

## Happy New Year

On behalf of everyone at Brunel Racing, I would like to wish all of our sponsors and supporters a happy and successful 2010.

I am delighted to inform you that following our chassis and suspension geometry deadline before Christmas, the specification of Brunel Racing's 2010 Formula Student car, BR-XI, is complete. Having adhered to the strict deadlines imposed throughout the design phase, the team has not only remained

on schedule but has produced a highly refined design.

Combining this with results from ongoing testing and development projects will enable the team to start ordering materials for the build process in early February. This will allow the team to have a completed car by May so that plenty of testing can be performed before Formula Student Silverstone in mid-July.

In addition, the team will be hosting a stand at the prestigious Autosport International Show, NEC Birmingham, from 14th - 17th January 2010. On display will be Brunel Racing's 2009 Formula Student car, and Brunel X-team's zero emissions motorbike. The show will be a great networking opportunity and I look forward to meeting many of our sponsors and supporters in person.

*Yannick Cheung*

## BR-XI Design Overview

The design phase of BR-XI is now nearing its completion. With much emphasis placed on mass reduction and the addition of new technologies, BR-XI will be a worthy successor to previous Brunel Racing cars.



### Powertrain

BR-XI will be the first Brunel Racing car to use the 2007, 600cc Yamaha R6 engine. This new engine is lighter and more compact than previously used engines allowing for better overall packaging.

The engine will be combined with a new intake system and a side-exit exhaust. Engine mapping work is ongoing, however the engine can be expected to produce 70kW with around 60Nm of torque. For cooling, BR-XI will use a single core radiator and a cooling duct integrated into the left sidepod.

### Drivetrain

BR-XI will use a chain drive to power the rear wheels with unequal length driveshafts. The final drive ratio will vary appropriately for each event.

A new Drexler 2010 limited slip differential will be used to improve handling characteristics.

### Chassis & Controls

BR-XI will feature an aluminium monocoque, and rear steel spaceframe hybrid.

Drivers will be accommodated with an individually moulded seat, while a custom carbon fibre steering wheel and paddles will be made to further improve ergonomics.

New driver aids such as an electronic clutch will accompany the traction control and semi-automatic shifter system to further increase driveability.

### Suspension

Suspension geometry for BR-XI has been optimised using OptimumK and data from testing. The new suspension will feature an anti-roll bar system

with new Kaz Technology dampers. The wishbones consist of double unequal length A arms individually optimised to further reduce weight.

### Aerodynamics & Bodywork

A curved and rounded nosecone will fit to the front of BR-XI's monocoque and will enclose an aluminium honeycomb crash structure and anti-intrusion plate. The sidepods will allow for optimal cooling flow while minimising drag. In addition, the cooling duct will be integrated with the sidepods allowing for further mass reduction.

*The build phase of the project is due to begin in February. More in-depth information on BR-XI's final design can be found on our website at [www.brunelracing.co.uk](http://www.brunelracing.co.uk)*

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## “Learn to Win” at Brunel

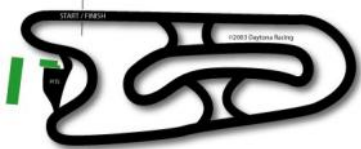
Brunel Racing recently hosted its own “Learn to Win” event on Brunel University’s campus. Three industry experts attended and spoke to the team about the design of a Formula Student car, followed by a Q&A session.

The feedback was very helpful and the team would like to extend a special thanks to the industrialists for their time.

## End of Term Karting

The first stage of Brunel Racing’s 2010 driver selection began with an end of term kart race. 20 team members took part in a half-hour endurance race at Sandown Park kart circuit in Surrey in late December.

After analysis of the lap times, qualification and the overall finishing order, several possible contenders for the chance to drive BR-XI at the 2010 Formula Student competitions have emerged. The driver evaluation process will be ongoing with further karting events planned for early 2010. Shortlisted drivers will ultimately get a trial in the 2009 car to test their skills in a Formula Student vehicle.



The track was wet and slippery allowing drivers to show their adaptability to adverse weather conditions.

## FSG Rule Change

Last year, within eight seconds of opening registration, the 2009 Formula Student Germany (FSG) event was fully subscribed. This extraordinary feat required VDI, the German Formula Student organisers, to reconsider the entire registration procedure. VDI felt that the chance of successful registration for Formula Student Germany should reflect a team’s degree of preparation and knowledge of the event, rather than the speed of its internet connection and quantity of members registering. This has led to the creation of a quiz preceding the actual registration process. Only after answering all quiz questions correctly may a team proceed

to register for FSG. The quiz consists of a number of questions which will test a team’s knowledge on the 2010 FSG and FSAE Rules.



Teams that do not pass the quiz on their first attempt are allowed to resubmit their corrected quiz form an indefinite number of times. However, the frequency of resubmission is limited to once every three seconds.

Detailed information can be found on the FSG website at [www.formulastudent.de](http://www.formulastudent.de)

## Other News

### Made in Brunel Launch

Brunel Racing attended the launch of Made in Brunel 2010 on 1st December 2009. The team showcased its 2009 car, BR-X, alongside many other innovative projects from the School of Engineering and Design. The launch was a valuable networking opportunity for both sponsors and students, and included speeches from representatives of Dyson and many other reputed organisations.

### MADE IN BRUNEL

We look forward to building a strong relationship between Brunel Racing and Made in Brunel throughout the year and to exhibiting at the event in June 2010.

[www.madeinbrunel.com](http://www.madeinbrunel.com)

### Teamwear

New teamwear for 2010 has been delivered. Black jackets bearing the BR-XI logo are now clearly visible around Brunel University’s campus.



Many thanks from the team to Imprint Promotions. We all look forward to wearing our BR-XI teamwear, complete with our partners’ logos, at the 2010 events.

