Master Thesis - “Software comparison of welding simulations on aero engine structures” (30 credits/20 weeks – 1 student)

About us

GKN Aerospace is the world’s leading multi-technology tier 1 aerospace supplier. With 33 manufacturing locations in 12 countries, we serve over 90% of the world’s aircraft and engine manufacturers. We design and manufacture innovative smart aerospace systems and components. Our technologies are used in aircraft ranging from the most used civil aircraft to the world’s advanced 5th generation fighter aircraft and the Ariane orbital rockets used by ESA.

Project Background

To be able to fabricate aero engine parts on flying components it is important to have control over the manufacturing process and to ensure that the manufactured parts meet the strict requirements of the aerospace industry.

One way to increase the understanding of the manufacturing process is by doing simulations of e.g. the welding process. This is done to understand the thermal impact on the geometric integrity of the components and prepare them for the next step in the manufacturing process.

The purpose of these simulations will be to increase the understanding of the welding simulation process and how it affects the geometrical integrity and the residual stresses of the components. It will also deepen the understanding of the simulation software and serve as input to the method development of manufacturing simulations.

Assignment Description

The thesis work will focus on:

- Literature review within the scope
- Recreate the simulation model in Marc for validated Laser welded plates.
- Assess different modelling strategies in Simufact Welding and compare to Marc & the welded validated plates.
- Element type study with the mentioned software.
- The thesis work will be supported by appropriate simulation engineers.

Qualifications

- Ongoing master in mechanical engineering, engineering physics or similar.
- Previous FEM modelling experience is recommended.
- The student will work with the software Marc and Simufact Welding
- Basic knowledge of the welding process is appreciated.
- The student should be capable of taking initiatives on their own.

Apply by

Send your resume and cover letter christian.selberg@gknaerospace.com & aswath.chandrasekar@gknaerospace.com

Last date for application: 2026-11-15. Interviews will be held continuously and the position could be filled prior to the last application date.