

Project Title: Chassis Structure

Supervisor: TBC

Project details:

The move from Challenger Class to Cruiser Class and the corresponding increase in vehicle size will provide new and exciting challenges for chassis design. The chassis must be stiff enough, strong enough and as light as possible whilst still having space for everything that needs to fit in to the car. As almost every part has some interaction with the chassis, a well-designed chassis is crucial. Aerodynamicists will want the chassis as narrow as possible whereas drivers will want it wide. Mechanical engineers will want it to be made of carbon fibre whereas the finance team would much prefer cardboard. You will have to produce a design that is complex enough to cover all of these aspects whilst being simple enough that a student team can build it. Additionally, this year, the chassis role will also involve seat design, placement and fixture as we will now need to cater for passengers.

The design of the chassis will be constrained to a large extent by the choice of vehicle concept and key layout decisions made in light of the release of the regulations for the 2019 World Solar Challenge in June. These include restrictions on the maximum dimensions of the car and the internal space for the occupants. Your design will need to meet these regulations and as well as strict safety standards. In addition, the car must be safe to transport to the other side of the world, and hence will require suitable tie-down points.

This project will require a high level of coordination with other projects to ensure that the design allows for all components to be attached securely to the chassis. A successful design will provide a basis for the entire vehicle and will play a vital role in a successful run in 2019!

Closely linked projects: "Suspension", "Bodywork", "Aerodynamics" and "Steering, Brakes, Wheels & Tyres".

Desired Skills and Experience:

*Note: These are not essential (unless listed in **bold**) and those who receive roles will be offered training to compensate for any gaps.*

- **Proficiency in CAD, particularly Solidworks**
- Able to produce clear engineering drawings
- Proficiency (or willingness to learn) FEA, particularly Abaqus
- Some experience in designing with composites
- Good communicator of ideas
- Willing team player
- Prior interest/experience with solar cars/CUER
- Flexible and able to work to tight deadlines