



# Vehicle Dynamics

## Design of rear-wheel steering systems

### Green Innovation meets performance

#### Our Project

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Formula Electric Belgium is a team of engineering students who build a **Formula-Student racecar** to compete in international competitions. We design and build a brand-new car every year and compete with other teams in multiple worldwide competitions during the summer months. Formula Student is by far the biggest **engineering competition** in the world and continues to grow. From next year on, we will be competing in both the **electrical** and **driverless** competition. You can join the project as a volunteer. This allows you to contribute to the next race car whilst keeping a flexible schedule.

#### Tasks

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**Rear-wheel steering** is used in performance cars to allow for **more agile handling**. By turning the rear wheels in opposite direction to the front wheels, the car can achieve a tighter **cornering radius** and a **higher yaw rate**. There is a lot of potential for a car with rear-wheel steering at Formula Student competitions due to the twisty nature of the circuits.

In this case, a rear-wheel steering systems will be **designed from scratch**. Everything from the desired **steering kinematics** to the **implementation of the steering actuators**. Formula Student places certain limitations on how much rear-wheel steering is allowed. These **restrictions** have to be accounted for as well. The end goal of this case is to design a rear-wheel steering system that is **reliable, rule-compliant and improves the performance of the car**.

#### Profile

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- Basic knowledge about vehicle dynamics
- Experience with NX
- Experience with multibody software (OptimumKinematics, Simcenter 3D or other)

#### Returns

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- A unique engineering experience
- Applying your engineering skills on a real case
- Work in a team of young and motivated engineering students
- Learn about vehicle dynamics and race car design

#### Up for the challenge?

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Want to do a similar case within the team? Submit your **resume** and **motivation letter** (one page) to [volunteers@formulaelectric.be](mailto:volunteers@formulaelectric.be)