



## Thesis

# Development / Enhancement of a Procedure Validation Tool

### Background:

The aim of this thesis is to develop / enhance a tool for the validation of operational procedures. The focus will be on the DA42 OPV (Optionally Piloted Vehicle) in both manned and unmanned operations. The tool should analyze and evaluate procedures based on predefined requirements and operational conditions.

An existing Python-based tool may be further developed, or a new tool can be implemented. Additionally, a structured database must be created to represent the complete operational framework, including all procedures, conditions, and interdependencies related to different flight phases and their respective requirements. The tool will serve as an automated validation system, identifying missing, duplicated, or incorrect procedures, and verifying requirement compliance.

### Task Description (description is only a suggestion—feel free to reach out with similar ideas in this field):

- Analyze the existing procedure validation tool and identify areas for improvement
- Extend the existing Python-based tool or develop a new tool from scratch
- Design and implement a database that maps the entire DA42 OPV operation, covering:
  - All procedures and their dependencies
  - Operational conditions
  - Links between procedures based on flight phases and requirements
- Develop functionalities that allow the tool to:
  - Check whether all requirements are met
  - Identify unmet requirements and report them
  - Detect missing, duplicate, or incorrect procedures
- Validate procedures developed using the ConOps development process
- Documentation of results in a thesis , including references and appendices

### Required Profile of Qualifications:

- Diligent and structured working methods and high level of commitment
- Basic knowledge in ConOps and aircraft development
- Basic knowledge of Python and database management (other tools than Python are also okay)
- Understanding of aircraft operations and procedure validation is beneficial

### Submission Guidelines:

- The thesis should be written in English (however, german is possible) and follow the standard academic format
- Use of credible and up-to-date sources is mandatory
- Start date: Any time