EuroSPI / ASA Certified Automotive Quality Engineer Integrated

Goal

AQUA stands for Knowledge Alliance for Training Quality and Excellence in Automotive. The AQUA project (2013 – 2015) was financially supported by the European Commission in the Leonardo da Vinci part of the Lifelong Learning Programme under the project number EAC-2012-0635.

The AQUA project was co-funded by the Erasmus+ Programme of the European Union - 2015-1-CZ01-KA203-013986 - 2015 – 2017, and AQU integrated the training program to universities in Austria, Germany, France, Slovenia, and Czech Republic. This training is available for industry and university.

AQUA developed an architectural concept that allows focusing on specific core areas (e.g. Product Development – Life Cycle) and to access an introduction and proposed best practices from four different views:

1. Integrated View
2. Automotive SPICE
3. Functional Safety
4. Design for Six Sigma

This modular strategy allows companies to look at each method seperately or gain an advanced insight into how these methods in fact are working together in advanced engineering companies. In the past the role of an Automotive quality manager was based on standards like IEC 16949 and the implementation of a quality management system.

With the increase of complexity of car functionality and the use of electronics (more than 100 ECUs in cars connected by a bus and each car function mapped onto an ECU cluster). Automotive SPICE (ISO 15504) knowledge is meanwhile an important area of knowledge to assess Automotive systems which include electronics and software. Most of the manufacturers demand a SPICE level 3 from the suppliers.

Faults of electronics and software can lead to hazards (e.g. blocking wheels, unintended steering, no brake force, etc.) so that a new standard ISO 26262 for functional safety has to be implemented. Systems that might cause a hazard get classified by an ASIL-A to D level. Therefore quality managers who have to release a product to the market must know about functional safety as well. Quality management (also already at IEC 16949) has a responsibility for the entire product cycle, including the production part. Six Sigma is nowadays the most well-known method and statistical tool box for quality control in production.

In AQUA we form the picture of a new education "Automotive Quality Manager with AQUA Skills"

where we train quality managers for the integrated understanding of the above three methods. It provides the qualification necessary to make the experts in these different fields collaborate in an integrated way.

Content

The course is based on a skills set with Units (U1-U4) and Elements developed ion the EU Blueprint project DRIVES which led to the foundation of the ASA (Automotive Skills Alliance). EuroSPI is a member of ASA and certifies these courses. ASA members include ACEA, CLEPA, ETREMA, and many more European automotive associations. See ASA Learning Platform (skills-framework.eu)

UnitID	Unit Name	Element ID	Element Name
AQU.U1	Introduction	AQU.U1.E1	Integration view, general part, standards, norms, guidelines
		AQU.U1.E2	Organisational readiness
AQU.U2	Product Development	AQU.U2.E1	Lifecycle
		AQU.U2.E2	Requirements
		AQU.U2.E3	Design including Performance
		AQU.U2.E4	Integration and Testing
AQU.U3	Quality and Safety management	AQU.U3.E1	Capability
		AQU.U3.E2	Hazard & Risk management
		AQU.U3.E3	Assessment and audit
AQU.U4	Measure	AQU.U4.E1	Measurements
		AQU.U4.E2	Reliability

The following 4 elements include mandatory exercises to exercise the required skills. For each element the view of all 3 methods is explained. Also exercises are done based on the 3 methods and discussions are done how to integrate the views. This can be compared with the proposed integrated view.

Element AQU.U3.E2: Hazard & Risk management

This element deals with the management of hazards and risks from the three expert areas' points of view, and explains an integrated approach.

Element AQU.U2.E2: Requirements

This element explains how requirements are managed in the three expert domains, as well as

how an integrated approach looks like.

Element AQU.U2.E3: Design

This element deals with the view on the design approach of the three expert domains, as well as their integration.

Element AQU.U2.E4: Integration and Testing

This element explains how integration and testing are managed in the three expert domains, as well as how an integrated approach looks like.

Schedule

Day 1

Time	Stream	Elements	Exercises
Session 1 [AM 1] 9.00 - 10.30	ASPICE	U1.E1-E2, U2.E1, U3.E2	Q/A
Break	-		
Session 2 [AM 2] 10.45 - 12.30	ASPICE	U1.E1-E2, U2.E1, U3.E2	Q/A
Lunch Break	-		
Session 3 [PM 1] 13.30 - 15.15	Forum		CapAdv Demo Assessment, Risk Plan, FR/NFR System/Subsystem
Break	-		
Session 4 [PM 2] 15.30 - 17.00	Discussion	Quiz	Quiz

Day 2

Time	Stream	Elements	Exercises
Session 1 [AM 1] 9.00 - 10.30	ASPICE	U2.E2-E4	Q/A
Break	-		
Session 2 [AM 2] 10.45 - 12.30	Safety	U1.E1-E2	Q/A
Lunch Break	-		
Session 3 [PM 1] 13.30 - 15.15	Safety/Forum	U3.E2	Item Defnition, HARA, Test/DVP Plan, Example Test Cases
Break	-		
Session 4 [PM 2] 15.30 - 17.00	Discussion	Quiz	Quiz

Day 3

Time	Stream	Elements	Exercises
Session 1 [AM 1] 9.00 - 10.30	Safety	U2.E2-E3	Q/A
Break	-		
Session 2 [AM 2] 10.45 - 12.30	Safety	U2.E4, U2.E1	Q/A
Lunch Break	-		
Session 3 [PM 1] 13.30 - 15.15	Coaching	U3.E2	Block Diagram, Safety-Critical Path, FSC/TSC, HSI/Diagnose Matrix

Break	-		
Session 4 [PM 2] 15.30 - 17.00	Discussion	Quiz	Quiz

Day 4

Time	Stream	Elements	Exercises
Session 1 [AM 1] 9.00 - 10.30	Six Sigma	U1.E1-E2, U2.E1	Q/A
Break	-		
Session 2 [AM 2] 10.45 - 12.30	Six Sigma	U3.E2, U2.E2	Q/A
Lunch Break	-		
Session 3 [PM 1] 13.30 - 15.15	Six Sigma/Forum	U2.E3-E4	S-FMEA, D-FMEA, P-FMEA, CTQ Flowdown, ALT, Plenum Discussion on DVP
Break	-		
Session 4 [PM 2] 15.30 - 17.00	Discussion	Quiz	Quiz

Day 5

Time	Stream	Elements	Exercises
Session 1 [AM 1] 9.00 - 10.30	Integration	U1.E1-E2, U2.E1, U3.E2	Q/A
Break	-		
Session 2 [AM 2] 10.45 - 12.30	Integration	U2.E2-E4	Q/A

Lunch Break   -

Session 3 [PM 1]   Discussion   Feedback, Questions, Discussion
13.30 - 14.30

Training Materials

The training materials include slides, templates for Automotive SPICE, Functional Safety and Six Sigma. Additionally the training is supported by an online teaching environment set up on the online EuroSPI academy platform.

Target Group and Prerequisites

Automotive quality engineers, automotive quality managers, functional safety engineers, functional safety managers, production quality engineers, production quality managers, experienced project leaders. A minimum of 5 years work experience in the automotive industry is required to be able to take part in course exercises.

Cancellation

Cancellation is not possible. You may determine a substitute or attend the course at a later date.

Examination and Certification

Exams are organised by the EuroSPI / ASA certification organisation. In case of cybersecurity engineers the exam is based on a set of mandatory exercises to be performed in the course under the observation of the trainers.
The EuroSPI / ASA system allows to register with a job role, upload the exercises and have an assessor in the system assessing the student performance in the practical exercises. The EuroSPI / ASA system generates a unique certification ID and certificate for the attendee.
Every 2 years the certificate will later need to be renewed by attending a short update training of 1 day to learn about the new state of the art developments in integrated quality engineering.

in cooperation with
ISCN

The EuroSPI Academy

The training is held in the EuroSPI academy in cooperation with ISCN. The company ISCN is a certified training partner of VDA-QMC and Intacs® for Automotive SPICE (https://nqa2.iscn.com/images/PdfFiles/TP-Certificate-CCF15042021.pdf, http://www.intacs.info/index.php/component/weblinks/category/122-training-organisation).
The EuroSPI Academy (https://academy.eurospi.net) was founded in 2021 in cooperation with the ASA (Automotive Skills Alliance) and offers an advanced online training environment with materials, templates and exercises. EuroSPI and ISCN are full partners of the ASA (https://automotive-skills-alliance.eu/#partners).
In cooperation with ASA WG 3.6 (IT in Automotive) and the EU project FLAMENCO this training platform will be further developed in the next years.

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