

FORMULA STUDENT

Institution of
**MECHANICAL
ENGINEERS**



Engineering

Lancaster
University





Who Are We?

We are a team of fifteen Masters of Engineering students studying disciplines in Mechanical, Mechatronics and Electrical Engineering at Lancaster University. Our fourth year student project is to design and manufacture a race car to compete at the IMechE Formula Student UK event. The project is worth a large proportion of our Masters qualification so it is crucial for us to meet our goals so we can continue to pursue our bright futures in industry.

So what is Formula Student UK?

IMechE Formula Student UK is a development and testing ground for the next generation of world-class engineers. Students must design and build a single-seater formula-style racing car which is then put to test at Silverstone race circuit in a series of static and dynamic events against 80 to 120 other Universities from around the world. The upcoming 2018/19 event hosted on the 17-21 July in Silverstone is sponsored by several world leading engineering firms including Exxon Mobil, Infiniti, The Mercedes AMG Formula One team and many more.

To find out more information about the event follow the link below which will take you to the Formula Student official website:

<https://www.imeche.org/events/formula-student>



Our Competition Performance History

Lancaster University has competed in Formula Student UK since 1999 making this year our 20th anniversary. To support the Formula Student team, the new engineering building was designed with a dedicated space specifically for the team. With growing investment into tools and facilities the team has been consistently improving year on year.



2013/14 500cc Single Cylinder Engine



2014/15 500cc Single Cylinder Engine

Prior to 2016 the cars were powered by conventional internal combustion systems. In 2016 the team made the brave decision to enter the alternative fuelled class with an electric vehicle. This places an emphasis on the environmental impact of racing, coinciding with the Universities core values and beliefs. The team has taken on the added complexity of this system as we believe this will keep us at the leading edge of the industry and ahead of our competition.

From the research of the 2016 and 2017 student teams this year we will undertake a radical ground up re-design utilising a fully electric powertrain. This car will be the most technologically advanced vehicle in our history.



2015/16 Electric Vehicle



2017/18 Electric Vehicle

Why Donate To Us

We are a small student run team and as such we rely heavily on donations to build our car. The budget supplied by our University is not enough to complete even a fraction of the build. As a team, we work thousands of hours throughout the year so that we can compete on the world stage and display our capabilities. Your support is integral to us fulfilling our potential. This year we have the challenge of purchasing all new parts in order to realise an innovative redesign in 9 months. Hence we welcome any support with open arms and we show our appreciation to our donors through several means.

Support Packages

Platinum

>£6,000

- One Large logo will be featured on the race car of your choice.
- A letter of thanks from our head of department coordinator Prof Claudio Paoloni.
- A letter of thanks from the Lancaster University vice chancellor Mark E. Smith.

Gold

£3,000 –

£5,999

- One Large logo will be featured in a prominent position on the car.
- Personal invitation to meet the team including a department tour- come and see first-hand how we go from concept to manufacture.

Silver

£1,500 -
£3000

- One medium sized logo will be featured on the race car.
- Receive a framed picture of Lancaster eRacing car and team.
- Invitation to our eRacing launch event where you will have the opportunity to meet students and lecturers at our engineering department.

Bronze

£500 –
£1,499

- One standard size logo will be featured on the race car.
- Your logo and company information will be featured on our website.
- Your logo and company will be featured on the stands we take to the event.
- Receive promotions on our social media platforms.

Any other contributions (including in-kind) are welcomed. Please don't hesitate to get in touch for further details.

Support tier brackets are flexible guidelines and are open to negotiation.

All packages will include the benefits of the lower bands, excluding additional logos on the car.



Car Design

Chassis Team

The team plan to design an optimised torsionally stiff steel space frame chassis that will be manufactured in house by our team. This type of chassis design delivers a high strength to weight ratio and optimises packaging whilst ensuring driver safety.

Powertrain Team

This year the team have decided to design and optimise an electric powertrain. A single electric brushless motor will drive a limited slip mechanical differential, sending power to the rear wheels. This design will maximise vehicle performance (0-60 in 3.5 seconds), as well as moving in alignment with the global car industry.

Suspension, Steering and Braking Team

This team is responsible for the dynamic behaviour of the vehicle. This is carried out through the design of the front and rear suspension linkage system, steering rack and braking system. Maximising absolute grip and vehicle handling are key aims.

Aerodynamics Team

The team are responsible for minimising drag force whilst maximising the down force acting on the car. To obtain this the team plan to design and manufacture complex carbon fibre body panels and an underfloor structure. The body will be designed using Computational Fluid Dynamics to minimise pressure differences. The underfloor structure will be shaped to help vent the air to create areas of low pressure underneath the car which in essence pulls it to the ground.

Low Voltage Electronics Team

The team are responsible for the optimisation of the electronic components on the car to maximise performance. This will be achieved by using a large array of on board sensors to monitor a wide variety of functions. The team plans to incorporate traction control as well as a telemetry system with braking and cornering sensors. These systems are critical to the performance and safety of the vehicle.

The Team Members



Sami Weyers
Team Leader
Suspension Team



Amira Zied
Financial Leader
Mechatronic Team



Callum Norris
Electrical Safety
Manager
Electrical Team
Leader



Scott Dearnaley
Business Case
Development
Electrical Team



Elliot Evans
Testing and Driver
Training
Drivetrain Team



Megan Roach
Marketing Team
Leader
Chassis Team



Marissa Tan
Event Manager
Suspension Team



Zack Freeman
Social Secretary
Electrical Team



Jack Pink
Business Case
Development
Chassis Team



James Wroe
Quality and
Compliance Leader
Mechatronic Team
Leader



Chris Lockwood
Design Manager
Chassis Team



Jake Brown
Business Case
Development
Aerodynamics Team



Joe Bench
Support Leader
Chassis Team



Will Brown
Business Case
Development
Electrical Team



James Fletcher
Safety Manager
Chassis Team

Please Contact Us

How to Get Involved

If you would like to donate to us and join our Formula Student journey, please do not hesitate to get in touch by using the email address shown below.

Show your support by liking and following us on our social media platforms. Each one is updated weekly with the most recent developments the team are working on and how your donations are helping to complete the car.

Thank you for showing interest in our project and we look forward to working with you.

Details

Phone Details: Joe Bench- 077564240017

Sami Weyers- 07861766903



Email: racinglancaster@gmail.com



Website: [Http://www.engineering.lancs.ac.uk/lancaster-racing](http://www.engineering.lancs.ac.uk/lancaster-racing)



Facebook: <https://www.facebook.com/racinglancaster>



Instagram: https://instagram.com/lancaster_eracing



Twitter: <https://twitter.com/racinglancaster>



LinkedIn: <http://uk.linkedin.com/in/LancasterRacing>