

Investigation of Aerodynamic Sensitivities under Cornering Conditions for a Formula Student Vehicle

OUR PROJECT

Formula Electric Belgium is a student-run electric race team which competes in Formula Student, the world's largest competition for engineering students. We aim to push the limits of performance, innovation and sustainability within electric racing every year, which is only possible with the help of our Thesis students. These pioneers are responsible for performance-defining innovations within the team, and we would love for you to join our team of highly ambitious and motivated engineers. As a Thesis student, you will research, design, prototype and test your innovations alongside the full-time members which make sure the team pushes itself and the car to new heights.

AIM AND OBJECTIVE

The aim of this master's thesis is to analyse the aerodynamic behaviour of a Formula Student vehicle under cornering-relevant conditions and to identify the vehicle regions and aerodynamic components most sensitive to these effects.

The objectives of the thesis are to:

- Review literature on cornering aerodynamics with focus on yaw, roll, and steering effects
- To identify aerodynamic regions and flow mechanisms expected to be most influenced during cornering
- Perform CFD simulations using a straight-line template with cornering-relevant parameter variations
- Evaluate the influence of these parameters on aerodynamic performance, balance, and local flow structures
- Compare literature-based expectations with vehicle-specific CFD results
- Optionally validate the findings using a full CFD cornering template, if available
- Derive design-oriented conclusions and propose conceptual aerodynamic improvements

PROFILE

- Bachelor Engineering Science or Technology
- Interest in fluid dynamics
- A professional and entrepreneurial attitude
- Knowledge of CFD is recommended but not required
- Willing to learn quickly about different aspects of race car aerodynamics

RETURNS

- Experience in a unique field of expertise
- Gain exposure to cutting-edge technologies and industry-leading organizations
- Possibility to network and cooperate with international stakeholders
- Insight into software like Star ccm+, NX...

INTERESTED?



Send us your contact details and field of interest to

recruitment@formulaelectric.be