

Design of a split monocoque for 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:

Since a few years we've implemented the design and manufacturing of a single piece carbon fibre monocoque designed to be as stiff and strong as possible but with the lowest mass possible. Manufacturing this monocoque is vulnerable for mistakes. This due to a lack of social control but also due to the harsh working environment.

For this thesis we want to delve into the possibilities of a split monocoque design. Strength analysis needs to be conducted with software so we don't lose strength. Multiple carbon fibre joint techniques are evaluated and be verified before implementation into the following monocoque design.

Thesis objective:

The objective is to design and evaluate production methods of carbon fibre joints based on their strength, efficiency of load transfer, easy of manufacturing and cost. All these factors need to be equal or improved to be implemented into the next monocoque design.

Profile:

- Interested in FEM
- Interested in composites
- Hands-on mentality
- 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

Diestsesteenweg 692, 3010 Kessel-Lo