



Certificate / Certificat Zertifikat / 認証

CFSE 100617 001

exida Certification hereby confirms that:

Dharmasankara Chandrasekaran

Has met the program requirements as defined by the CFSE
Advisory Board in the field of functional safety applied to:

Process Industry Application

And is authorized to use the title:

Certified Functional Safety Expert

And passed the exam for the standard:
IEC 61508 & IEC 61511

A CFSE has clear obligations and duties to exercise his or
her skills toward the creation, promotion and maintenance
of functional safety.

William M. Goble

Director



Candidate ID 07-NLD-00001

Validity:

This certificate is valid effective
May 14, 2019 and expires
May 14, 2022.

exida Certification
Sellersville, PA, USA



Form	Version	Date
CFSE001	2.00	October 2009



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Certified Functional Safety Expert

And passed the exam for the standard:

IEC 61511

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her skills toward the creation, promotion and maintenance
of functional safety.

William M. Hoff

Director



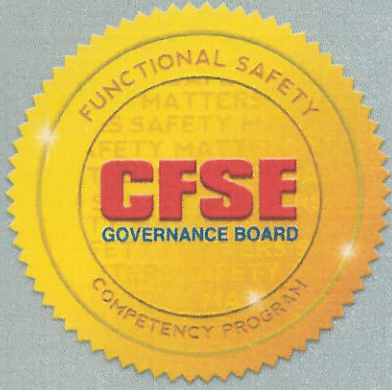
Validity:

This certificate is valid effective
May 14, 2016 and expires
May 14, 2019.

exida Certification
Sellersville, PA, USA



Form	Version	Date
CFSE001	2.00	October 2008



Certificate / Certificat Zertifikat / 認証

CFSE 100617 001

exida Certification SA hereby confirms that:

Dharmasankara Chandrasekaran

Has met the program requirements as defined by the CFSE
Governance Board in the field of functional safety applied to:

Process Industry Application

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Certified Functional Safety Expert

And passed the exam for the standard:

IEC 61511

A CFSE has clear obligations and duties to exercise his or
her skills toward the creation, promotion and maintenance
of functional safety.

William M. Holtz

Director



Validity:

This certificate is valid
effective May 14, 2013 and
expires May 14, 2016.

exida Certification SA
Geneva, Switzerland
Sellersville, PA, USA



Form	Version	Date
CFSE001	2.00	October 2009

Certificate / Certificat Zertifikat / 認証

CFSE 100617 001

exida Certification SA hereby confirms that:

D.CHANDRASEKARAN

Has met the program requirements as defined by the CFSE
Governance Board in the field of functional safety applied to:

Process Industry Application

And is authorized to use the title:

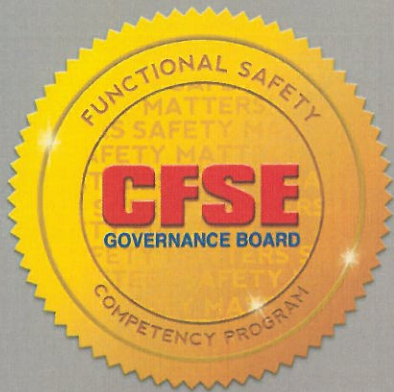
Certified Functional Safety Expert

And passed the exam for the standard:
IEC 61511

A CFSE has clear obligations and duties to exercise his or
her skills toward the creation, promotion and maintenance
of functional safety.

William M. Holt

Director



Validity:

This certificate is valid
effective May 14, 2010
and expires May 14,
2013.

exida Certification SA
Geneva, Switzerland
Sellersville, PA, USA



Form	Version	Date
CFSE001	2.00	October 2009



Print to A3 and DO NOT SCALE TO FIT PAPER

Certificate 210x297mm



Dharmasankara Chandrasekaran

Has successfully attended and completed the SIF and LOPA courses and passed all required criteria to become a

Shell Approved LOPA Facilitator

Certificate #: **SCLF-19/0007**

Dated: **17 September 2019**

Expires: **17 September 2024**

Lisa M. Adam

Lisa M. Adam
ICE Learning Advisor

P06631_001B

Cut Here

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Cut Here

Print to A3 and DO NOT SCALE TO FIT PAPER

Certificate 210x297mm



Dharmasankara Chandrasekaran

Has successfully attended and completed the SIF course
and passed all required criteria to become a

Shell Approved SIF Designer

Certificate #: **SCSD-19/0008**

Dated: **17 September 2019**

Expires: **17 September 2024**

Lisa M. Adam

Lisa M. Adam
ICE Learning Advisor

P06631_001B

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Shell Learning

Certificate



Chandrasekaran Dharmasankara

Has successfully attended and completed the M269 course and passed all required criteria to become a

Shell Certified SIF Facilitator

Proficiency level: Skilled (stage 3)

Certificate #: **SCSD-18/0007**

Dated: **16 August 2018**

Expires: **30 December 2019**

A handwritten signature in blue ink that reads "P-J Brouwer".

Piet-Jan Brouwer
PACO Learning
Advisor

Shell Learning

Certificate



Chandrasekaran Dharmasankara

Has successfully attended and completed the M269 course and passed all required criteria to become a SIF Facilitator (stage 3)

Proficiency level: Skilled

Certificate #: **PTLOE-SIF-2014-07-24**

Dated: **24 July 2014**

Expires: **24 July 2018**



A handwritten signature in blue ink that reads 'P-J Brouwer'.

Piet-Jan Brouwer
PACO Learning
Advisor



Choose certainty.
Add value.

CERTIFICATE

Dharmasankara Chandrasekaran

Has successfully completed the Functional Safety
Certification Program requirements for

Functional Safety Professional

In accordance with
IEC 61511:2003

Date issued: 11-November-2013
ID number: TP13010265
Field: Process Industry
Subject: Safety Instrumented Systems

Handwritten signature of G. Greil in blue ink.

Handwritten signature of W. Henke in blue ink.

G. Greil
Certifier

W. Henke
Trainer

CURRICULUM

- **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