

Aerodynamic optimisation of the front wing of a Formula Student race car.



We are looking for motivated master students Engineering Technology

Project description:

Formula Electric Belgium (**FEB**) is a team of highly motivated engineering students that build an electric formula student race car. Just like Formula 1 the team builds a brand-new car each year to compete in multiple international competitions during the race season. Formula Student is the largest international engineering and design competition in the world. The competition is characterized by combustion vehicles, electric vehicles and since recently also autonomous vehicles. Formula Electric Belgium strives towards innovations and the raw performance of technologies. It is for this reason that the team will focus on the autonomous/electric race cars. Research and development applications will be made by postgraduate students in collaboration with thesis students from the KU Leuven and bachelor students from Thomas More.

Thesis description:

The front wing is seen as one of the most important aerodynamic components of the car. This because it is the first thing with which the air contacts and is as a result responsible for the airflow along the entire length of the car.

Evident to say is that a front wing has to create downforce but there is more in it than you think. The wheel drag is an important factor to take into account too. Therefore you can sometimes see some strange endplate designs, curved vanes or venturi tunnels. To conclude: a front wing not only creates downforce but also tries to direct the flow to favour aerodynamic properties of the car.

Thesis objective:

Conduct research on the different possibilities to favour the airflow around the wheels. Drag also is an important property so it has to be taken into account when considering new techniques.

Make CFD-simulations to state your findings and come up with a possibly future concept for a new Formula Electric Belgium-race car.

Profile:

- Interested in CFD
- Interested in aerodynamics
- Creative
- Teamplayer

What do you gain?

- A unique engineering- and team experience where hard work and team atmosphere are central.
- Work with innovative technologies in a realistic environment/application.
- Create added value for your curriculum and the team

Are you interested? Please send your resume with accompanying motivation to:

recruitment@formulaelectric.be

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