

Editorial

Welcome everyone to Formula Student 06/07. For many it is their first year with Cardiff racing, and we look forward to another year of success.

With many developments in progress, we see CR03 develop into a class 1(200) and also the designs that are the seedlings of CR04.

With more volunteers that before, we have been looking to educate and develop our young team, as some had concerns about having little or no mechanical or automotive experience.

Whilst the Cardiff Racing car employs some of the most innovative technologies, it is also a platform for which students can develop their knowledge, and we can already see even the newest beginner to come to better understand the field of automotive engineering, with activities such as IMechE lectures, also accompanied by engine strips and rebuilds.

Formula Student also offers more than just automotive development, as we start to train our members in first aid, and fire marshal training, qualifications that are not limited to Cardiff Racing, but also lifelong skills which will be carried into the workplace as successful engineers.

I would also like to take the time to say farewell to Brian Robinson on behalf of the Cardiff racing team, and we wish you all the best in the future.

So thanks to everyone involved, and a special thanks to our sponsors, without whom none of this would be possible.

So if you haven't already, come along and join the racing sensation that is Formula Student 06/07

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I MECH E



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A Special Thanks to all our sponsors without whom none of this would be possible

If you are interested in becoming a sponsor and/or taking part in the Cardiff racing team do not hesitate to contact us by email, post or telephone:



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THE RED LINE



November Edition

Formula Student UK Event

Taking place at Bruntingthorpe Proving Ground in Leicestershire, Formula Student UK 2006 proved yet again to be challenging.

After arriving on 5th July, Cardiff Racing entered their latest car, CR03, into the competition as a Class 1 car. Cars entering this class are evaluated for their behaviour in acceleration, sprint, skidpan and endurance tests, as well as on the design, marketing presentation, cost and fuel economy.



Class 1

was undergoing its first attempt at the brake test. However, Cardiff Racing would not be so easily defeated.

The car passed the scrutineering without any major difficulties, but things took a turn for the worst when the front right brake disc broke while the car

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Hoping to advance on the success of both the UK and German event, Cardiff Racing is developing CR03 and making a new car, CR04 a completely new car, and will be entering them both in 2007

First Year Volunteer

By Jennifer Bruce

First Year Medical Engineering Student

Being a female medical engineering student the last thing I thought I would be involved with at University is Formula Student

Managing to capture my interest and that of many other people too, I went along to the first meeting, with slight reservations having limited experience in such things and practically no knowledge on anything automotive related.

However, the first meeting introduced the management team who explained how no experience is necessary, just enthusiasm, and it wasn't long before we were being encouraged to join in everything from stripping engines, to writing to our sponsors to actually driving the car!!

Having only been at university for a month and a member of formula student for even less, I have already experienced so much with them. I have been along to track testing with an opportunity to



drive the car at Llandow our local testing spot. I have been to Silverstone (which was a most enjoyable event) for a weekend. This included a day of lectures on how to build a winning car, delivered by some of the industries experts, as well as seeing the car in action against other teams.

Despite all this we've still found time to get together by racing each other at karting sessions, socialising, and I have no doubt this is just the start! It's a great opportunity to meet new people, to try something new, and to even find out new things about myself!! Being a volunteer with Formula student is a great way to learn new skills, meet new people and most of all, is a lot of fun!!

Formula Student Germany 2006

No, it's not Formula One. It's the first ever Formula Student Germany. From 3rd – 6th August 2006, 41 teams with over 700 students from 11 different nations presented their cars to the different challenges at the legendary Hockenheimring track in Germany.

The teams have to consider all aspects of the car, from performance to the financial and marketing strategy. They must consider this for the one car that they enter, but also as if they were building 1000 units every year, to be sold to amateur racers at a reasonable price.

Cardiff Racing presented their car, CR03, and did well at the high-rated event. The team finished 11th overall and was the third UK team. Even if the team had hoped for more, their result was very respectable.

The following day it was time for the endurance event. CR03 had to run for 22km, driven by two

drivers who would each cover 17 laps, half the distance. Of the 33 cars entered in the endurance event, only 18 made it to the finish line, with Cardiff racing being one of them, the team had done well.

The atmosphere was very competitive, but camaraderie and good sportsmanship prevailed.

Cardiff Racing is evaluating CR03 and hope to enter in next year's Formula Student Germany as CR03b, a development of CR03. Having learned a lot, the team is motivated to turn the lessons learned into practice so that next year the result corresponds to the cars potential and the team's ambition.

So, until then:

Auf Wiedersehen in 2007!



By Astrid Weiss

This year, Cardiff Racing is modifying their trailer, for Formula Trailer 2007, its Pimp-my-ride meets modern trailer transportation

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The team immediately got team members to drive back to Cardiff to modify the parts. A lot of time was lost and the team had missed the acceleration and skidpan tests. In spite of this, they participated straight away at the sprint run and were placed in the top half of the field.

Complimented by the judges and rewarded with high scores, the team did very well in the cost, marketing presentation and design event. The toughest challenge, the endurance event, was even more satisfying for the team as the car drove perfectly.



Ranked nineteenth overall, Cardiff Racing had done well despite the problems they had faced. Furthermore, the team won its first prizes: the National Instruments Prize for the best use of LabView and the FISITA Award for Best Endeavour.

Having had to face a lot of challenges in this short period of time, Cardiff Racing proved in the end not only to have built a good car, but to have worked brilliantly as a team. With things not going according to plan they adapted and did not give up. Consequently, their nineteenth place was excellent after all of the problems they encountered.

Looking ahead, Cardiff Racing went back to Cardiff and prepared the car for its next challenge: Formula Student Germany 2006 at the Hockenheimring, starting on 3rd August.

By Astrid Weiss
International Correspondent

Electronics and Data Acquisition

The electronics of the car are an exciting area in which to be working this year. Not only is there a group of 4th year Mechanical Engineers focusing on improving the current electronics, but a group of 4th year Electrical Engineers are working on implementing wireless capabilities into the car. It is anticipated that this will allow a removable steering wheel, with an onboard output display, to inform the driver on how the car is coping. In addition to this, the possibility of the use real time data being relayed to the pits via a wireless network system, is an exciting potential development.

The main focus here is on re-designing the wiring loom to provide an improved human interface, whilst increasing the robustness of the loom. It has been found, that due to the electronics having been worked on, mainly by mechanical engineers, this is beginning to take its toll on the car, especially in that the current wiring loom has sacrificed user compatibility for robustness.

"The use real time data being relayed to the pits via a wireless network system, is an exciting potential development"

As well as these alterations it is hoped that a driver monitoring system can be put into practice which will allow drivers to visualize their use of the car and endeavour to improve so as to optimize both the cars and drivers abilities. Also fine tuning to the currently unused launch and traction control it is hoped will allow these features to become a useful tool to the drivers.

It is hoped that all the developments and improvements which are implemented to CR03 will be robust enough to allow the technology to be easily transferred to new cars as it is required.

By Sarah Waghorn
Electronics Correspondent

Cardiff's MR damper system enables the car to handle better in varying conditions without the need for physical adjustment