

FORMULA STUDENT RC

2022 Competition

High School Information



University of Canterbury Motorsport Background

UCM is a student-run organisation that has designed and built open-wheeled Formula style race cars to compete in Formula SAE since 2013. The Formula SAE-A competition is run each year in Australia where Universities from around the world have their cars judged in a series of events including performance trials, endurance, cost and an engineering design presentation. Currently UCM are ranked 13th globally in the electric class of Formula SAE and finished 3rd in the Australasia competition in 2019.



What is Formula RC?

Formula Student RC is a class of radio control car competition based on the principles and general event structure of the full sized Formula Student motorsport competition. Formula Student RC was created in 2020 to get students involved in Formula Student during the COVID disruptions. The competition allows students to develop their design and manufacturing skills in a fun and exciting environment. Formula Student RC was run with four highschool teams in 2021 and was a great success for all involved. In 2022 we aim to grow the programme and the University of Canterbury and UCM invites your high school to compete in our Formula Student RC Competition for 2022.

Each team's vehicle will compete in a series of different events while collecting points at each stage to decide the overall results. The high school students will be entered into the standard class of competition where only MDF, 3D printed PLA, and standard fasteners can be used. Creating a fair competition between all highschools and a chance for students to innovate and learn in a fun real world environment.

Competition Date

The competition will be on Saturday 17th of September, this will be opened up to university teams and the top team/s from each high school event to compete in. (Numbers per high school will depend on total entries).

Individual High School Competition	Before 10th of September
Competition at University of Canterbury	17th of September

Benefits to Students

This is a great opportunity for your students to get involved in a practical problem solving situation. Students are required to work together in a social but competitive scene to complete a set task.

The project follows the full process of designing a working product, so students get to use a wide range of skills including planning, group delegation, designing on CAD, using different manufacturing techniques, assembly of a prototype, testing and altering prototypes, and putting their vehicle in a competition.

As well as 3D printers and laser cutting machines, students will also be exposed to basic electrical components and the uses for them, demonstrating how simple yet useful electronics can be.

How will your local school competition run?

Highschools will run their own competition to put forward their top teams. We encourage schools to promote the event to their students and group students into teams of 2-5 people. After teams have been decided, fill out a sign up form for each group who are interested.

Remote Control Kit

Sourcing the electrical kits will be an easy step. These kits can be purchased through websites such as HobbyKing or Jaycar, powertrain kits can also be purchased through UCM by contacting our email account. The standardized electrical component list is outlined in the 'FORMULA STUDENT RC - Rules 2022', and also stated below in table 1.

Manufacturing

For designing and manufacturing, UCM recommends using CAD software such as Fusion360 or SOLIDWORKS.

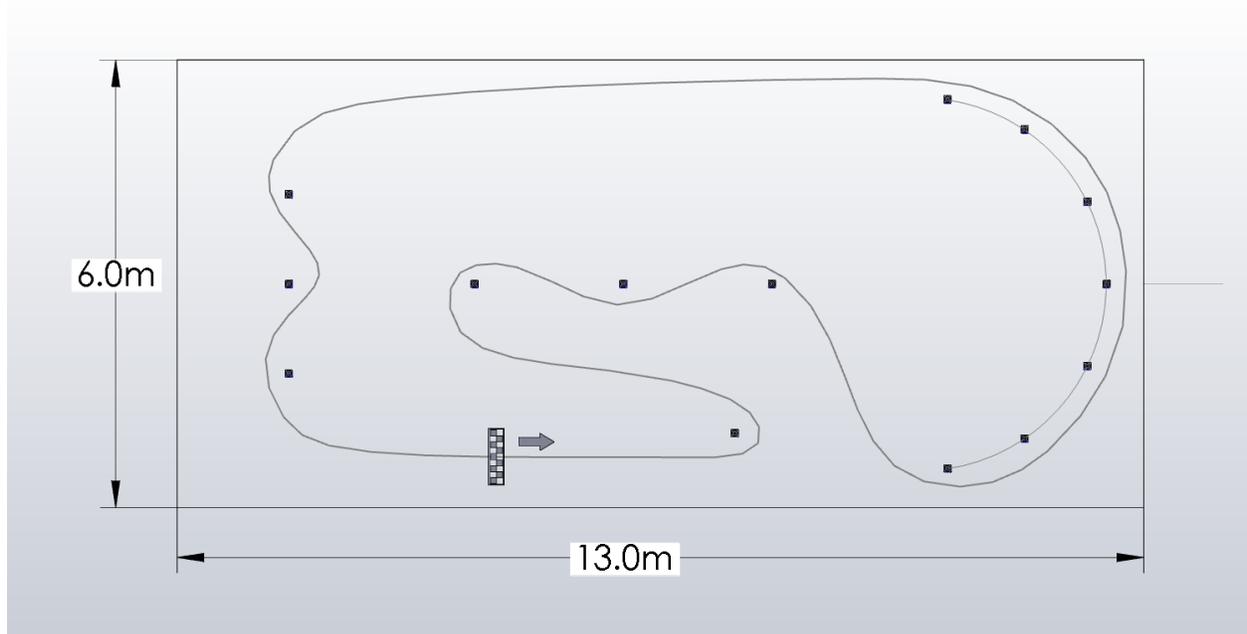
Fusion360 is a great free software that is also used in workplaces, the skills in Fusion transfer to many different CAD softwares and is highly recommended.

3D printing and laser cutting equipment is needed to create parts out of MDF. Support will be provided to schools without the appropriate equipment to manufacture students' vehicles locally if needed.

Event Details

Once the vehicles have been created each school will run their own highschool competition. The track will be standardized so each school can practice and compete on the same track as the one at the university competition. The top team/s (depending on numbers) will be given the opportunity to compete at the universities second competition on the 17th of September.

An initial outline of the track can be seen below.



More details will be provided to highschools regarding track measurements and varying competition events once teams have been submitted.

UCM Contact Details

For any further information or questions your highschool and teams may have. Please get in contact via our email: info@ucmotorsport.com

Table 1: Contents of Powertrain Kit

ITEM #	ITEM	DESCRIPTION
1	Motor	Kyosho G27 Brushed Motor
2	Battery	Li-Po 2S 7.4V 2200mAh 35-70C
3, 4	Radio Transmitter and Receiver	HK-GT2B 3CH 2.4GHz Transmitter and Receiver
5	Servo (steering)	TowerPro SG-5010
6	Motor speed controller	Hobbywing 1060 ESC
7	EVA foam (for tyres or other)	30mm x 10mm x 1m

Note: Approved **equivalent** electrical components may be used, different brands and stores offer the “same” part in different packages and prices, we will work with schools to ensure all teams can get hold of a kit that works and complies with competition rules.

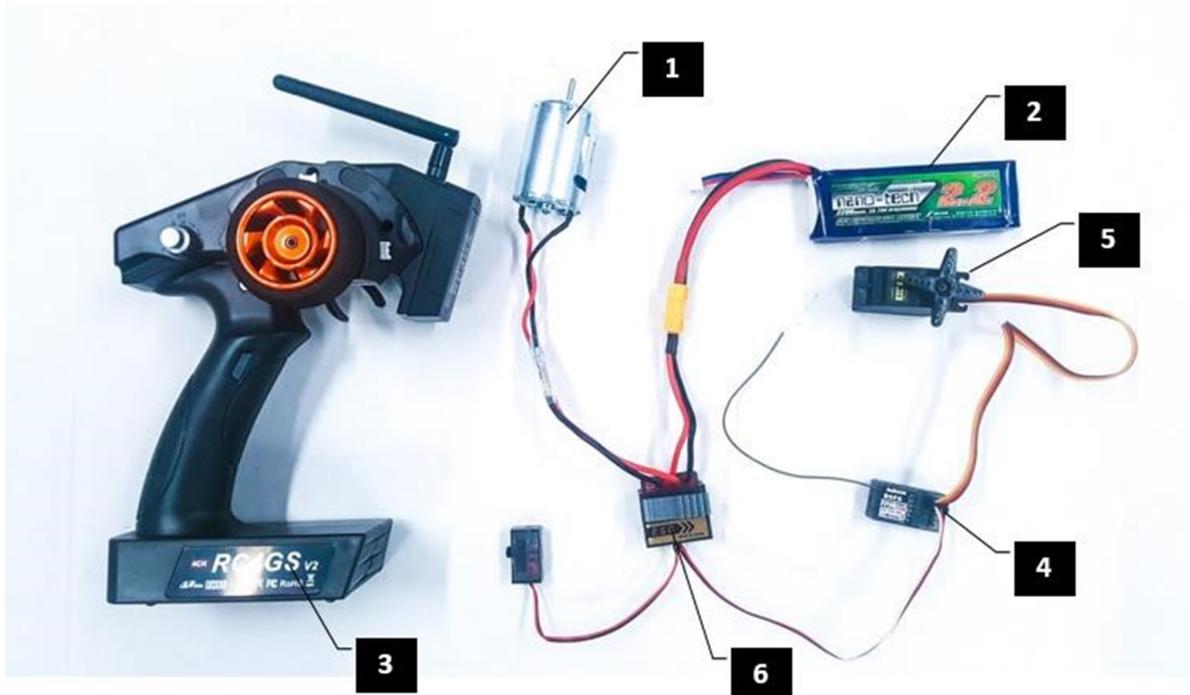


Figure 3: Electronic kit example

Appendix: Example photos of previous years cars

