Background and position description

Volvo GTO Research & Technology Development is part of a European research project with the goal to develop new methods and technologies for enable digital design, development, simulation, commissioning and maintenance of production systems. (ENTOC – Engineering tool chain for efficient and iterative development of smart factories). As part of validation and demonstration of the project results, an industrial use case will be done during January to June 2019. The work will be done in cooperation with both Volvo production site and ENTOC project partners.

Description of the thesis work:

The tasks for the master thesis work will be to use the methods and tools developed in the ENTOC project and make re-design of an existing production cell and evaluate results. The product is a Front Lid, a sheet metal component (BIW) for cabs, produced in an automated cell with industrial robots. The main scope of this thesis is to test and evaluate the requirements engineering approach developed in the ENTOC project, which is based on AutomationML to make a formalized definition of the system. It also includes virtual model and simulation.

The assignment of this thesis includes:

- Define the requirements for the new cell, and model those using the ENTOC tools.
- Build a virtual model of new cell, taking into account the new requirements.
- Analyze how to meet the production capacity demands, and set up the layout.
- Simulations and analysis of production sequences etc.
- Evaluate the methods and tools used in the demonstrator case

The goal is to develop, test and evaluate the solution to make conclusions and recommendations for further development before industrial implementation.

To perform the work, dedicated CAE software's will be used, both for requirements modeling and also for building the virtual model and simulations.

Education: The students are most likely from any of the Master Programs: System Control & Mechatronics, Production Engineering, Product Development, or similar. A mix of interest and experience from the students in production, Computer Aided Engineering and programming technology is a very good combination.
About us

The Volvo Group is one of the world’s leading manufacturers of trucks, buses, construction equipment and marine and industrial engines under the leading brands Volvo, Renault Trucks, Mack, UD Trucks, Eicher, SDLG, Terex Trucks, Prevost, Nova Bus, UD Bus and Volvo Penta.

Volvo Group Trucks Operations encompasses all production of the Group’s engines and transmissions, as well as all production of Volvo, Renault and Mack trucks. The organization is responsible for spare parts supplies to the Group’s customers as well as for designing, operating and optimizing logistics and supply chain for all brands, production facilities and distribution centers where the Volvo Group operates. In Volvo Group Trucks Operations you will be part of a diverse team of highly skilled professionals who work with passion, trust and embrace change to stay ahead. We make our customers win.

The Research & Technology Development (R&TD) department is responsible for planning and execution of projects to develop future solutions for the Group Trucks Operations business. This is done in close cooperation with external partners (industry, institutes and academia) in public funded research and innovation projects, as well as in internal projects with stakeholders and users in the Volvo organization.