

Quality evaluation of the implementation of bio-fibers in a formula student race car



We are looking for motivated master students Engineering Technology and/or Engineering Sciences

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 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:

To increase the performance of our race car, we use a lot of carbon-fiber composites in our race car. They significantly reduce the weight, and have significant mechanical properties. However, carbon fibers are very difficult to recycle and have an impact on the environment. Therefore, we want to look at the possibilities of implementing bio-fibers in our design.

During this thesis, you will investigate our composite components and see to what degree it is possible to use biological fibers (e.g. flax, basalt, bamboo,...) instead of carbon fibers. You will make a trade-off regarding performance and weight, and will look at how this influences the mechanical design.

Thesis objective:

The global goal of a Formula Student competition is to win the competition through good design and performance. This thesis will contribute to both aspects. In the end, you will be able to give us a complete overview of:

- What kind of bio-fibers are the best to use in what components
- What is the trade-off when implementing bio-fibers (performance, weight)
- How does this influence the (mechanical) design
- From what point is it worth to use bio-fibers

Profile:

- Interested in mechanical design
- Passion for green innovation
- Knowledge of materials engineering/composites is a plus
- Creative and critical

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.
- A practical thesis that will be implemented in later cars
- 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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