



Choose certainty.
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CERTIFICATE

Frank Hauben

Has successfully completed the Functional Safety
Certification Program requirements for

Functional Safety Professional

In accordance with
IEC 61511:2016

Date issued: 13-February-2026
ID number: TP26051990
Field: Process Industry
Subject: Safety Instrumented Systems

Three blue ink signatures are displayed horizontally. The first signature is on the left, the second is in the middle, and the third is on the right.

G. Greil
Certifier

Dr. Michel Houtermans
Trainer

C U R R I C U L U M

- **Functional safety management:**
Life cycle concept, documentation requirements, verification, validation, assessments and audits, modifications
- **Hazard & Risk Analysis:**
Hazard identification, hazard analysis, risk reduction, safety function definition using FTA, HAZOP, LOPA, Risk matrix, risk graph
- **Planning the safety system:**
Planning for end users, integrators, and realization of safety systems, safety plan, verification plan, validation plan, safety requirement specification, requirements for suppliers, FAT, SAT
- **Hardware design:**
Hardware lifecycle, energize vs de-energize, low demand, high demand, demand mode, continuous mode, redundancy, diversity, voting, hardware fault tolerance, safe failure fraction, type A/B, architectural constraints, proof testing, diagnostic tests, measures to avoid and control failures
- **Hardware reliability:**
Reliability modeling, FMEDA, simplified equations, block diagrams, FTA, Markov, failure data, HFT, SFF, DC, CCF, SIL, PFH, PFD
- **Software design:**
Software lifecycle, embedded software, application software, utility software, fixed programming languages, limited variability languages, full variability languages, software architecture, V-model, measures to avoid failures
- **Operation and maintenance:**
Installation and commissioning, safety validation, operation, maintenance and repair, modification and retrofit, maintenance override
- **Experience:**
The holder of this certificate has more than 6 years experience in more than 2 functional safety projects