

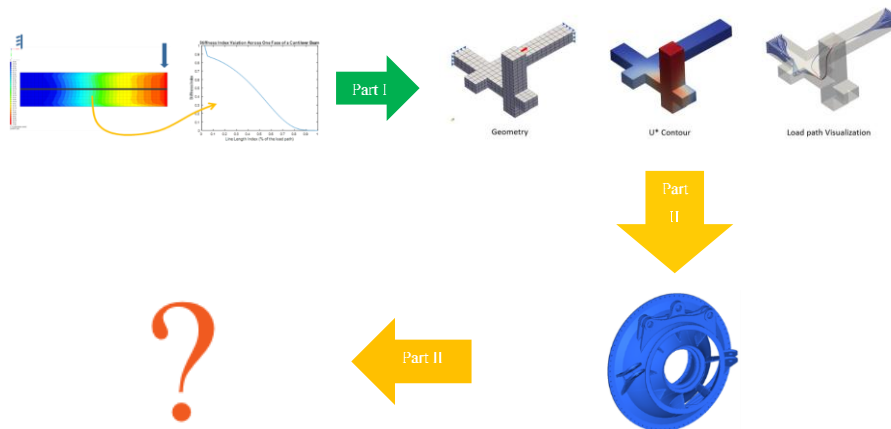
## Master's Thesis - "Load Path Visualization in Engine Structures" (30 credits/20 weeks – 2 students)

### Project Background

Information about transmission of loads from the point of application to the point of support is critical for engine-structures design. For structures that follow an incremental development cycle, such information helps to understand the functioning of existing structures (architecture) and compare and benchmark them with other similar structures. Design improvements such as reduced weight for the same stiffness and strength performance are also a benefit. The visualization of load paths as streamlines is possible by the calculation and plotting of an index called  $U^*$  or stiffness index. A previous thesis at GKN investigated plotting load paths for simpler structures. Software routines were established and the plotting was achieved for representative structures. However, the larger goal of load path visualization for entire engine structures is still unmet. With this thesis, it is desired that the previously created method is improved upon and the 'flow of loads' through a real structure is visualized at least for part of the structure.

### Assignment Description

- Literature survey, understanding the existing load path plotting scheme at GKN
- Devising and executing on strategies to plot load paths for a complete engine-structure
- Generating the load path plots for multiple engine structures and performing comparative design studies



### Qualifications

2 candidates are preferred. Those who are in the final year of a product development or an applied mechanics programme, ideally one from each discipline. Knowledge and familiarity with the finite element method, in particular of the usage of ANSYS APDL is recommended.

### Apply by

Send your resume and study transcript that shows the courses taken to Visakha Raja, [visakha.raja@gknaerospace.com](mailto:visakha.raja@gknaerospace.com)

Last date for application: 2021-11-08.

