



Testia SHM Cadet Academy - Overview on the harmonization of education of SHM specialists and sensor installers

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Contributors and Partners



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SHM



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HO Training - Support to Managing Director



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Who we are?

- **A short introduction to Testia**
- Introduction to SHM at Testia
- Our Experiences with NDT training
- Justification on SHM training
- Qualification & certification - CVM
- Proposed SHM Training Structure
- SHM Academy
- Conclusion

Our global end-to-end solutions focus on structural integrity

Training & Qualification

Multilingual courses & accreditations across aerospace NDT methods

Inspection

NDT inspection from elementary parts & throughout asset life cycle

Engineering

A broad range of engineering services guaranteeing structural integrity

Products & Equipment

Augmented inspection, process automation and embedded intelligence

Inspection

Leader in
Aerospace
NDT Inspection

Tailor-made solutions to meet your needs, wherever you are

190+ customers

In-situ & ex-situ

160+ certified inspectors

Own equipment

2 000+ EASA Form 1
issued per year

Own workshops or at
customer site

Proven rapid ramp-up capabilities worldwide

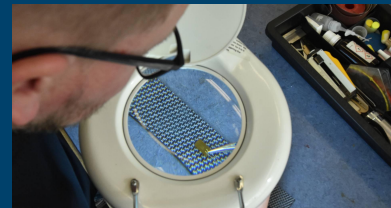
Engineering

NDT Engineering

Materials
& Processes

Lab capabilities

Delivering advanced engineering services & expert advice



- Inspection procedures & feasibility studies
- Qualification support
- Periodic verification / Calibration
- Mechanical testing
- Cabin interior testing
- Fluids testing
- Failure analysis
- Materials & Processes consulting
- Structural Health Monitoring
- 3D Metrology & Reverse Engineering

Own testing labs & partnerships with Airbus labs

Products & Solutions

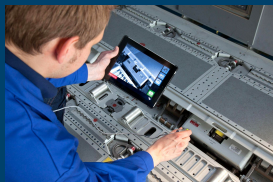
Augmented Inspection

Process Monitoring

Robotics & Automation

Diagnosis Intelligence

Shaping the future of inspections to improve your efficiency



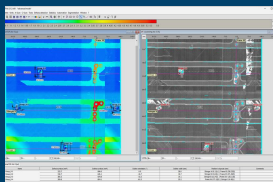
Smart Inspection Tools, Remote Assistance, Smart Mixed Reality, 3D Asset Manager



Electrical reflectometry for RTM & LRI, Laser profilometry for AFP & Artificial Vision



Inspection systems



Focused Diagnosis Tools & NDT Visual Inspection Software

Bringing solutions to multiple high-end technology sectors

Aeronautics



Automotive



Sustainable Energy



Urban Air Mobility



Naval



Oil & Gas



Defence & Space

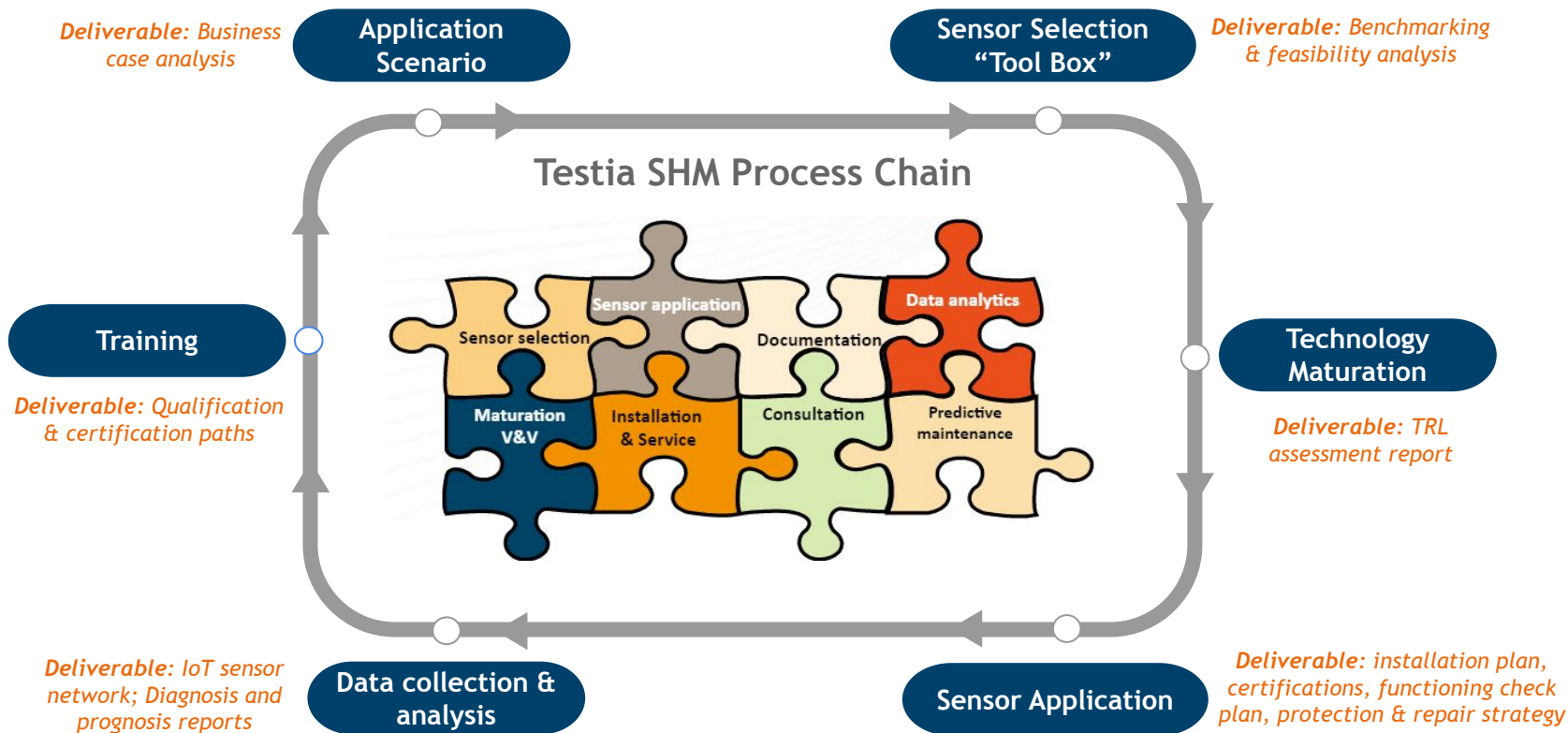


Wind Energy

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SHM at Testia (Keywords: end-to-end, last mile)



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NDT Training

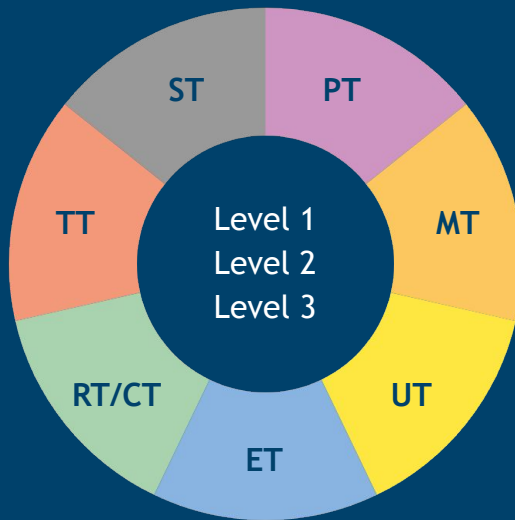
25 000+ trained and certified NDT inspectors since 1994

On-site, Off-site and E-Learning sessions

Customized & mobile classrooms, access to real aircraft components

Equipped with the latest NDT devices

Training future inspectors for continued safety



50+ training courses available

FR, EN, DE, ES

Qualification Level 3 services, NADCAP preparation, Audit

Powered by 30+ senior NDT trainers

SHM Training

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Why do we need training in SHM?

- **Maintaining quality and consistency**
 - Creates a clear structure, promotes good work practices and fosters trust and confidence in SHM.
- **Helps with structured knowledge transfer**
 - Ensures the availability of trained and qualified staff deliver the same quality levels.
- **Meeting regulatory demands**
 - Ensures that the quality of SHM implementation is maintained even at scale (globally).
- **Progressive learning and skill development**
 - Allows and promotes a gradual and structured learning process.
 - Develop necessary knowledge and skills at each stage of the learning process.
 - Career advancement opportunities and new opportunities.

Qualification & Certification - CVM



□ September 25, 2023

- AEM and Testia pen CVM Sensor Installation and training agreement.

□ Role of Testia

- Deliver a complete end-to-end installation training program to airline maintenance teams and third parties.
 - Use-case: B737 Aft Pressure Bulkhead (APB) inspection using CVM.
- ## □ The goal was to develop a training program for certifying personnel for implementing CVM for APB (sensor installers)



CVM Installer Training

Who can participate?

- If you have been nominated to conduct CVM installations.
- You have relevant airframe experience.
- You have basic understanding of inspection procedures.

What is offered?

- Classroom training and training on aircrafts (2 aircrafts) - total 6 days.
- Includes:
 - General introduction to CVM and specifics.
 - Surface preparation & conditioning training.
 - Hardware & software training.
 - Live installations, cabling guidelines and functional testing.

What you would get?

50 experience hours

Grade completion certificate (Testia-AEM)

Guidelines

- Examination (theory and practical) -after the completion of the 50 hours.
- Qualification certificate provided after the exam is successfully completed.
- Additional hours - to be approved by trainer (internal or from Testia)
- Renewal timeline - 2 years.
- Recertification - if no installations are made within a 6 month time span.



Training the Trainer



Who can participate?

- You have 200 hours of installation experience (or 50 if you are nominated - special case).
- You have been nominated to train installers in your organization.
- You wish to have deeper understanding of CVM and how it works.

What is offered?

- Work alongside experienced trainers during installation training.
 - Trainings 1 & 2 - as observer
 - Trainings 3 & 4 - conduct with help
 - Trainings 5 - conduct alone
- Deeper understanding of CVM and its working (3 day visit to AEM recommend)

What you would get?

120 additional experience hours

Grade completion certificate (Testia-AEM)

Guidelines

- L3 examination (theory and practical) -after the completion of the 120 hours.
- L3 qualification certificate provided after the exam is successfully completed.
- Additional hours - to be approved
- Renewal timeline - 5 years.
- Recertification - if no trainings are conducted within a 1 year time span.

- Training helped building confidence and traceability for successful implementation.
- A training structure similar to NDT, with minor adaptations help to better implement a structure
 - By defining Grades instead of Levels, one is able to adapt a similar concept but avoid any chances of confusion.
- There are potentially three critical layers to be considered in a training program
 - A general training (non-technique specific, non-use case specific)
 - SHM qualification training (technique specific, non-use case specific) and
 - SHM certification training (technique specific, use case specific)
- Part of the training can be offered prior to use-case specification
 - The general training and the qualification training could be offered to prepare workforce for scaled implementation
 - This critical information led to the formation of the SHM Academy, by Testia and its partners

SHM Training Structure

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Grades - Standardizing SHM Training

Inspired by NDT,
Adapted for SHM



Grade 1- SHM User/Inspector

- Qualified to gain access, perform SHM inspections and record data & overall results;
- Can perform system set-up, basic troubleshooting;
- instrument knowledge & calibration
 - Basic Field Inspector (monitor for green light/red light results)
 - Expert Inspector (monitor that includes data analysis capabilities)

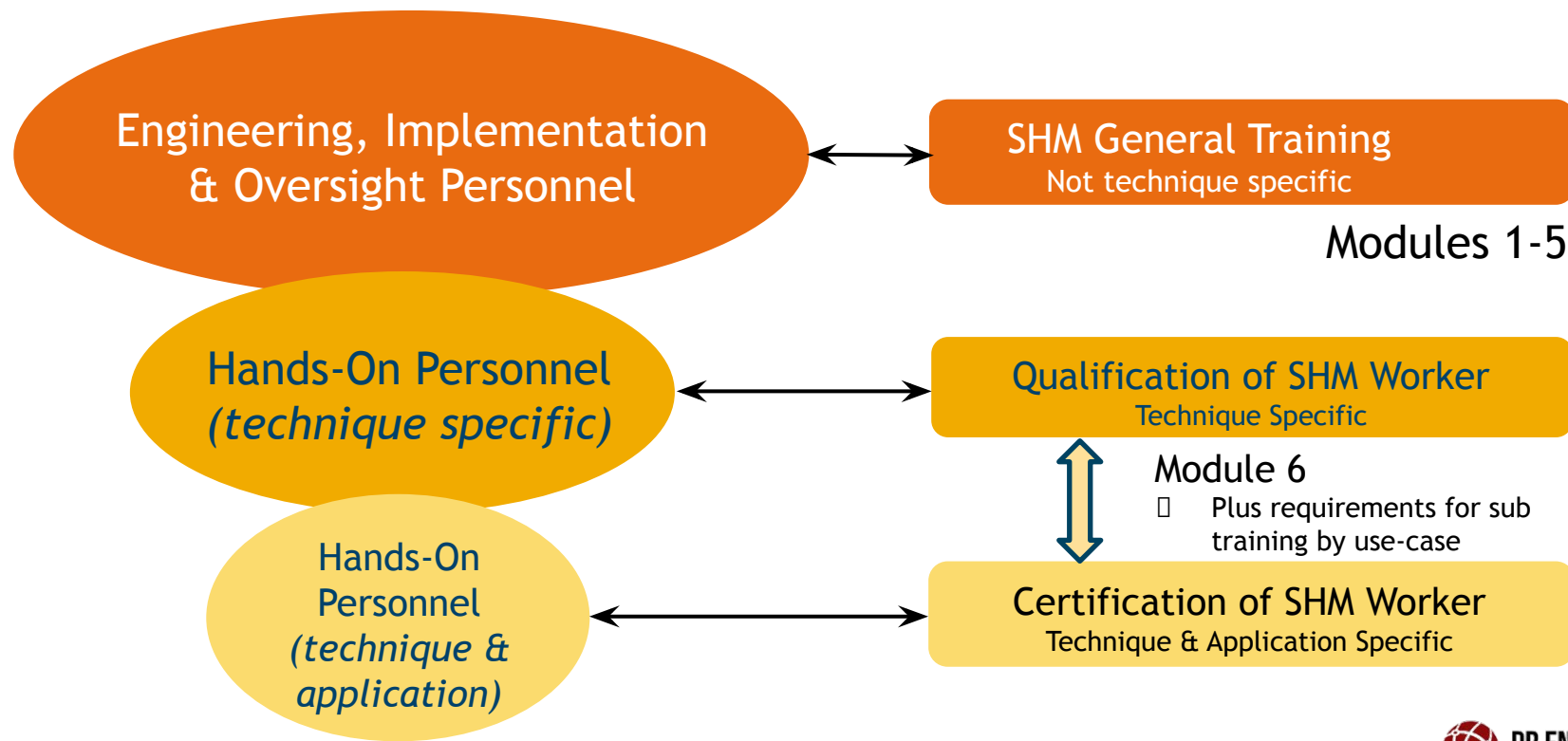
Grade 2 - SHM Installer

- Qualified to perform SHM system installation (method dependent);
- comprehend installation technique documents,
- Possess relevant airframe maintenance experience (gain access, route leads, mount brackets, close-up),
- SHM system set-up/cal, troubleshoot, inspect
 - Basic Field Installer
 - Expert Field Installer (additional experience & knowledge)

Grade 3 - SHM Trainer

- Adds advanced theoretical/conceptual knowledge and troubleshooting ability to Installer;
- Able to perform installation, run system & produce results, perform advanced troubleshooting & diagnostics;
- Has detailed theoretical understanding of the data; can perform advanced analysis of data
 - Basic - able to train Inspectors (possibly Expert Installer with more experience)
 - Expert - Instructor (Train the Trainer; additional experience and specialized training; able to train all of the designations above)

Alignment with AIR8949 - SHM Training

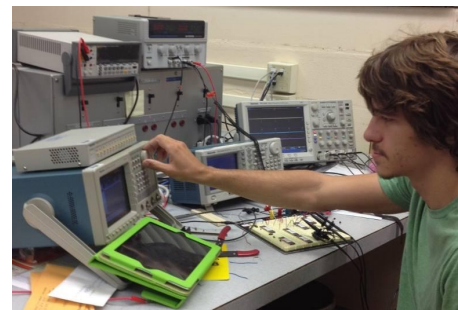


SHM Training - Major Components

Engineering, Implementation & Oversight Personnel



OEM, Airline Maintenance and Oversight Personnel, MROs, Regulators, SHM Developers/Suppliers, Research Orgs, Other



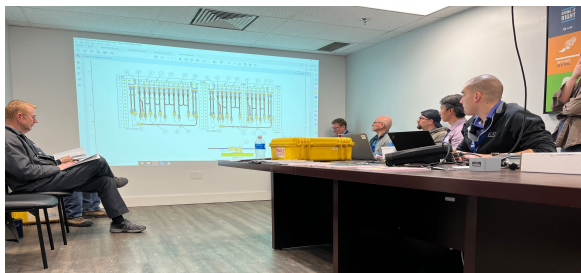
SHM Training - Major Components

Hands-On Personnel (technique & application specific)

Hands-On Maintenance Personnel - Installers, Inspectors, Trainers, Instructors, Engineers



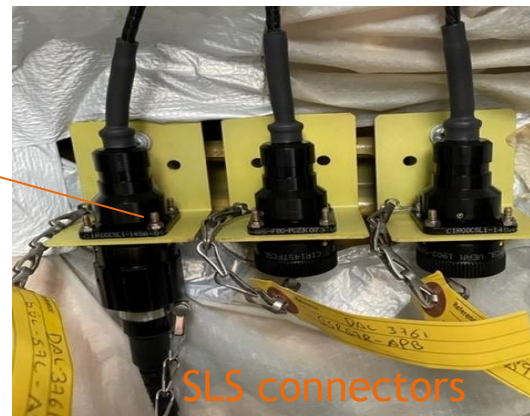
SHM Training - Major Components Technique Specific



Technical lecture and hands-on



Access to SLS
Connectors



SLS connectors



SHM Academy

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SHM Academy



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Current offering]; SHM_Academy --> Long_Course[Long Course - 3-4 days  
Near Future Offering];
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Short Course - 1-2 days *Current offering*

- Covers the SHM general training to a good degree (a good introductory course)
- Hands-on experience with mature technologies being used
- A guided deep-dive into different standards and guidelines used
- Receive a certificate of completion, a stepping stone towards SHM qualification and certification

Long Course - 3-4 days *Near Future Offering*

- Short course completion certificate guarantees partial completion.
- Technology specific in-house training.
- Use of relevant specimen (aircraft parts of different scales).
- Train in an aircraft environment with custom sensor kits (using training aircrafts available on-site).
- Prepare for use-case specific grade

SHM Academy 2025 - Short Courses/ Introduction Course



SHM ACADEMY 2025 - A NEW TRAINING PROGRAM BY TESTIA

**Hands-on training from industry experts:
SHM Academy on 4-5 September 2025**

Get on in-depth training for structural health monitoring from industry experts!
Prepare for your future now by starting your qualification journey with Testia.

The SHM academy is a short intense training course held in conjunction with the International Workshop on Structural Health Monitoring 2025 (IWSHM) in Stanford, California on 4-5 September 2025.

**September 4th to 5th
At Stanford, USA**

SHM ACADEMY 2025 - A NEW TRAINING PROGRAM BY TESTIA

**Hands-on training from industry experts:
SHM Academy on 10th December and 11th December 2025**

Get on in-depth training for structural health monitoring from industry experts!
Prepare for your future now by starting your qualification journey with Testia.

The SHM academy is a short intense training course held by Testia at EcoMat (Airbus campus) in Bremen, Germany, on 10th December and 11th December 2025.

**December 10th to 11th
At Bremen, Germany**

Program Details - Short Courses/ Introduction Course



Day 1 schedule

Start time	End time	Training module	Description
12:30	13:00	Arrival, setup & registration	
13:00	13:15	Welcome & introduction	Welcome & description of the 1.5 day agenda Introduction to Testia
13:15	14:00	Introduction to SHM & SHM technologies	
14:00	15:15	Module 1: Introduction to SHM standards and guidelines	Introduction to guidelines and implementation in aerospace industry
15:15	15:30	Coffee break	
15:30	16:45	Module 1: Introduction to SHM standards and guidelines	Introduction to guidelines and implementation in other industries. Infrastructure, wind turbines, marine...
16:45	17:30	Q&A and networking	
17:30	-	Adjourn	

WHO SHOULD JOIN ?

This course is aimed at:

- SHM end-users and industry professionals who want to broaden their knowledge about the most mature SHM technologies
- Aspiring sensor installers who want to kick-off their career with a competitive advantage through the skills acquired in this course
- Researches & academics who desire to enrich their theoretic knowledge with practical experience

REGISTER NOW FOR THE SHM ACADEMY 2025!

Be sure to apply soon for one of the limited course seats, by contacting Testia's SHM focal point **Aswin Haridas** via email: aswin.haridas@testia.com. He will be glad to help, in case you have any questions.

The course participant fee is 1.200€ (including catering).

Day 2 schedule

Start time	End time	Training module	Description
8:00	8:30	Arrival, setup & welcome	
8:30	9:30	Module 2: SHM sensor & hardware introduction (practical)	Introduction to AU-PZT (Acousto-Ultrasonic Piezoelectric Transducer), ScanGenie and SHM Pro, use-case etc (based on module 1 discussion)
9:30	10:30	Module 3: Hands-on sensor installation (test coupons).	Hands-on Installation of SMART Layer™ sensors
10:30	11:00	Coffee break	
11:00	12:00	Module 2: SHM sensor & hardware introduction (practical)	Introduction to CVM technology, use-cases etc (based on module 1 discussion)
12:00	13:00	Lunch break	
13:00	15:00	Module 3: Hands-on sensor installation (test coupons)	Hands-on Installation of CVM sensors & PM200 familiarization
15:00	15:30	Coffee break	
15:30	17:00	Module 3: SHM sensor & hardware (test coupons)	Revisiting AU-PZT-active & passive modalities (hardware & software training)
17:00	17:30	Q&A and networking	
17:30	-	Adjourn	

SHM Academy by Testia - What is next?

SHM Academy



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- Prepare for use-case specific grade

Training - Acellent - Acousto Ultrasonic

□ September 10, 2025

- Testia pen a MOU with Acellent on training and installation for Acellent's Acousto Ultrasonic technology

□ Role of Testia

- Develop together with Acellent a complete end-to-end installation training program
- Provide trainings in the frame of Testia's SHM Academy

□ The goal is to develop a training program to train installation on aircraft and other structures



At the end

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Conclusions and call for action

- Based on our experience with CVM, we introduce the SHM Academy - a structured SHM training program
- We define different layers of qualifications and certifications based on technique specific & use case specific needs
- Alignment of the SHM academy structure with the AIR8949 was introduced
- SHM academy - short course and long courses were introduced
- Register now for SHM academy in Germany! - 11th and 12th December 2025 (Registration fee - 1200 Eur)
- We are open to partnership with different actors - technology manufacturers, OEMs, airlines ...

Any questions?

Thank you



Curious for more?

Visit testia.com