

Optimising the water cooling circuit of a Formula Student car

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

Formula Student is all about performance, innovation and sustainability. Maximal performance is accompanied by large heat generation. The goal of this thesis is to optimise the water cooling circuit of our car in terms of cooling power, weight and compactness. This water cooling circuit is used to cool our four in-wheel motors and our two drives.

The first part of this thesis consists of making a digital model (preferably a full digital twin) of the current cooling circuit to get a thorough understanding of how this supposedly simple cooling system works.

The second part includes research on optimising the different parts and concepts used. This can go from pump selection and pressure loss analysis to hose material choice and location. Simulating these changes will give you relevant insights on how to increase the performance of this cooling circuit.

In order to achieve all these goals, you will be in close contact with the person responsible for the Motors and Drives and the one responsible for the Monocoque, our carbon fibre chassis.

PROFILE

- Knowledge about Thermodynamics and Heat Transfer
- Knowledge about Thermomechanical Machines and Fluid Dynamics
- Basic knowledge of CAD/FEA-software
- Practical insight in mechanical connection techniques
- Interest in CFD cooling simulations

RETURNS

- Practical experience in a high-end engineering context
- Work with the newest technologies and innovative companies
- Developing your hard- and soft-skills in a company-like environment
- Participation in the biggest student competition in the world

INTERESTED?



Send us your contact details and field of interest to

recruitment@formulaelectric.be