TRA100 & TRA105: Solar Car Theory

- Building solid knowledge on how to design and build Chalmers car in the World Solar Challenge 2021

In this 7.5 credit course within the Tracks theme Sustainable transportation, we will build on the experience gained from Chalmers participation in the World Solar Challenge 2019 as well as other available knowledge to develop a solid understanding of the technology in a solar powered car, and how to use that to design such a vehicle. For more information on the Tracks initiative, please visit: 

The course will consist of lectures by Chalmers teachers as well as invited outside experts. The students will work in teams which are specialized on different parts of the car, e.g., body, chassis, wheel suspension and brakes, electric motor and driveline, and cockpit. Solar car technology as well as lean product development methodology will be studied, and the latter will be applied in the different team’s projects.

Lean product development stresses the importance of building knowledge of the subject at hand and base design and other decisions on that. Techniques used include visual management, early testing and A3:s and tradeoff curves for documentation. The Chalmers Solar Team’s car Alfrödull from last year’s competition is back from Australia and will be available to the students at Campus Lindholmen. We will use it both as a study object and a test bed for new ideas.

The course activities will mainly take place at Campus Lindholmen, although opportunities to cooperate with other courses and Chalmers activities on both campuses will be sought. The students are also welcome to suggest lectures that they feel would fit in and encouraged to take own initiatives to create contacts with actors, organizations and companies that can contribute in different ways.

The course runs in study period 1, 2020, with plans for an extension in the form of a 15 hp course when we proceed to supporting the Chalmers Solar Team with help in their work to design and build the new car. It is open to students from the basic as well as the advanced level. Desired but not mandatory backgrounds are mechanical, electrical, computer, mechatronics and design engineering. A genuine interest in solar powered vehicles and the associated technology is more important than association with a particular program, so students with other backgrounds than the ones mentioned are also most welcome to apply. We are looking for 40 students to compose a well-balanced group to cover the main technologies involved.

Does this sound interesting? In that case, please contact or send your application to Göran Gustafsson, Senior Lecturer, IMS, gorang@chalmers.se.

An application should include a CV and a short covering letter explaining why you are applying.

Application deadline: August 14th, 2020.

In case the course attracts a lot of interest, we can for practical reasons unfortunately not guarantee that we can admit everyone who would like to join.