

# Future production of space components

Together  
ahead. **RUAG**

## Background

RUAG Space Group AB (RUAG Space) is a key player within the space industry whose vision is to be the number one individual space product supplier. The production facility in Gothenburg manufactures products for the space industry with components of very high quality, specifically designed to accomplish a low failure rate on component level. The production is based on low-volume manufacturing with manual handling and quality controls to a high extent.



A joint research project has been initiated between the Chalmers University of Technology and RUAG Space to investigate solutions to production planning at the company. RUAG in Gothenburg uses ERP system IFS to do long term planning and to keep track of all order details such as materials, resources, time reporting, instructions, documentation etc. For short-term planning, a lean based tool - a planning board named Management Daily Improvement (MDI) is partly implemented in production. Each flow or function should have its own MDI board. The MDI Boards should be used in the shop floor to display and follow the production plan for the week and to track the production status and deviations.

## Work content

At RUAG, the MDI Board implementation has been done in some departments in production, but no standardized solution has been defined. Every department has its own requirements on how to visualize the planning. Consequently, the transformation of ERP data from IFS into the MDI-boards are individual for each department. This cause unnecessary administrative work and each time the files have to be updated. The thesis work should investigate the following:

- Methods for effective transformation of production planning in IFS (long term planning) into the MDI Boards (short term planning).
  - For the effective transformation, is there a need to change the way the operations has been defined in the ERP software IFS.
- The possibility to have a standardized format for MDI Boards, which is suitable for different departments and product units.
- The visualization of production planning in the MDI Boards in the shop floor,
  - Visualization should be function-oriented or flow-oriented.
  - How the visualization should be designed to facilitate the process of tracking production status and deviation
- How the short term planning in the MDI Boards could be digitally connected with the entire production flow for effective tracking and prioritizing the customer orders.
- How the digitalization of the MDI Boards improve the production planning at RUAG and how the current production planning structure at RUAG should be adopted to facilitate the changes.

By gathering data from IFS and the current MDI Boards and supplementing it with necessary data through qualitative interviews and research, the thesis should bring a deeper understanding of how both IFS and the MDI Boards should be adapted for the future and provide input to a planning procedure more suited to future requirements. A pilot test at the SII-lab IFS setup at Lindholmen is expected to prove the feasibility of changes prior to making any changes in the real system.

It is beneficial if the students have prior experience in Microsoft Office applications (Excel), and in the simulation of production systems in simulation software such as Automod, Visual Components, Plant Siemens or similar. The thesis will be performed partially at RUAG Space, Delsjömotet and partially at SII-lab, Lindholmen and the work location depends on further recommendations provided by Folkhälsomyndigheten and Västra Götalandsregionen on the covid19-pandemic.

## Contact information

RUAG  
*Mattias Svanberg*  
[Mattias.Svanberg@ruag.com](mailto:Mattias.Svanberg@ruag.com)  
+46 31 735 41 94

Chalmers  
*Ninan Mathew*  
[ninant@chalmers.se](mailto:ninant@chalmers.se)  
+46 (0) 79-027 41 77