



## **External Training Course**

# **Advanced Verification & Validation (V&V) Strategies in the Oil & Gas Industry**

**From 21 Apr. To 25 Apr. 2025**

**From 12 May To 16 May 2025**

**From 30 Jun. To 04 Jul. 2025**

**Hotel Metropolitan Edmont Tokyo  
Tokyo, Japan**

**Mr. Ghanem F. Al-Otaibi  
GM & Institute Owner**

**Tel.: 00965 22248901**

**Fax: 00965 22204999**

**Mob.: 00965 65548855**

**Mob.: 00965 97273712**

**Email: admin@agi-kw.com**

**Email: agi-kw@hotmail.com**

**W/SITE: WWW.AGI-KW.COM**

## External Training Course:

### **Advanced Verification & Validation (V&V) Strategies in the Oil & Gas Industry**

**From 21 Apr. To 25 Apr. 2025**

**Fess: 2500 KD**

**From 12 May To 16 May 2025**

**Fess: 2500 KD**

**From 30 Jun. To 04 Jul. 2025**

**Fess: 2500 KD**

## Course Overview

This specialized course is designed to equip Verification & Validation (V&V) Coaches with advanced expertise in testing, compliance, and reliability assurance in the oil & gas sector. Participants will learn industry best practices, risk assessment techniques, and quality control methodologies to ensure operational excellence, regulatory compliance, and asset integrity. The course covers V&V frameworks, process optimization, failure analysis, and performance validation to enhance safety, efficiency, and reliability in oil & gas operations.

## Course Objectives

Upon completion, participants will be able to:

- Understand V&V principles and their role in ensuring compliance and reliability.
- Implement advanced validation methodologies to meet industry regulations.
- Conduct performance testing & risk-based assessments for oil & gas systems.
- Develop predictive maintenance strategies to enhance equipment lifespan.
- Apply modern diagnostic tools for fault detection & performance optimization.
- Optimize operational efficiency & minimize system failures through effective testing.
- Ensure regulatory compliance with API, ASME, ISO, IEC, and industry standards.

## **Who Should Attend?**

This course is ideal for professionals involved in quality assurance, compliance, and performance testing, including:

- Verification & Validation (V&V) Coaches.
- QA/QC Engineers & Specialists.
- Reliability & Maintenance Engineers.
- Instrumentation & Control Engineers.
- Process & Safety Engineers.
- Operations & Asset Integrity Managers.
- Project Managers & Technical Supervisors.

## **Course Modules & Topics**

### Day 1: Fundamentals of Verification & Validation in Oil & Gas

- Definitions & key differences between Verification, Validation & Testing.
- International V&V standards & compliance frameworks (API 610, ISO 9001, ASME).
- The role of V&V in oil & gas risk management & quality assurance.
- Failure Modes & Effects Analysis (FMEA) for equipment validation.
- Case Study: Best practices in V&V for critical oil & gas assets.

### Day 2: Verification Strategies & Regulatory Compliance

- Verification of design, materials & system integrity.
- Factory Acceptance Testing (FAT) & Site Acceptance Testing (SAT).
- Non-Destructive Testing (NDT) techniques for quality control.
- Hydraulic performance validation for rotating & static equipment.
- Case Study: Ensuring compliance in pipeline & refinery operations.

### Day 3: Performance Validation & Testing Methodologies

- Validation planning & execution for operational success.
- Testing methodologies for pumps, compressors, & pressure vessels.
- Condition monitoring & real-time performance validation.
- Vibration analysis, thermal imaging & acoustic emissions testing.
- Case Study: Validating offshore equipment performance.

## Day 4: Advanced Risk-Based V&V & Troubleshooting Techniques

- Risk-based validation frameworks for oil & gas operations.
- Root Cause Analysis (RCA) & defect detection techniques.
- Predictive maintenance & AI-driven diagnostics.
- Troubleshooting V&V issues in dynamic environments.
- Case Study: Risk mitigation strategies in LNG & refining facilities.

## Day 5: Optimizing V&V Strategies for Operational Excellence

- Developing a structured V&V process for oil & gas projects.
- Ensuring continuous improvement in quality & compliance.
- Best practices for optimizing testing procedures.
- Final assessment & certification of completion.

## **Training Methodology**

Interactive presentations & real-world case studies.

Hands-on workshops & practical exercises.

Live demonstrations of V&V techniques & testing tools.

Problem-solving sessions & group discussions.

Comprehensive training materials & reference guides.

Final assessment & professional certification.

## **Why Attend This Course?**

Master V&V best practices to ensure system reliability & compliance.

Enhance operational efficiency through advanced validation techniques.

Reduce equipment failures & optimize maintenance costs.

Gain hands-on experience with state-of-the-art diagnostic tools.

Earn an internationally recognized certification.



## Program Agenda:

### (1<sup>st</sup> Day) Agenda

8.30	9.00	Opening Remarks (30 Min.).
9.00	11.30	<u>DISCUSS COURSE OBJECTIVES:</u> <ul style="list-style-type: none"> <li>• Fundamentals of Verification &amp; Validation in Oil &amp; Gas.</li> <li>• Verification Strategies &amp; Regulatory Compliance.</li> <li>• Performance Validation &amp; Testing Methodologies.</li> <li>• Advanced Risk-Based V&amp;V &amp; Troubleshooting Techniques.</li> <li>• Optimizing V&amp;V Strategies for Operational Excellence.</li> </ul>
11.30	12.00	Coffee Break
12.00	14.00	<u>Fundamentals of Verification &amp; Validation in Oil &amp; Gas:</u> <ul style="list-style-type: none"> <li>• Definitions &amp; key differences between Verification, Validation &amp; Testing.</li> <li>• International V&amp;V standards &amp; compliance frameworks (API 610, ISO 9001, ASME).</li> <li>• The role of V&amp;V in oil &amp; gas risk management &amp; quality assurance.</li> <li>• Failure Modes &amp; Effects Analysis (FMEA) for equipment validation.</li> <li>• Case Study: Best practices in V&amp;V for critical oil &amp; gas assets.</li> </ul>
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

### (2<sup>nd</sup> Day) Agenda

9.00	11.30	<u>Verification Strategies &amp; Regulatory Compliance:</u> <ul style="list-style-type: none"> <li>• Verification of design, materials &amp; system integrity.</li> <li>• Factory Acceptance Testing (FAT) &amp; Site Acceptance Testing (SAT).</li> <li>• Non-Destructive Testing (NDT) techniques for quality control.</li> </ul>
11.30	12.00	Coffee Break
12.00	14.00	<u>Verification Strategies &amp; Regulatory Compliance:</u> <ul style="list-style-type: none"> <li>• Hydraulic performance validation for rotating &amp; static equipment.</li> <li>• Case Study: Ensuring compliance in pipeline &amp; refinery operations.</li> </ul>
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

## (3<sup>rd</sup> Day) Agenda

9.00	11.30	<u>Performance Validation &amp; Testing Methodologies:</u> <ul style="list-style-type: none"> <li>• Validation planning &amp; execution for operational success.</li> <li>• Testing methodologies for pumps, compressors, &amp; pressure vessels.</li> <li>• Condition monitoring &amp; real-time performance validation.</li> </ul>
11.30	12.00	Coffee Break
12.00	14.00	<u>Performance Validation &amp; Testing Methodologies:</u> <ul style="list-style-type: none"> <li>• Vibration analysis, thermal imaging &amp; acoustic emissions testing.</li> <li>• Case Study: Validating offshore equipment performance.</li> </ul>
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

## (4<sup>th</sup> Day) Agenda

9.00	11.30	<u>Advanced Risk-Based V&amp;V &amp; Troubleshooting Techniques:</u> <ul style="list-style-type: none"> <li>• Risk-based validation frameworks for oil &amp; gas operations.</li> <li>• Root Cause Analysis (RCA) &amp; defect detection techniques.</li> <li>• Predictive maintenance &amp; AI-driven diagnostics.</li> </ul>
11.30	12.00	Coffee Break
12.00	14.00	<u>Advanced Risk-Based V&amp;V &amp; Troubleshooting Techniques:</u> <ul style="list-style-type: none"> <li>• Troubleshooting V&amp;V issues in dynamic environments.</li> <li>• Case Study: Risk mitigation strategies in LNG &amp; refining facilities.</li> </ul>
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

## (5<sup>th</sup> Day) Agenda

9.00	11.30	<u>Optimizing V&amp;V Strategies for Operational Excellence:</u> <ul style="list-style-type: none"> <li>• Developing a structured V&amp;V process for oil &amp; gas projects.</li> <li>• Ensuring continuous improvement in quality &amp; compliance.</li> </ul>
11.30	12.00	Coffee Break
12.00	14.00	<u>Optimizing V&amp;V Strategies for Operational Excellence:</u> <ul style="list-style-type: none"> <li>• Best practices for optimizing testing procedures.</li> <li>• Final assessment &amp; certification of completion.</li> </ul>
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch