

Master Thesis - “Sustainability assessment of repair services on aerospace components using Additive Manufacturing” (30 credits/20 weeks – 1 student)

Project Background

Sustainability is a growing concern for the aerospace industry today, and the emphasis has been on lowering fuel consumption in order to soften climate change. Repair services is one important aspect in circular economy and repair service has been part of the company business models for many years. Recently it has gotten more attention with the development of new Additive Manufacturing (AM) technologies such as Laser Metal Deposition (LMD) that enables better repair aerospace components. Initial Life-Cycle Assessments (LCA) has also shown the sustainability potential with AM technologies, but more analysis are needed to fully understand the sustainability aspects with repair services. GKN Aerospace in Trollhättan uses the life-cycle assessment software Gabi that is available for this thesis.

Assignment Description

The thesis work will focus on:

- Literature review of sustainability aspects of repair services and LMD
- Life-cycle assessment of repair services using LMD compared to replacement of a new product
- Contribute to the company specific guide to performing LCA during design and development of aero-engine components
- Exploration of opportunities to minimize environmental footprint with repair services
- Exploration of social impact of repair services using LMD
- Exploration of business opportunities for low environmental impact repair services using LMD



The thesis work will be supported by appropriate material, product and process engineers.

Qualifications

- Master in mechanical engineering, material engineering, industrial engineering or similar
- Interest in sustainability and circular economy
- Previous experience of life cycle assessment is recommended
- Basic knowledge of Additive Manufacturing is recommended
- The student(s) should be capable of taking initiatives on their own
- GKN would prefer if the student(s) can perform most of the work on site at the Global Technology Centre organization in Trollhättan, Sweden

Apply by

Send your resume and cover letter to Johanna Nylander, johanna.nylander@gknaerospace.com and Pauline Leonard, pauline.leonard@gknaerospace.com

Last date for application: 2021-11-01. Interviews will be held continuously and the position could be filled prior to the last application date.