Practical Visual Weld Inspection and Defect Assessment Training Course

OGT-1092 · 5 days · 15 CPD hours · English

OVERVIEW

The **Practical Visual Weld Inspection and Defect Assessment Training Course** provides participants with the technical knowledge and practical inspection skills required to examine welded joints, identify weld discontinuities, evaluate weld quality and determine whether welds meet applicable acceptance criteria. Visual weld inspection is one of the most important quality control activities in welding operations, as it helps detect visible imperfections before they develop into more serious structural, operational or safety concerns.

In the oil and gas industry, welding is essential to fabricating, installing, and maintaining pipelines, pressure vessels, storage tanks, process equipment, and structural components. The quality of these welded connections directly influences equipment reliability, structural integrity and operational safety. Effective weld inspection enables organisations to identify surface imperfections, assess workmanship, verify dimensional requirements and establish whether additional examination or corrective action is necessary.

This course falls under the **Welding Inspection and Metallurgy for Oil & Gas** category and focuses on the practical application of visual inspection techniques throughout different stages of welding operations. Participants explore the principles of visual testing, inspection equipment, weld joint configurations, surface examination procedures and common welding imperfections. Particular attention is given to recognising and assessing defects such as porosity, undercut, cracks, overlap, incomplete fusion indicators, excessive reinforcement and dimensional irregularities.

The programme also develops participants' ability to use inspection tools, including fillet weld gauges, bridge cam gauges, weld size gauges, measuring scales and other visual examination instruments. Participants learn to assess weld profiles, measure reinforcement, evaluate misalignment, and compare inspection findings against relevant codes, project specifications, and acceptance criteria.

Delivered through the **Oil & Gas Training Institute's practical training approach**, the course combines technical presentations, instructor-led demonstrations, defect identification exercises, and realistic inspection scenarios. Participants gain experience in distinguishing acceptable weld conditions from rejectable imperfections, documenting inspection results and recommending appropriate follow-up actions.

By the end of the programme, participants will be better equipped to conduct systematic visual weld inspections, communicate technical findings and contribute to welding quality assurance activities across oil and gas fabrication, construction, maintenance and pipeline projects.

OBJECTIVES

By the end of this training course, participants will be able to:

1. Explain the fundamental principles, objectives and limitations of visual weld inspection within industrial welding operations.

2. Identify different weld joint configurations, weld types, welding positions and surface characteristics relevant to inspection activities.

3. Select and correctly use visual inspection equipment, including fillet weld gauges, bridge cam gauges, weld size gauges and measuring instruments.

4. Recognise common weld discontinuities, including porosity, undercut, overlap, cracks, surface irregularities and excessive reinforcement.

5. Distinguish between weld discontinuities and rejectable defects based on their characteristics, dimensions, location and applicable requirements.

6. Measure weld dimensions, reinforcement, leg length, throat thickness, misalignment and other relevant geometric characteristics.

7. Interpret applicable welding codes, project specifications and acceptance criteria when evaluating weld quality.

8. Conduct systematic visual inspections before, during and after welding using structured examination procedures.

9. Prepare accurate inspection reports, record non-conformities and communicate findings to relevant technical personnel.

10. Recommend appropriate corrective actions, additional examination or repair activities based on inspection findings and established quality requirements.

TRAINING METHODOLOGY

The Practical Visual Weld Inspection and Defect Assessment Training Course uses an interactive, application-oriented methodology designed to develop practical inspection capabilities alongside technical understanding.

The training combines instructor-led sessions, equipment demonstrations, visual examination exercises and industry-based case studies to help participants understand how weld inspection principles are applied in real working environments.

Interactive Presentations and Technical Discussions

Participants explore the fundamentals of visual weld inspection, welding terminology, joint configurations and inspection requirements through structured presentations. Technical discussions examine common welding problems,

inspection challenges and the importance of consistent quality assessment.

Practical Inspection Equipment Demonstrations

Instructors demonstrate the correct application of commonly used inspection instruments, including:

- Fillet weld gauges for checking weld dimensions and profiles.
- Bridge cam gauges for assessing weld reinforcement, undercut and other dimensional characteristics.
- Weld size gauges for evaluating fillet weld leg dimensions.
- Measuring scales and callipers for checking weld geometry.
- Inspection mirrors, lighting equipment and magnification tools for examining accessible surfaces.

Weld Defect Identification Workshops

Participants examine representative weld samples, photographs and inspection scenarios to identify different discontinuities. Practical activities focus on recognising porosity, undercut, overlap, cracks, surface irregularities and dimensional imperfections.

Acceptance Criteria Assessment Exercises

Participants work through inspection examples involving different weld configurations and quality requirements. They practise comparing measured characteristics against applicable acceptance criteria, project specifications and relevant welding standards.

Real-World Case Studies

Industry-based scenarios demonstrate how visual inspection contributes to fabrication quality, pipeline integrity, pressure equipment reliability and construction compliance. Participants analyse inspection findings and discuss suitable corrective or follow-up actions.

Group Activities and Collaborative Learning

Participants undertake structured defect assessment exercises, discuss inspection decisions and compare their evaluation methods. These activities encourage consistent inspection practices and effective communication between welding inspectors, supervisors and quality professionals.

Practical Reporting Exercises

The course concludes with exercises in preparing inspection records, documenting non-conformities and communicating inspection outcomes. Participants apply a structured approach to reporting findings and recommending appropriate next steps.

ORGANISATIONAL IMPACT

Implementing effective visual weld inspection practices can significantly improve welding quality, reduce fabrication-related problems and strengthen operational reliability across oil and gas projects.

The training helps organisations develop personnel who can identify visible welding imperfections early, apply consistent inspection procedures and support compliance with relevant project and industry requirements.

Key organisational benefits include:

Improved Welding Quality and Workmanship

Developing inspection capabilities enables organisations to identify unacceptable weld conditions during fabrication and construction. Early detection of visible imperfections helps prevent defective workmanship from progressing to subsequent production stages.

Reduced Rework and Repair Costs

Accurate identification and assessment of weld discontinuities can minimise unnecessary repairs, repeated inspections and avoidable fabrication delays. Consistent application of acceptance criteria also helps prevent disagreements over inspection decisions.

Stronger Quality Assurance and Quality Control

The course supports the development of structured inspection practices, accurate documentation and consistent evaluation methods. These capabilities strengthen welding quality control processes and improve traceability throughout project execution.

Enhanced Operational Safety and Reliability

Welded connections are critical to the safe operation of pipelines, pressure vessels, storage tanks and process equipment. Effective visual inspection contributes to identifying surface-related concerns that may require further examination or corrective action.

Improved Compliance with Technical Requirements

Personnel develop a better understanding of how to apply relevant welding codes, project specifications and acceptance criteria. This supports more consistent inspection decisions and helps organisations demonstrate adherence to defined quality requirements.

Better Inspection Productivity

Knowledge of inspection tools, measurement techniques and systematic examination procedures enables inspectors to perform their responsibilities more efficiently and accurately.

Stronger Collaboration Between Technical Teams

Improved communication between welders, welding supervisors, quality inspectors and project personnel supports faster resolution of welding-related issues and more effective quality management.

More Effective Project Execution

By strengthening defect assessment and inspection reporting capabilities, organisations can improve fabrication control, reduce avoidable delays and support the timely completion of welding-intensive projects.

PERSONAL IMPACT

The course provides participants with practical technical knowledge and inspection capabilities that can strengthen their professional performance in welding fabrication, quality assurance and oil and gas construction environments.

Participants can benefit through:

Enhanced Technical Knowledge

Develop a stronger understanding of welding terminology, joint configurations, weld profiles, surface conditions and visual inspection requirements.

Improved Defect Recognition Skills

Build the ability to recognise common welding discontinuities, including porosity, undercut, overlap, cracks and dimensional irregularities, through structured examination exercises.

Greater Confidence in Inspection Activities

Gain practical experience using fillet weld gauges, bridge cam gauges and other inspection instruments to evaluate weld dimensions and surface conditions.

Better Technical Decision-Making

Improve the ability to distinguish between acceptable discontinuities and rejectable defects by considering applicable acceptance criteria, specifications and inspection requirements.

Stronger Reporting Capabilities

Learn to prepare clear inspection records, document non-conformities and communicate technical findings effectively to supervisors, engineers and quality management teams.

Improved Problem-Solving Skills

Develop a systematic approach to assessing weld imperfections, investigating potential quality concerns and recommending appropriate follow-up actions.

Greater Professional Responsibility

Understand the importance of inspection accuracy, impartial assessment and consistent application of technical requirements when evaluating welded components.

Career Development Opportunities

Strengthen professional capabilities relevant to welding inspection, quality control, fabrication supervision and welding quality assurance roles within oil and gas and other industrial sectors.

WHO SHOULD ATTEND

The Practical Visual Weld Inspection and Defect Assessment Training Course is designed for professionals involved in welding operations, fabrication, construction, inspection and industrial quality management.

It is particularly beneficial for:

- **Welding Inspectors:** Professionals responsible for examining welded joints, identifying imperfections and evaluating weld quality against applicable requirements.
- **Quality Control (QC) Inspectors:** Personnel involved in fabrication inspections, dimensional verification, quality documentation and non-conformance assessment.
- **Quality Assurance (QA) Engineers:** Professionals responsible for implementing welding quality procedures, monitoring inspection activities and maintaining project quality standards.
- **Welding Supervisors:** Supervisors who oversee welding activities and need to recognise workmanship issues and ensure compliance with approved requirements.
- **Welding Engineers:** Engineers seeking to strengthen their understanding of weld inspection methods, discontinuity assessment and quality acceptance requirements.
- **Fabrication Engineers:** Professionals involved in manufacturing and assembling welded components for pipelines, pressure vessels, structural systems and industrial equipment.
- **Pipeline Inspectors:** Personnel responsible for monitoring welding quality during pipeline fabrication, installation and construction activities.
- **Mechanical Engineers:** Engineers involved in inspecting and maintaining welded mechanical equipment and industrial installations.
- **NDT Technicians:** Non-destructive testing personnel seeking to strengthen their understanding of visual examination and its role in broader inspection programmes.
- **Welders and Welding Technicians:** Practitioners who want to understand inspection requirements, recognise common welding imperfections and improve workmanship.
- **Construction and Site Engineers:** Professionals responsible for supervising welding-related activities and monitoring construction quality.
- **Project Quality Managers and Coordinators:** Personnel responsible for overseeing welding inspection documentation, quality control activities and project compliance.

The course is also suitable for technical graduates and professionals seeking to develop foundational practical knowledge of visual weld inspection.

COURSE OUTLINE

Fundamentals of Visual Weld Inspection and Welding Quality

Visual Inspection Equipment, Measurement Techniques and Weld Geometry

Identification and Assessment of Common Weld Discontinuities

Acceptance Criteria, Inspection Evaluation and Quality Compliance

Advanced Practical Weld Inspection, Case Studies and Professional Application

SCHEDULED DATES

Dates	Venue	Format	Fee
04 - 08 Jan 2027	Abu Dhabi, United Arab Emirates	In person	On request
04 - 08 Jan 2027	Abuja, Nigeria	In person	On request
04 - 08 Jan 2027	Accra, Ghana	In person	On request
04 - 08 Jan 2027	Addis Ababa, Ethiopia	In person	On request
04 - 08 Jan 2027	Al Ain, United Arab Emirates	In person	On request
04 - 08 Jan 2027	Al Khobar, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Alberta, Canada	In person	On request
04 - 08 Jan 2027	AlUla, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Amman, Jordan	In person	On request
04 - 08 Jan 2027	Amsterdam, The Netherlands	In person	On request
04 - 08 Jan 2027	Athens, Greece	In person	On request
04 - 08 Jan 2027	Baku, Azerbaijan	In person	On request
04 - 08 Jan 2027	Barcelona, Spain	In person	On request
04 - 08 Jan 2027	Berlin, Germany	In person	On request
04 - 08 Jan 2027	Boston, USA	In person	On request

Dates	Venue	Format	Fee
04 - 08 Jan 2027	Brussels, Belgium	In person	On request
04 - 08 Jan 2027	Budapest, Hungary	In person	On request
04 - 08 Jan 2027	Cairo, Egypt	In person	On request
04 - 08 Jan 2027	Cape Town, South Africa	In person	On request
04 - 08 Jan 2027	Casablanca, Morocco	In person	On request
04 - 08 Jan 2027	Dammam, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Dhahran, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Doha, Qatar	In person	On request
04 - 08 Jan 2027	Dubai, United Arab Emirates	In person	On request
04 - 08 Jan 2027	Edinburgh, United Kingdom	In person	On request
04 - 08 Jan 2027	Edmonton, Canada	In person	On request
04 - 08 Jan 2027	Frankfurt, Germany	In person	On request
04 - 08 Jan 2027	Geneva, Switzerland	In person	On request
04 - 08 Jan 2027	Houston, USA	In person	On request
04 - 08 Jan 2027	Istanbul, Turkey	In person	On request
04 - 08 Jan 2027	Jakarta, Indonesia	In person	On request
04 - 08 Jan 2027	Jeddah, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Jubail, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Khamis Mushait, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Kigali, Rwanda	In person	On request
04 - 08 Jan 2027	Kuala Lumpur, Malaysia	In person	On request
04 - 08 Jan 2027	Lisbon, Portugal	In person	On request
04 - 08 Jan 2027	Liverpool, United Kingdom	In person	On request
04 - 08 Jan 2027	London, United Kingdom	In person	On request
04 - 08 Jan 2027	Los Angeles, USA	In person	On request
04 - 08 Jan 2027	Luanda, Angola	In person	On request

Dates	Venue	Format	Fee
04 - 08 Jan 2027	Madrid, Spain	In person	On request
04 - 08 Jan 2027	Manama, Bahrain	In person	On request
04 - 08 Jan 2027	Marbella, Spain	In person	On request
04 - 08 Jan 2027	Marrakech, Morocco	In person	On request
04 - 08 Jan 2027	Miami, USA	In person	On request
04 - 08 Jan 2027	Milan, Italy	In person	On request
04 - 08 Jan 2027	Munich, Germany	In person	On request
04 - 08 Jan 2027	Muscat, Oman	In person	On request
04 - 08 Jan 2027	Nairobi, Kenya	In person	On request
04 - 08 Jan 2027	New York, USA	In person	On request
04 - 08 Jan 2027	Nice, France	In person	On request
04 - 08 Jan 2027	Oslo, Norway	In person	On request
04 - 08 Jan 2027	Paris, France	In person	On request
04 - 08 Jan 2027	Port Louis, Mauritius	In person	On request
04 - 08 Jan 2027	Prague, Czech Republic	In person	On request
04 - 08 Jan 2027	Pretoria, South Africa	In person	On request
04 - 08 Jan 2027	Riyadh, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Rome, Italy	In person	On request
04 - 08 Jan 2027	Sarajevo, Bosnia and Herzegovina	In person	On request
04 - 08 Jan 2027	Sharm El Sheikh, Egypt	In person	On request
04 - 08 Jan 2027	Singapore, Singapore	In person	On request
04 - 08 Jan 2027	Stockholm, Sweden	In person	On request
04 - 08 Jan 2027	Tokyo, Japan	In person	On request
04 - 08 Jan 2027	Toronto, Canada	In person	On request
04 - 08 Jan 2027	Tromso, Norway	In person	On request
04 - 08 Jan 2027	Vienna, Austria	In person	On request

Dates	Venue	Format	Fee
04 - 08 Jan 2027	Zagreb, Croatia	In person	On request
04 - 08 Jan 2027	Zurich, Switzerland	In person	On request
04 - 08 Jan 2027	Online, Virtual	Online	On request

CERTIFICATE