

SHEFFIELD *FORMULA* *RACING*

2022 March-April Issue

SFR

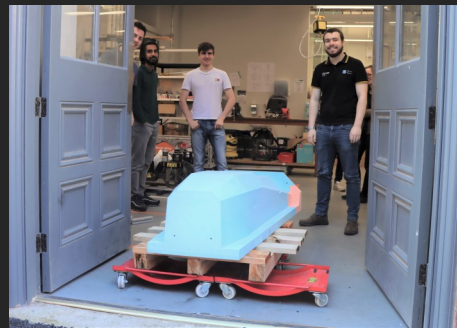
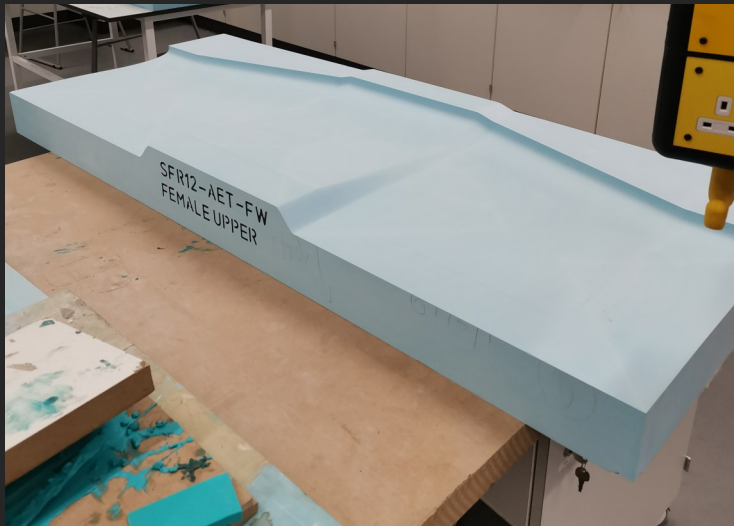
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Edited By Daniel Hazel

Manufacturing Updates

Chassis and Aero Moulds

After finishing the main design phase of our car for this year we have now started the process of manufacturing our design. A big focus for the team has been completing the majority of the machining of our chassis and aero moulds so that we can begin the carbon fibre lay-up process. It took a lot of hard work and a lot of sanding but as a team we are extremely proud of the results so far and we are one step closer to bringing what we believe to be a tough contender to this year's competition.



Carbon Fibre Lay-up

This is the first time we are making a hybrid monocoque chassis as well as being the first time many of the team have worked with carbon fibre at all and so it was a great chance for everyone in the team to gain some experience about the process.



Welding Jigs

The team has also been working closely with Metlase who has been helping us to produce the welding jigs for our chassis.





Women In STEM Q&A

The month of March was women's history month and as such the team felt that it was a great time to highlight some of the women in our team by doing a Q&A on their experiences in STEM so far and how we can encourage more women to take up engineering.

How have your experiences with Formula Student helped your studies and career opportunities?



Zoe: Formula Student has broadened the subjects I am exposed to throughout my studies. As a materials engineer I was not familiar with the tools, such as CAD, used throughout the mechanical design process. This experience has taught me a lot about component design and it is interesting to be able to link how materials can be designed to suit components and vice versa. In terms of career, I think it makes me a much more wholistic engineer and broadens the range of industries I could enter into.



Evelyn: It's given me lots of examples to use in interviews both from all the practical engineering I have been able to do, and through working in a team and the leadership roles I've had. Formula student has also given me a much greater ease with CAD a lot earlier than many other people on my course, which was a big benefit in group projects and coursework, and also on my year in industry.

Ami: Formula Student has taught me the process of engineering from initial research, to design and manufacturing. It's also a great way to improve soft skills such as team working and organisation which is needed to balance it with university work. Career wise it was very helpful in getting my placement at Mercedes AMG F1!



Why Engineering and if not what else?

Beth: I chose to study engineering because I really enjoyed maths and physics at A-level, but I didn't want to study just one of them at university so engineering seemed the perfect fit for me. I really enjoy being given a problem and being able to come up with solutions.



Lara: I picked engineering for the simple reason that I like physics, mathematics and I love building things. I have always loved working on projects that involved manual labour, but I also enjoyed the design aspect of it. That also meant that I deeply considered going into arts instead of engineering when deciding on what course I wanted to do. Alas, I decided to begin with engineering more specifically Robotics Engineering and then take some art courses after to combine them both in the future and create something different out of that.



Kaitlyn: Engineering interested me as it enables me to use theoretical and practical applications to find solutions to everyday problems as well as less conventional challenges. I have always enjoyed maths at school, and so if I hadn't gone down the engineering route, something like architecture would have really interested me.



What can companies and schools do to get more Women in Engineering?

Ami: STEM visits are becoming more and more popular which is amazing to see. In my opinion, it's creating awareness in girls from a young age so they don't grow up thinking that only men can be engineers... I think we're heading in the right direction with that!



Kaitlyn: Primarily, the fair representation of all people in STEM should inspire students by demonstrating that everyone has the potential and opportunity to give valuable contributions. Hands-on opportunities and taster days would provide the chance for all students to develop their





SFR In Industry

Year In Industry Students

While working on the team provides many of our members with great experience in design, manufacturing and working in a team of engineers. Many of our members chose to progress and gain even more experience on a placement year and so we have decided to catch up with those students to see how their placements are going so far.

Sam Harris - Aerodynamic Design Engineer at Williams Racing

My work is pretty varied but in short if the aerodynamics department need something designing my department does it. It Varies from wind tunnel model design to the design of the aero rakes and other instrumentation used at testing.

Working hours are less than I was expecting to be doing working in F1 but the responsibility and trust given to placement students is greater than I was expecting. The responsibility makes the placement interesting as I know what I'm doing really helps towards the performance of the car. I can't see myself working in something that's not F1. The fast pasted nature and the huge budgets will definitely be missed if I was to work somewhere else.



Matt Boland - Mechanical Design Placement student at Williams Racing

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Ami Jerger - electronics industrial placement Mercedes AMG F1

For the first half of my placement, I was based in the design office working on some software projects as well as some PCB designs. Now, I've moved across into the electronics workshop to focus on reliability/ tests which has given me a great overview of the whole car electrical system which I've really enjoyed. This placement has exceeded all my expectations. Every day is interesting and teaches me something new; I've definitely developed a lot as an engineer during my time here. The workload is somewhere between what I expected and maybe a little more. This is mostly a result of the huge F1 reg changes for this year but also the fact that F1 is always a little crazy since the turnaround time is so much shorter than in other industries.

When I return to the team I'd be interested in delving into the ECU more than we have in the past and aim to have a sturdier, neater loom - the connectors used on F1 cars are much better than the plastic ones that come pre-fitted to some of the components we use. The use of drawings is very helpful at work to show pinouts for different harnesses; introducing some form of a system like this to SFR would massively help knowledge transfer as the team moves forward too.





Exploring STEM For Girls

During the month of March, the team has been attending a lot of outreach events to raise awareness about what we do as well as trying to inspire future students to choose a career path in Engineering. One of these events was Exploring stem for girls.

The girls in STEM event was a chance for secondary school girls to explore some of the options that are within STEM and inspire them to do a STEM subject during further education. SFR had a stand in which we explained what we do and what we gain from being part of the team, as well as showing the students some of the parts we use to make the car. It was a great chance to show the young women their potential within the STEM industry.



1 YR Lab Anniversary

As we get well underway with the manufacturing phase of SFR12, we are celebrating the one year anniversary of moving into our new lab in the University of Sheffield Engineering Heartspace building. After putting together the FSUK 2021 winning SFR10B in the brand new lab, there is a sense of excitement about the possibilities of what we can achieve with our new car this year. Moving into the new lab has given us a lot of extra space and resources to allow us to push new boundaries with SFR12.



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