panic braking). After applying the brakes, rear wheels should lock completely, and the vehicle should slide and stop within the braking zone.

In Endurance Test, the durability of the kart is tested. All the karts together are allowed into the track, to race for two hours. Teams which make maximum number of laps are considered for the 'Endurance Award'.

Rules and regulations are explained at the event site, in the pre-Endurance Test briefing for drivers. If the driver is found to be driving rashly or not following the rules and regulations explained by the judges, the judges have the right to stop the kart. If the Endurance Test throws up a tie breaker, the winner is selected based on acceleration time.

The team from our college achieved these following positions in the event.

4. TRACTOR DESIGN CHALLENGE:

SAE India Southern Section organised Tractor Design Competition (TDC) for the first time in India at SRM Institute of Science Technology, Kattankulathur. under Student Design Competition category, targeted to solve many of the real-time challenges. It provides a platform for connecting the bright and prosperous engineering talent available in the country with the real-life challenges.

Through this program, students across India will participate in providing innovative solution towards product design & development challenge. Tractor Design Competition takes students beyond textbook theory by enabling them to design, build and test the performance of tractor and then compete with other students from all over India.

Students are challenged with a hands-on with engineering experience that also requires budgeting, communication, project management and resource management skills. Students also gain valuable exposure with recruiters of leading OEM in the off-highway industry to help them land their first Engineering Job after graduation. Students gain practical experience in various Vehicle system level integration and subsystems like

- Design of Drive systems
- Tractor performance
- Manufacturing process
- Analysis of Tractive forces

Evaluation of Students Design report was done by Industry experts and the vehicle build was inspected, and the feedback was provided for further improvements during the design and development of the team vehicles. Reports were collected from all the teams, including the design report, cost report and build status review and further, it was reviewed by Industry experts. Teams were requested to submit the design report detailing



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- Customer requirements
- Conceptual design details
- Design logs
- Analysis reports, FMEA and Test and Development
- Original and Innovative ideas

Cost report– Total Manufacturing cost, BOM wise cost and aggregate based cost. It was a 3-day competition consisting of Static and Dynamic tests, which included Safety as the first and foremost mandatory criteria.

Day1

Technical Presentation: The teams are expected to provide a Technical Presentation for their designed tractor. The presentation is evaluated based on their design, cost, manufacturing concepts and their application. Technical Inspection was carried out at various stages. The stages are

- Weight Measurement: cleared
- Dimension Measurement: cleared
- Engine testing: cleared
- Brake testing: cleared
- Safety test: cleared
- Noise, Steering and run

Experienced Industry Judges visited all teams about their build readiness and provided the feedback to all team to prepare for the final event.

Day2:

Maneuverability: the teams cleared all the tech inspection allowed for manoeuvrability and was allowed to run via a small circuit.

Day3:

Durability: this was the final event where the tractors were allowed a performance test under various constraints. The Constraints were built at track with Sand bed and Bump track. The Tractor has to run 3 laps of each track, which will ensure that vehicle stability and performance.

Our team secured an overall position of 15th in the final event.


CONVENER