



DLR is Germany's national research center for aeronautics and space and it is also the German space agency. Approximately 5,700 people are employed at 13 locations in Germany making extensive research and development work in the fields of Aeronautics, Space, Transportation and Energy.

The **Department of Safety Critical Systems & Systems Engineering**, part of the **Institute of Flight Systems** in Braunschweig, offers with immediate effect a:

## MASTER THESIS

### "Preliminary safety assessment of wireless flight control system"

The technological development suffered by electronic in the last decades has enabled research and development in many different technical areas. One of these areas is telecommunications, especially in the field of wireless data transmission.

The department of safety critical systems and systems engineering of the institute of flight systems investigates new and alternative ways of transmitting data inside airplanes, in order to substitute the wires associated with data transmission inside those vehicles used nowadays while maintaining the minimum number of cable in them.

All the systems installed in aircraft whose failure or malfunction could result in human fatalities or catastrophic consequences are considered as safety-critical applications. Due to their criticality, these systems must fulfil high safety requirements and must be certified by civil airworthiness authorities prior to be allowed to be installed in aircraft. Therefore, a vital part of safety-critical systems development process is the safety analysis. This safety assessment process is a recursive process that is carried out in phases with different level of detail in parallel to traditional system development activities from the conceptual phase to the final certification process.

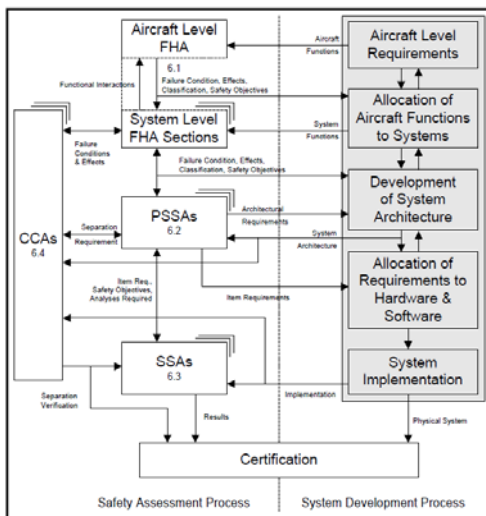


Fig. 1: System safety assessment process  
Src.: Society of Automotive Engineers (SAE)

#### Definition of tasks:

- Getting started with safety concepts
- Analysis of a preliminary system safety assessment (PSSA) for wireless safety-critical data transmission system in the field of high speed trains
- Airborne safety-critical wireless data communication system functional hazard analysis (FHA)
- Comparison of wireless system FHA with wire-based system FHA

#### Academical background:

- Telecommunications engineering
- Electrical engineering
- Aeronautical engineering
- Mechanical engineering with electronics specialization

#### Desired skills:

- Knowledge in safety engineering
- Knowledge in flight control systems
- German language (the master thesis can be written in English)

**Thesis duration:** 6 Months (prolongable)

**Supervisor:** Dipl.-Ing. Oroitiz Elgezabal Gómez

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