GKN AEROSPACE

Dokumenttyp/Document type **Thesis proposal**		Sida/Page **1 (1)**
Titelförslag/Thesis title **Understanding microstructural changes in LMDp Ti64 using Thermodynamic tools.**	Ämnesområde/Business area **Metallic Materials**	
Tidsperiod och högskolepoäng/Period of time and amount of credits **20 weeks, 30 credits**	Antal studenter/Number of students **1**	
Geografisk placering/Location **Trollhättan**	Kontaktperson/Contact person **Ceena Joseph**	
Språk/Language **Swedish/English**	Startdatum/Start date **Spring 2021**	
Handledare/Supervisor **Ceena Joseph**	Avdelning/Department **MIT R&T - 9633**	
Skicka ansökan till/Send application to **ceena.joseph@gknaerospace.com**	Sista ansökningsdag/Last application date	

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 £2.2 billion in 2014, the business is focused around three major product areas - aerostructures, engine structures and a number of special products – transparencies, electro-thermal ice protection, fuel and flotation systems, and bullet resistant glass.

This thesis work is initiated through GKN Aerospace Engine Systems with the headquarters in Trollhättan, Sweden. The Trollhättan site employs approximately 2000 persons in research and technology, product development, manufacturing and product support of jet engines and engines for space vehicles. GKN Aerospace is deeply involved in developing and adapting additive manufacturing (AM) technologies for engine parts.

Background of thesis project

In the past years the development and the adoption of AM or 3D printing, seems to have increased considerably. It is necessary to investigate the different aspects of AM appropriate for the aerospace industry. This thesis attempts to enhance understanding of, and support to, experimental work on microstructure of LMDp Ti64, by using computational methods such as Thermocalc and JMAT Pro . Since the output from such calculations depends on a reliable database, the predictive capability of a thermodynamic database should be evaluated to understand the microstructural changes with changes in heat treatment parameters.

Target

Description of thesis goals and targets.

- Literature review
- Investigate the capability of thermodynamic and simulation tools to predict microstructural changes in LMDp with change in heat treatment parameters
- Document the results in a thesis Report. (English)
- Present the summary and conclusions for an audience at GKN Aerospace. (English)

Qualifications

- Masters in Mechanical engineering or Materials engineering or Physics, including courses on materials

- Interest in Image analysis , metallography , simulation tools such as Thermocalc and JMat Pro.
- GKN would prefer if the student can perform most of the work on site at the R&T organization in Trollhättan, but some of the work should be performed at the university site.

Apply by

- By sending CV and personal letter to Ceena Joseph (ceena.joseph@gknaerospace.com)