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# CERTIFICATE

**Michael White**

Has successfully completed the Functional Safety  
Certification Program requirements for

***Functional Safety Professional***

In accordance with  
IEC 61508:2010  
IEC 62061:2021  
ISO 13849:2023

Date issued: 3-Mar-2025  
ID number: TA25034694  
Field: Factory automation  
Subject: Functional safety management  
Hardware and software design

A handwritten signature in blue ink, appearing to read 'Greil'.

G. Greil  
Certifier

A handwritten signature in blue ink, appearing to read 'Dirmeier'.

C. Dirmeier  
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 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
- **Hardware design:**  
Hardware lifecycle, high demand mode, redundancy, diversity, hardware fault tolerance, safe failure fraction, architectural constraints, proof testing, diagnostic tests, measures to avoid and control failures
- **Hardware reliability:**  
Reliability modeling, block diagrams, failure data, calculation methods, SIL, PFH, HFT, SFF, PL, MTTF<sub>d</sub>, DC, CCF
- **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