



raceup



Race UP Team

**University of
Padua**



Through the embedded passion towards the automotive world and thanks to the ongoing academic research, Race UP Team commits every year to innovate and challenges itself in the competitive Formula SAE project. With passion towards the automotive industry and thanks to the ongoing academic research, Race UP team is committed to constantly innovate a challenge itself through the competitive project of Formula SAE, an academic automotive contest within an international environment. This idea has been developed and runs within and thanks to the University of Padua that stimulates and trains students from the whole Italian peninsula. Our team every year competes against the best universities from all over the world, and in its recent history has won numerous and major prizes. Throughout its history and its acknowledgements, the Team has been able to guarantee an excellent exposure towards its sponsors, managing their requests with rigor and professionalism. Satisfying expectations is one of our prerogatives.



Summary

Formula SAE3
The Competition5
Race UP Team.....	.7
What We Do9

Origin-e.....	.11
MG 11.1613
Partnership15
Sponsor.....	.17
Contacts20



Formula SAE

International design competition

An International Competition

Formula SAE (also known as Formula Student) is an automotive competition exclusive to universities from all over the world, supervised by the Society of Automotive Engineers (SAE). This competition requires to design, develop, produce and finally expose the project as well as the actual driving of the car in a series of driving contests.

Since 1981, the competition has spread all over the world and it takes place in famous circuits such as Hockenheim, Silverstone, Montmelò and Autodromo Riccardo Paletti. The prototype of the car is judged by a board of experts with different backgrounds in a series of multidisciplinary tests.

The aim of every team is to develop, build, test and promote a prototype following the rules of the competition.

"Formula Student encourages very diverse innovation. In many ways Formula Student has the potential to be more innovative than F1."

Ross Brawn, Formula Student Patron



"I feel very privileged to become an ambassador for Formula Student, given its outstanding success in promoting competitive engineering at an international level. Few other forms of professional engineering offer such an opportunity to young engineers, and its educational benefits are of significance over a very wide engineering domain."

**Bob Bell,
Chief Technical Officer,
Renault Formula One**

Business Simulation

The main idea behind Formula SAE is to mock-up a business scenario in which the team is commissioned by a company to realise a prototype of a race car within very specific technical requirements that targets non-professional Sunday drivers. The goal of the Formula SAE is to stimulate the development of the students on these fields: design, project planning, team building, communication and project management.

The Competition:

The competition is settled throughout seven stages, four of which are dynamic and three are static. Each one contributes with a different score for the final sum, which is **1000** points.

Endurance

275 pt

An endurance test in which the car will have to cover 22 km achieving efficiency, reliability and speed



Autocross

225 pt

A full speed lap to test the specs of the car

Cost & Manufacturing

100 pt

Valuation between costs and performances

Design

150 pt

Valuation on the efficiency, effectiveness and the degree of the innovation of the prototype

Business Plan Presentation

75 pt

A business case for the promotion of the own firm towards potential investors

Accelerazione

100 pt

Acceleration on a 75m straight

Skid Pad

75 pt

Two pilots and an eight shaped lap test for each one



Race UP Team

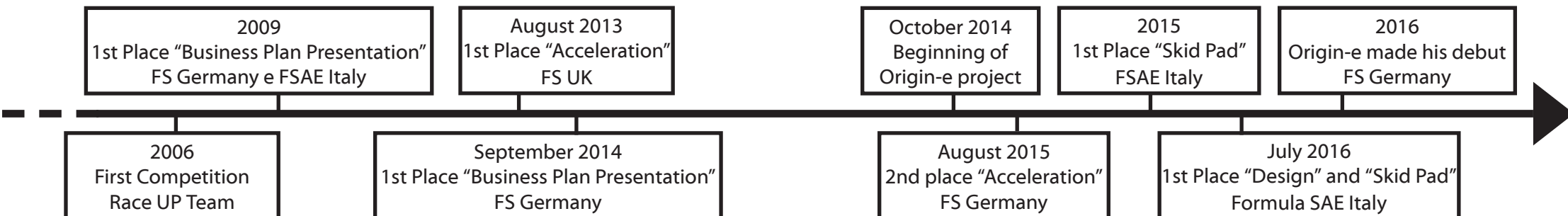


The team is composed by 64 students carefully selected through a rigorous process and attending the University of Padua; students come from different departments such as Industrial Engineering, Organizational Engineering, Economics, Business Administration and Communication Sciences. The strength of our team dwells in the approach we got toward

the work we do, promoting concepts as team building, lean organization and a continuous brain storming of ideas. These are embedded into the daily activities of each member of the team and augmented by the never-ending willingness to learn expressed by each of us. We strive to fulfil the responsibilities taken with both the sponsors and the University

of Padua, without losing sight of the final objective: win in the final competition.

The team, pushed by its willingness to innovate, has recently introduced a second fully electric prototype, which will be competing alongside the existing combustion vehicle. This makes the Race Up team one of the first Italian team participating in both categories.



What We Do

Design:

In the first phase of the project the technical members of both teams start the design of the car using advanced professional tools such as SolidWorks, CATIA, PTC-Creo. In the meanwhile the Business & Marketing division works on the marketing material and approaches the potential sponsors that are going to support the project.

Manufacturing:

Once that the design phase is over, we start manufacturing the car inside our workshop in OZ Racing and with the outsourcing of some of the processes. We use a variety of processing techniques such as turning, MIG and TIG welding and CNC milling. At the same time the B&M department works on sponsorships, communication and starts with the planning of the financial analysis for each car.

Research & Development:

Every year we struggle to innovate every aspect of the

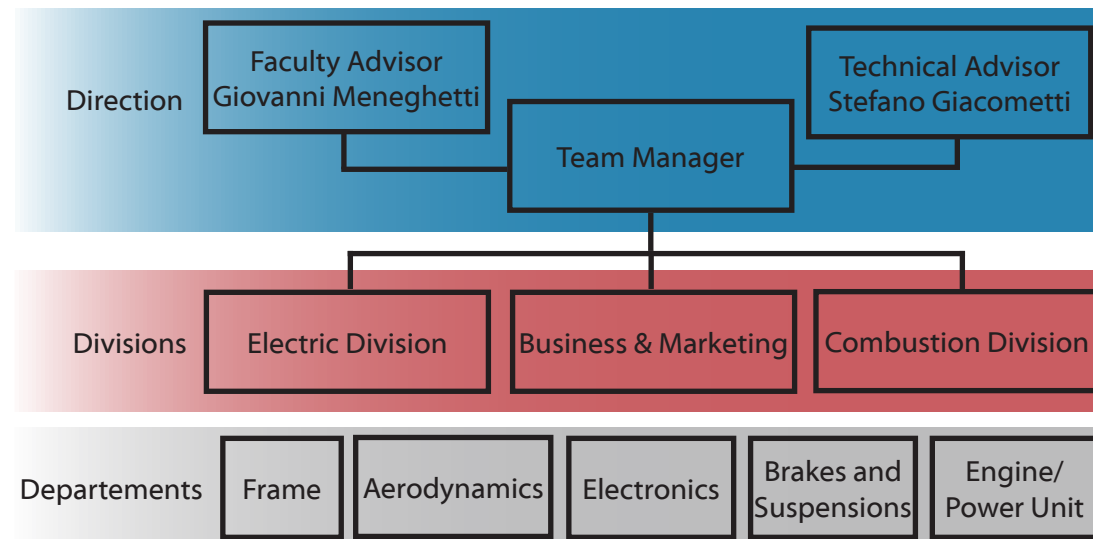
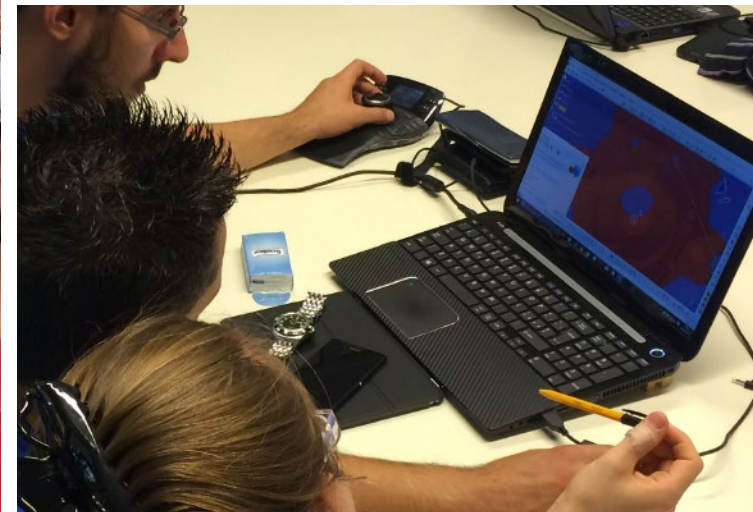
vehicle through the research and application of new processes and materials. This is possible also thanks to the joint efforts of the University of Padua, our sponsors and our alumni community.

Promotion:

Once the cars are done, it is in our interest to inform the sponsors on what we have achieved throughout the year and to promote the result of their and our work. This is why every year we participate in various events and we organize our own in which we showcase the finished vehicles.

Relations:

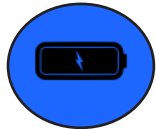
Team working is fundamental to us and is embedded in our roots. And this is shown in how we handle relations. Through the participation at international events, we develop a broad network with teams and business agents coming from all over the world.



Origin-e

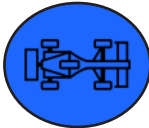


DID YOU KNOW...



6,8 kWh lithium-ion battery

370N of downforce at 50 km/h



up to 2,5 g of lateral grip

35 students working on the project



50 suppliers and sponsors

4 synchronous motors with 37kw and 50Nm of torque each



Composite materials monocoque and honeycomb structure



Push rod suspension



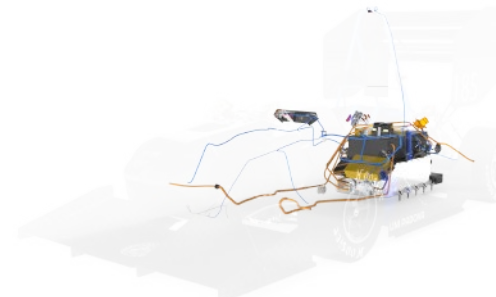
200 KG in running order



10" OZ magnesium wheels



The carbon fibre monocoque, that we develop, maximizes stiffness and safety. With a weight of just 23kg it also allows us to be extremely high-performing.



We have developed in complete autonomy the entire electronic system. We have also provided the car with traction control, regenerative braking and four-wheel torque vectoring.

MG 11.16

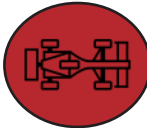


DID YOU KNOW...



The engine develops 64kW (90HP) at 13500rpm and 65Nm of torque at 9000rpm

450N of downforce at 50 km/h



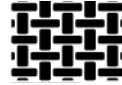
Up to 2,5g of lateral grip

35 students working on the project



66 suppliers and sponsors

Carbon fibre bodywork



Floating brake discs and aluminium monoblock calipers



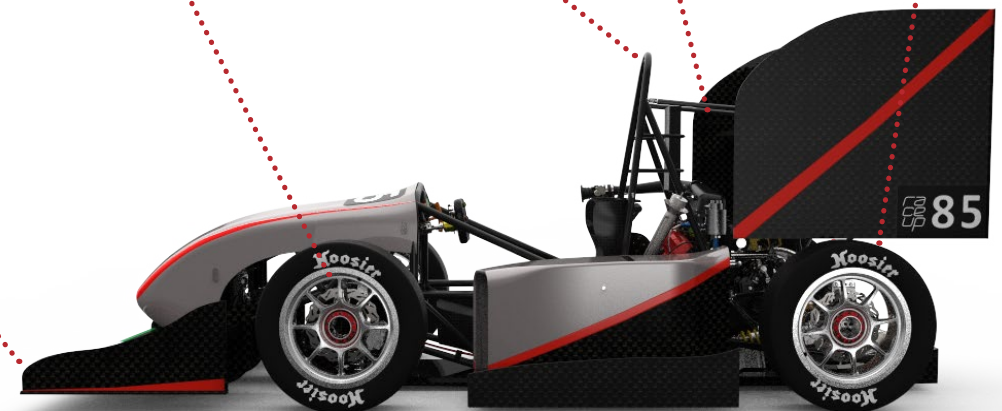
200 KG in running order



Honda CBR 600 RR Engine



13" OZ magnesium wheels



The engine map and the exhaust system had been realized with the purpose of having a better response from the engine at low and medium RPM and to be specifically adapted to Formula SAE requests.



All the aerodynamics elements are made of carbon fibre, they allow our car to have a lot of grip and furthermore they had been awarded the "Design" prize in the Italian 2016 event of Formula SAE.

Partnership

A Shared Dream:

The day to day support of the University of Padua isn't enough to make this dream come true. This is why the collaboration with local, national and international firms and corporations who share with us their resources, technologies and know-how is fundamental in every phase of the project, from the design to the manufacturing.



International Presence:

Race UP Team is one of the most important team in Italy. The competencies acquired during our 12 years long activity, allow us to distinguish ourselves in various European competitions, some of which attract more than 5000 participants:

- Formula Student Germany (Hockenheim)
- Formula Student Italy (Autodromo Riccardo Paletti)

"Meeting with the students has been stimulating since the very beginning. They worked together with a diverse but unite group, developing every aspect of the project. The best thing for a sponsor is to be able to follow their constant growth throughout the project."

**Alberto da Rin Betta,
Founder, Efesto Lab**



Espositions:

Every year we also participate in various events that bring prestige to our project and visibility to our sponsors, not just in Italy but also abroad, such as:

- International fairs and exhibitions
- Notte dei Ricercatori
- Galileo Festival
- Sperimentando
- TEDx

“Research and development is fundamental to OZ, just as much as the will to succeed and the ability to work together that distinguish every partner of ours. With this in mind we are happy to share resources and work with Race UP team. We know how difficult it is to design a competitive product, while maintaining an incisive and constructive approach. This is not just a project, but a great all-around formative experience that will influence for the better their entire career.”

**Romano Reffo, HR e Safety
Manager, O.Z. Spa**

Combustion Division



Electric Division





Main Sponsors



Contacts



www.raceup.it



info@raceup.it



Combustion Division
Electric Division



Race Up Team



[@race_up_team](https://www.instagram.com/race_up_team)



Department of Industrial Engineering
Via Venezia, 1 – 35131 Padova (Italy)
Tel: 049 8276751
Faculty Advisor:
Prof. Giovanni Meneghetti
giovanni.meneghetti@unipd.it

www.raceup.it

www.unipd.it

