

FUNCTIONAL SAFETY AND CYBER SECURITY

TRAINING, CONSULTANCY, ANALYTICS, AUDIT, ASSESSMENT AND CERTIFICATION
OF PERSONS, PRODUCTS AND PROCESSES

PROFIT FROM THE NAME AND KNOW-HOW OF THE WORLD'S LEADING PROVIDER OF TESTING SERVICES, SGS, AS WELL AS FROM THE OUTSTANDING ACCEPTANCE OF THE TÜV BRAND IN A SINGLE UNIT.



NEW SYSTEM DEVELOPMENTS ACROSS VARIOUS INDUSTRIES ARE BECOMING INCREASINGLY COMPLEX. THIS LEADS TO DEMANDS BEING MADE ON MANUFACTURERS AND THEIR SUPPLIERS, PARTICULARLY WHEN SAFETY-RELEVANT FUNCTIONS ARE INVOLVED.

The reduction of potential safety risks is an essential element of the entire safety lifecycle, from the concept phase and development all the way to putting the product or system out of service. To achieve the requisite product safety and to prevent potential product liability claims, developments should be based on state-of-the-art technology, with respect to standards for example. The Functional Safety, and in the case of networked systems the Cyber Security, of relevant products, systems and processes must be ensured. We support you in these areas.

SGS-TÜV Saar GmbH as part of the SGS Group with more than 85 000 employees, through its SGS Functional Safety Global Competence Center offers you comprehensive support e. g. in the following industrial sectors

- Automotive
- E-mobility
- Automation
- Semiconductors
- Machinery
- Process Industry
- Software
- Railway
- Medical Technology
- Agriculture



Use our service portfolio to accompany you on your way to safe and secure products and processes. It encompasses a wide range of training offers, consultancy regarding all the standards relevant to Functional Safety and Cyber Security, testing and certification of your products and processes including the requisite assessments and audits as well as methodical support for safety analytics.

- Consultancy
- Testing/Certifications
- Training & Personal qualification
- Safety Analytics

ACCREDITATION/NOTIFIED BODY

According to ISO/IEC 17025 and ISO/IEC 17020 we are also accredited with respect to Functional Safety and IT Security. Therefore, we are authorized to test and certify according to international safety standards. This means we help to secure your product against product liability claims. In addition, SGS-TÜV Saar is listed as a Notified Body for Machinery in the European Union.

STANDARDIZATION ACTIVITIES

Our experts for Functional Safety and Cyber Security are members of the relevant national and international standardization committees. This means we help to shape the further development of the state of science and technology for standardization.

RESEARCH PROJECTS

In addition, we closely cooperate with research institutes and government authorities within the scope of funded projects.

TRAINING & PERSONAL QUALIFICATION

INVESTMENTS THAT PAY OFF – INVEST IN YOUR EMPLOYEE'S KNOW-HOW!

Our highly skilled team of trainers is a competent partner in the company-specific training and further education of specialists and executives.

We offer practical seminars, specialist workshops and training on relevant special fields departments and the resulting requirements:

The offer regarding Functional Safety includes a wide range for:

- Automation
- Automotive
- Machinery
- Process industry
- Agriculture
- Railway
- Medical products
- Semiconductors
- Household/Electrical appliances
- Software
- Mechanics/Mechatronics

In addition we offer training in the field of Cyber Security for Automotive, Energy and Industrial manufacturing.

Our modular training concept allows you easy adaption to your needs. In addition, our experts are also able to develop specialized workshops tailored to your individual topics of interest.

Furthermore, we offer a **personal qualification** with exam in two stages, the Professional and Expert in:

- **AFSP** (Automotive Functional Safety Professional)
- **AFSE** (Automotive Functional Safety Expert)
- **IFSP** (Industrial Functional Safety Professional)
- **IFSE** (Industrial Functional Safety Expert)
- **MFSP** (Machinery Functional Safety Professional)
- **MFSE** (Machinery Functional Safety Expert)
- **AGFSP** (Agriculture Functional Safety Professional)
- **PIFSP** (Process Industry Functional Safety Professional)
- **CICSP** (Certified Industrial Cyber Security Professional)
- **CACSP** (Certified Automotive Cyber Security Professional)
- **SC-AFSP** (SemiConductor Automotive Functional Safety Professional)

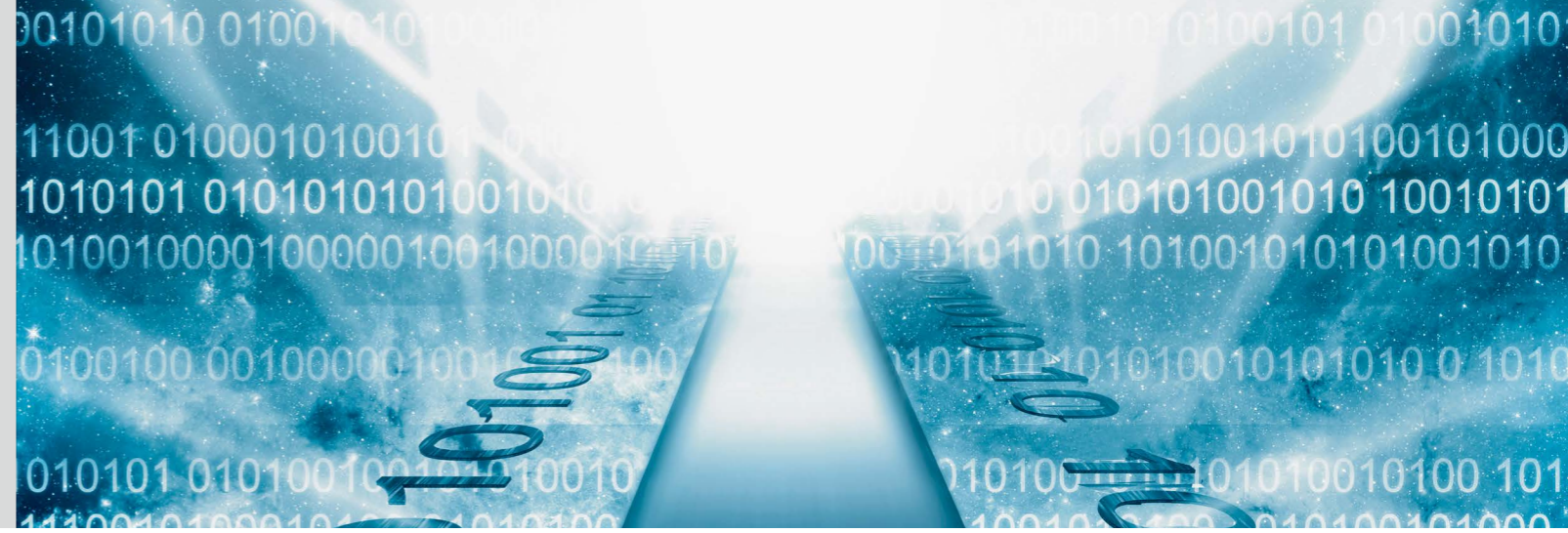
All of our trainings and personal qualifications can also be performed worldwide in-house.

Additional information on dates, fees, training locations and contents is available at:

www.sgs-tuev-saar.com/fs-training

TRAINING

SAVE TIME AND COSTS. WE SUPPORT YOU IN DEVELOPING AND OPTIMIZING CONCEPTS, PRODUCTS AND PROCESSES.



CONSULTANCY

CONSULTANCY

The controllability of the fault potential of complex safety-relevant systems requires a stringent approach during development. In addition to development know-how, it is particularly important to generate complementary safety processes and to integrate them into the project structure as well as with organizational culture.

Our consultancy services encompass the full scope of Functional Safety. Our portfolio extends across all phases of the development cycle, from concept all the way to production and, ultimately, putting products and systems out of service again. We offer you support in developing process and organizational structures (FSM) and with respect to hardware, software and system development all the way up to integration into the overall product.

Additionally we support you in the area **IT Security**.

You benefit from the expertise and years of experience of our consultancy team and the know-how of our specialists in the various industrial sectors such as Automotive, Automation, Machinery, Software and Semiconductors in areas like

- Implementation of safety and security requirements into existing development processes
- Safety management
- Elaboration of safety concepts and systems
- Interface management, system owner/supplier



SAFETY ANALYTICS AND RELIABILITY

The performance of safety and reliability analyses is essential to the development of safety-relevant systems. They make valuable results available for the entire development process. The identification of faults and their root causes as well as potential weak areas and their effects on the safety objective are examples of such results. Our analytics experts will support you with relevant know-how and methodologies.

The analysis method to be used is selected in terms of its suitability to provide the optimum analysis results for the specific project and adapted accordingly. This allows the special characteristics of the system in the various phases of the safety lifecycle to be adequately addressed. We support you in any aspect of safety analysis.

METHODOLOGIES WE CAN USE TO SUPPORT YOU INCLUDE

- FMEA (Failure Mode and Effects Analysis)
- FTA (Failure Tree Analysis)
- Markov Analysis
- HAZOP Analysis
- ETA (Event Tree Analysis)
- RBD (Reliability Block Diagram)
- Vulnerability Analysis to IT Security

Additionally we offer you **EXAR®** licences for the independently performing of analyses. Furthermore we provide support for calculating failure rates resp. MTBF (Mean Time Between Failures) and generating reliability predictions.



ANALYTICS

EXTENSIVE EXPERT KNOW-HOW AND A GLOBAL NETWORK FOR THE SAFETY OF YOUR PRODUCTS AND PROCESSES.



TESTING

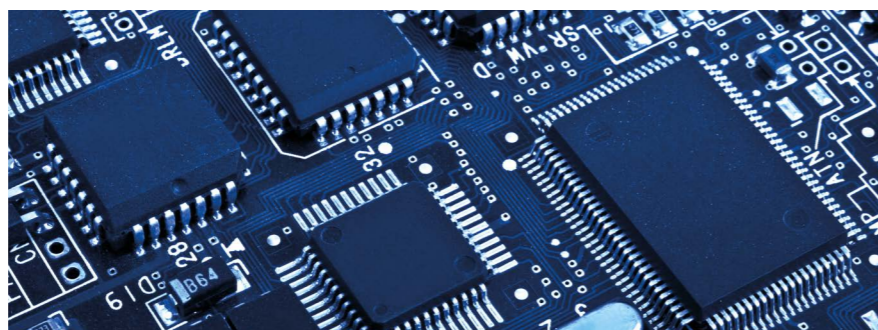
ASSESSMENTS/AUDITS/CERTIFICATION

As an accredited testing and inspection body for Functional Safety and IT Security, we evaluate your concepts, systems, products and processes in the field of Functional Safety and Cyber Security for you.

In addition to concept reports and technical reports, we issue certificates and test marks if required. You profit from strong brands in a single unit.

IN THE AREA OF TESTING AND CERTIFICATIONS WE OFFER YOU SERVICES AT ALL LEVELS

- Evaluation of systems
- Evaluation of software
- Qualification of software based development tools
- Evaluation of hardware
- Safety assessments and audits
- Certification of components, systems and processes
- Certification according to the Machinery Directive 2006/42/EC
- Safety & Security Evaluation and Certification



YOUR BENEFITS AT A GLANCE

- **SERVICE FROM A ONE-STOP-SHOP**
As a full-service provider, we support you in developing and testing your products (full systems, sub-systems, software, semiconductors etc.) and processes for optimal acceptance and product validation in international markets.
- **THE WORLD'S LEADING TEST SERVICES PROVIDER**
SGS, the world's leading test services provider founded SGS-TÜV Saar together with TÜV Saarland e. V. You benefit in any case from the know-how and image of the companies taking part in this joint venture in local and international markets.
- **PROTECTION AGAINST PRODUCT LIABILITY CLAIMS**
Based on our accreditation for safety engineering according to ISO/IEC 17025 and ISO/IEC 17020 we protect you against product liability claims if required.
- **GLOBAL EXPERTISE FOR FUNCTIONAL SAFETY AND CYBER SECURITY**
We serve you locally and globally with our Global Competence Center and several local expert teams for Functional Safety and Cyber Security.

GLOBAL COMPETENCE CENTER FUNCTIONAL SAFETY & CYBER SECURITY

SGS-TÜV Saar GmbH
Hofmannstr. 50
81379 München/Germany
t +49 89 787475 - 271
f +49 89 787475 - 217
fs@sgs.com; cybersecurity@sgs.com
www.sgs-tuev-saar.com/fs
www.sgs-tuev-saar.com/cybersecurity

Branch Dortmund:
t +49 231 9742 - 7323
f +49 231 9742 - 7349
do.fs@sgs.com

Branch Stuttgart:
t +49 711 907026 - 74
f +49 711 907026 - 99
s.fs@sgs.com

International contacts

China	t +86 13916013062 cn.fs@sgs.com
India	t +91 124 60600747 in.fs@sgs.com
Japan	t +81 45 3305040 jp.fs@sgs.com
Korea	t +82 31 240 6611 kr.fs@sgs.com
Taiwan	t +886 2 2299 3279 3660 tw.fs@sgs.com
USA	t +1 973 461-7932 us.fs@sgs.com

SGS IS THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY. SGS-TÜV SAAR, AS A JOINT VENTURE BETWEEN SGS AND TÜV SAARLAND E.V., ENSURES THE RELIABILITY AND QUALITY OF PROCESSES, PRODUCTS, AND TECHNICAL SERVICES.

BENEFITS

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WHEN YOU NEED TO BE SURE

