

TuksBaja makes it count



The TuksBaja team comprises a group of dynamic students from the Department of Mechanical and Aeronautical Engineering whose cars have held their own in many races and static design events. The students build their own off-road vehicles – constantly tweaking and improving different parts to give them the edge in the endurance race and earn them maximum marks in the static design event.

Each year, the team attends a Baja Camp, where they adjust and test their cars. In 2014, the camp took place on a farm near Villiers in the Free State from 5 to 7 September. Owing to the late arrival of Car 55 from customs after its trip to the USA, where it did the team proud earlier in 2014, assembly could not take place in the labs as planned. The team had to assemble Car 55, now Car 5, and Car 2 on the farm. Nevertheless, they pulled through and got both cars ready in time for some mock manoeuvrability trials. The next day, the team could reap the benefits of their hard work and push the cars to their limits. This allowed them to experience the excitement of being behind the wheel and gave them a sense of accomplishment. They were also able to determine which components needed replacing or design

improvements, which they could concentrate on in the weeks leading up to the Sasol Baja SAE Competition, which was held at Gerotek Testing Facility on 24 and 25 October 2014.

Following the camp preparation, plans for the next seven weeks leading up to the Sasol Baja SAE Competition had to be made. With the competition looming, the team kicked into overdrive and the cars started to take shape once again. While finishing the cars' assembly, the team performed normal pre-race performance tests. Both cars were rigorously tested in order to ensure optimal performance during the race. Thanks to the team's commendable efforts, both cars were ready to race on 24 October 2014.

In preparation for the Sasol Baja SAE Competition, a few new improvements were made to Car 5, the

prototype car. These developments included the implementation of a four-wheel steering system, which was designed by senior team member Tokologo Komana. The team used the four-wheel steering for Day 1 of the competition. Everyone was impressed, as it was a first for the Sasol Baja SAE Competition. However, as with any prototype, the system had its flaws and the team opted for the conventional steering system on race day. The new front upright design to remove the rod-end restriction was successfully implemented on the car.

The first day of the competition comprised the static events category and the safety inspection, followed by the dynamic events category. The static judging for both cars went well, as Car 2 won best design score, as well as the best cost report and second-best design report.



Car 5 achieved the best design report. After both cars had sailed through the inspections, they excelled at the acceleration, manoeuvrability and skid pull challenges.

The second day was an early morning for some of the team members, as the four-wheel steering system on Car 5 had to be replaced with the old steering system. Nonetheless, the team completed the car in time and it could race as planned.

Unfortunately, Car 5's race did not go very well, as there were issues with under-steer and broken bolts on the front right wheel's bead-locker, but the excellent pit crew effectively and efficiently got the car back on the track. Car 2 placed fourth in the race. 🏆