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CERTIFICATE

Germain Seux

Has successfully completed the Functional Safety
Certification Program requirements for

Functional Safety Professional

In accordance with
IEC 61511:2016

Date issued: 22-December-2023
ID number: TP23051860
Field: Process Industry
Subject: Safety Instrumented Systems

G. Greil
Certifier

Didier Turcinovic
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, block diagrams, FTA, Markov, failure data, PFD, PFS, SIL, STL

▪ **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