



## TUV / IICS 3.1 CERTIFIED WELDING INSPECTOR & API 577 WELDING INSPECTION & METALLURGY

**COURSE DURATION: 7 DAYS**

### ARE YOUR INSPECTORS / ENGINEERS PREPARED TO DEAL WITH THE RISING DEMAND IN QUALITY DURING PROJECT PREPARATION, EXECUTION & POST FABRICATION STAGE?

Certified Welding Inspectors play a vital role in the fabrication industry. Their responsibilities have a direct bearing on final product quality and thus public safety.

By adhering to specifications and following an inspection plan, they are VITAL in helping industry to avoid repairing and costly project delays.

### WHAT IS THE UNIQUENESS OF TUV / IICS 3.1 CWI?

**PRACTICAL APPROACH** Which Fulfills Industry Requirements on Welding Engineering & Inspection.

- Approximately 90% of vessels, boilers, storage tanks & piping projects in Middle East & South East Asia are based on American design, fabrication & inspection approach such as API, ASME & AWS codes & standards.
- Designed to equip inspectors & QC personnel with the required knowledge & expertise of welding processes & metallurgy, inspection & testing and certification of procedures, welders & welding operators according to those international codes & standards.

### WHAT WOULD YOU GET?

**This course also prepares delegates for DOUBLE certification exams:**

- \* TUV / IICS 3.1 CERTIFIED WELDING INSPECTOR CERTIFICATION
- \* API 577 WELDING INSPECTION & METALLURGY



Log in to [www.international-inspector-certification.com](http://www.international-inspector-certification.com) for more information about IICS.

**REACH US Today for Greater Safety, Quality, Reliability, Productivity, Profitability**  
HRD Approved Training Provider (since Year 2002). Registered with Ministry of Finance



## COURSE OBJECTIVES

The course provides participants with the knowledge in:

- ✓ Welding techniques, welding positions, welding consumables, weld preparation and welding drawing requirements
- ✓ Basics of welding metallurgy
- ✓ Usage of welding inspection and measuring devices
- ✓ Visual inspection of welded constructions and correctly identify and evaluate welding imperfection as per acceptance level associated with pre-production, fabrication and post fabrication
- ✓ Usage of various specifications, codes and standards
- ✓ Evaluation of welder's certificates and welding procedure specifications acc. to ASME IX
- ✓ Evaluate the preparation of test pieces for destructive tests and verify their compliance with applicable specifications
- ✓ Various parent materials and welding consumable (acc. to ASME)
- ✓ Reviewing NDT reports on welding work; ensuring that NDT personnel are properly qualified and that certification is relevant and valid for the testing performed
- ✓ Interpreting drawings and specifications, having understanding of weld symbols

## COURSE OUTLINE

### DAY 1

#### CHAPTER A1: History of Welding

- History of welding
- History of Metal-Arc-Welding

#### CHAPTER A2: Welding Inspection & The Welding Inspector

- Specific duties and responsibilities

#### CHAPTER A3: Welding and Inspection Safety Practice

#### CHAPTER A4: Welding Terminology

- Types of joint
- Types of weld
- Types of joint preparation
- Weld zone terms
- Weld positions

### DAY 2

#### CHAPTER A5: Codes and Standards

- American Standards
- European Standards



### WHO SHOULD ATTEND?

- Highly recommended for Inspectors, QA/QC personnel, Welding Engineers, Metallurgists, Project Engineers & technicians, API510, 570, 653 inspectors and other professionals from industry such as petro & oleo chemical, chemical, construction & others
- Suitable also for school leavers and candidates with less or minimal experience in the field of welding technology.

Please refer to the Exam Qualification Requirements at: [www.api.org/icp](http://www.api.org/icp)



**CHAPTER A6: Joining Processes - Basics & Principles of Arc Welding**

- Manual Arc Welding (SMAW)
- Gas Metal Arc Welding (GMAW)
- Flux Core Arc Welding (FCAW)
- Gas Tungsten Arc Welding (GTAW)
- Submerged Arc Welding (GTAW)
- Other Arc Welding Processes

**CHAPTER A7: Welding Consumables**

- Acc. to ASME IX and AWS

**DAY 3**

**CHAPTER A8: API 577 – Content and definitions**

**CHAPTER A9: Basic Welding Metallurgy & Thermal Consideration**

**CHAPTER A10: Weldability of Carbon Steel**

- Steel
- Heat affect of hydrogen in steel (HAZ)
- The effect of hydrogen in steel
- Preheat, its application and control
- Interpass temperature

**CHAPTER A11: Main Welding Discontinuities**

- Causes & Inspection

**DAY 4**

**CHAPTER A12: Fillet Weld Sizes acc. to ASME VIII**

**CHAPTER 13: Visual Inspection Macro / Plate**

- Theory & Practical exercises

**CHAPTER A14: Welding Procedures & Welder Qualifications acc. to ASME IX**

- How to interpret and check a Welding Procedure Specification (WPS)
- How to interpret and check a Welding Qualification Certificate?

**DAY 5**

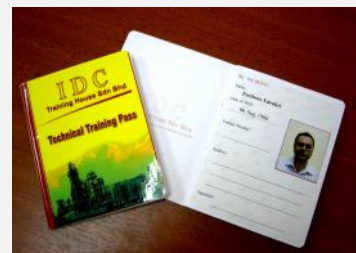
**CHAPTER A15: Introduction in Non Destructive Testing (NDT); NDT in the ASME code**

- Radiographic Testing
- Dye Penetrant Testing
- Magnetic Particle Testing
- Ultrasonic Testing
- Visual testing
- Other NDT methods



**BONUS !!!**

**Technical Training Passes will be provided**



## DAY 6

### CHAPTER A16: Destructive Testing

- Tensile testing
- Bend Testing
- Impact Testing

### CHAPTER A17: Basics of Pre-heating & Post Weld Heat Treatment (PWHT)

### CHAPTER A18: Weld Joint Geometry and Welding & NDT Symbols acc. to AWS

- How to read a production drawing?

### CHAPTER A19: Visual Inspection—Pipe (Practical)

## DAY 7

### CHAPTER A20: Basics of Quality Assurance during Welding Projects

### CHAPTER A21: Material Inspection

### CHAPTER A22: Pressure & Leak Testing

### CHAPTER 23: Hot Tapping

### CHAPTER A24: API 577 exam tips

## WHAT OUR PARTICIPANTS SAY ABOUT OUR COURSE...

“Training is excellent to develop foundation knowledge of working. Friendly class environment, more interaction with trainees, hence, more opportunity to learn more. Food is good too. To me: The rhythm of training, the discipline of heart & mind. IDC have both. Good Luck IDC!!!”

“The course is related to my field work, easy to understand and is helpful for my work.”

“Keep up the good work!! Quality comes first.”



### COURSE DURATION

- 7 Days Training

### DAILY SCHEDULE

- 8:30am - 5:30pm (Workshop)

### ITEMS TO BRING

- Calculator
- Lots of Questions
- A “CAN-DO” Attitude
- Codes in Hardcopy
  - \* **ASME IX**  
(2013, Welding part only)
  - \* **ASME V**  
(2013, Article 2, Art. 6, Art. 7, Art. 9, Art. 10)
  - \* **API 577**  
(2<sup>nd</sup> Edition, Dec 2013)

**Stationeries such as pen and highlighter will be provided.**





## TRAINER'S PROFILE

# LUTZ SEIBT

**Lutz Seibt has more than 20 years hands-on experience as an Authorized Inspector and Auditor acc. to German Pressure Vessel (AD Merkblaetter), Boiler (TRD) and Storage Tanks Codes, Pressure Equipment Directive (PED), Transportable Pressure Equipment Directive (TPED) and European Construction Material Directive; 9 years out of it within TUV's International Business Unit in Asia Pacific.**

He has conducted numerous training sessions related to Pressure Equipments (based on American and European standards) in Malaysia, Singapore, Korea, China, Thailand and Vietnam.

## TECHNICAL QUALIFICATIONS

- ✓ Certified International Welding Engineers (International Institute of Welding - IIW, Germany)
- ✓ Certified API 510 Pressure Vessel Inspector
- ✓ Certified API 570 Piping Inspector
- ✓ Certified API 577 Advanced Welding Inspection & Metallurgy Professional
- ✓ Certified Pedestal Crane Inspector acc. to API RP 2D (Cranetech Training & Inspection, Inc., USA)
- ✓ Certified Safety Engineer (Fachhochschule Frankfurt, Germany)
- ✓ Environmental Auditor (Technical Academy Esslingen, Germany)
- ✓ Bachelor Degree – Motor Vehicle Engineering

## SPECIAL SKILLS

- ✓ Inspector for periodical inspection & certification of
  - \* Pressure vessels, Steam boilers, Piping Systems
  - \* Cranes, Hoisting equipment, Hoisting equipment of lifeboats
- ✓ Inspector for third party & welding inspection and QA/QC in manufacturing / construction of
  - \* Pressure vessels, Steam boilers, Piping Systems

## COURSES CONDUCTED

- API 510 Pressure Vessel Inspector
- API 570 Piping Inspector
- API 577 Advanced Welding Inspection & Metallurgy Professional cum IDC Welding Inspector
- ASME IX "Welding Qualification"
- ASME VIII Division 1 "Pressure Vessel"
- European Pressure Equipment Directive (PED) 97/23/EC Simplified
- IDC Piping Specialist - Part 1: ASME B31.3 Process Piping
- Leak or Pressure Testing of Pressure Equipment
- Material Certificates (EN10204 / EN10168 / ISO10474)
- Welding & NDT Symbols (AWS / ISO Code)

