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Master thesis proposal		1 (1)
> Titelförslag/Thesis title	> Ämnesområde/Business area	
Manufacturing uncertainty and variation in multidisciplinary design studies for aerospace components	Product Development, Mechanical Engineering	
> Tidsperiod och högskolepoäng/Period of time and amount of credits	> Antal studenter/Number of students	
30 credits/20weeks	2	
> Geografisk placering/Location	> Kontaktperson/Contact person	
Trollhättan	Sören Knuts/Petter Andersson	
> Språk/Language	> Startdatum/Start date	
English	Jan/Feb 2022	
> Handledare/Supervisor	> Avdelning/Department	
Sören Knuts/Petter Andersson	Engineering/Global Technology Center	
> Skicka ansökan till/Send application to	> Sista ansökningsdag/Last application date	
soren.knuts@gknaerospace.com	November 15th 2021	

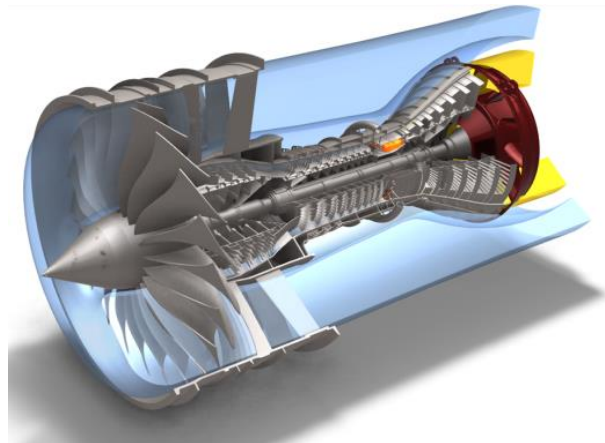
About us

GKN Aerospace is the aerospace operation of GKN plc, serving a global customer base and operating in North America and Europe. With sales of £3,85 billion in 2019, the business is focused around three major product areas – civil airframes, engines and defence, plus a number of specialist products - electro-thermal ice protection, fuel and flotation systems, and bullet resistant glass. The business has significant participation on most major civil and military programmes. GKN Aerospace is a major supplier of integrated composite structures, offers one of the most comprehensive capabilities in high performance metallic processing and is the world leading supplier of cockpit transparencies and passenger cabin windows.

Background of thesis project

In aerospace, an update of working methods aimed at Zero Defect is underway. In this thesis, GKN aim to conduct a survey study to identify typical problem areas and bottle necks in the manufacturing of aerospace components. Based on the insights from this study a set of parameters will be defined and included in multidisciplinary design studies to better understanding effects of these type of variation in production and to drive the design to a more robust solution.

Parametrized CAD models and an automated engineering process flow enable a Design of Experiments approach that is used for design space exploration studies. By including sensitivity analysis in the design space exploration the engineers can have a better understanding of the manufacturing risks and take more informed decisions.



Assignment description

Perform an interview study with appropriate questions linked to working methods to identify typical problem areas and bottle necks in the manufacturing of aerospace components (On-site research)

- How can we include Multidisciplinary design in Product Development? (Present state)

Perform a multidisciplinary design exploration study to show how manufacturing criteria can improve a product design. (A case study)

- This is to illustrate the weighing of different parameters to come up with an acceptable technical solution.

How can other tools from Design for Six Sigma and robust design strengthen the MDO work? (A case study)

- Give example with the toolbox (QFD, DoE, P-diagram, Geometry Assurance...) from robust design methodology.

Qualifications

A background in Mechanical Engineering or Engineering Physics with interest in Product Development. Some experience in design work is favorable.

Apply by

Send your CV and cover letter to Sören Knuts, soren.knuts@gknaerospace.com, +46 520 291200. Last date for application: 2021-11-15. Interviews will be held continuously and the position could be filled prior to the last application date.