Welding Technology – Applied Welding Processes, Design, Materials, Fabrication and Applications

COURSE OVERVIEW

Welding Technology is continuing grows, and the technology is become more complex. Welding is continues grow because it is the most economical method of permanently joining metals. The implementation of effective knowledge in welding technology can significantly reduce this impact resulting in substantial savings to companies whilst improving customer relations and reducing the impact on the profitability of any business. This interactive training program will provide course members with comprehensive knowledge and skills on the application of welding technology involved in the fabrication industry

Upon completion of the training course, attendees will have received a thorough insight into the entire process of welding Technology as a quality control function and how best to manage these processes. They will have gained a good understanding of the interactions between welding processes, welded Joint Design, Materials behaviours and Fabrication and their applications in order to bring significant benefits to the individual and their company alike.

WHO SHOULD ATTEND?

- Welding design engineers
- Materials / corrosion Engineers
- Welding engineers/ supervisors
- QA/QC / inspectors and engineers
- Plant and process Engineers
- Metallurgical / inspection engineers

- Non Destructive engineers/Technician
- Mechanical /Maintenance engineers
- Sales/Purchase engineers who deal with weld and welding

COURSE OUTCOMES

After the course the participant will be able to:

- Understand the terminology used in welded fabrication.
- Understand of joining and cutting principles and process selections.
- Understand the physics and heat flow of welding
- Understand the control of consumables – storage, handling and their treatment
- Understand the welding metallurgy and weldability of ferrous and non ferrous materials
- Understand the basic design for welded joint – static and dynamic for various materials
- Understand the symbols for welding and inspection in a welded fabrications.
- Understand the causes of residual stresses and distortion in a welded fabrications
- Understand the usage of position and fixtures and workshop layout.
- Appreciate the important of weld quality, imperfections and their preventions.
- Appreciate metallurgical and mechanical properties of a welded joint.
- Appreciate the testing for evaluation of welded joint
- Appreciate the codes and standards
- Appreciate the requirements for WPAR,WPS and Welder qualification test
- Assess documentation for compliance in relation to the requirements of qualification standards.
- Understand inspection involved in welded fabrication, inspection plan, on Destructive Testing and Destructive Testing.
- Understand health and safety requirements related to welding.

Course Outline

- Terms, definitions, abbreviations and acronyms
- Energy sources in welding, arc characteristics, gases
- Fundamentals of heat flow in welding.
- Fusion welding processes – their principles of operation, typical imperfection, advantages and disadvantages
- Control of welding consumables, process control and in process monitoring
- Welding metallurgy – weldability of commercial alloys.
- Properties of metals
- Welded design considerations for static and dynamic loading
- Weld symbols on drawings and communication, interpretation of design requirements.
- Residual stresses and weld distortion control and technique
- Fixtures and positioners, workshop layout and facilities
- Weld quality – causes and remedies for fusion welded joint
- Codes and other standards
- Qualification and certifications – qualification of welding procedure and performance requirements
- Application of non destructive testing, survey of methods and their applications.
- NDT procedures, Qualification of personnel, assessment of reports, quality requirements for welding
- Safe practices for welding – fumes, gases. handling of equipment, electrical safety and confined spaces.

About the Course Instructor

Mohd Faisal Yusof joined TWI in 2001 after spending 17 years in the welding and gas industry and 2 years in teaching in technical subject in University of Kuala Lumpur. Originally trained as a welding instructor and lecturer, Faisal gained training in European Welding Engineer, technologist and specialist at TWI UK .His

early experience was spent on the development and maintaining quality of welding machines and gases in Oil and Gas industries and development of welding procedure and customer services.

He is a Fellow member of Welding Institute of Malaysia and Welding Joining Society (WJS TWI UK). He has gained the qualification of European Welding Specialist and Technologist (TWI U.K) and Engineer from The Welding Institute, European Welding Federation and International Institute of Welding. He also very familiar with BS, ASME, AWS, API 510,570, DNV, NACE, PTS ISO 9000 and ABS procedures, codes & standards.

Educational and Professional Qualifications:

- Diploma in Welding Engineer (TWI/IIW U.K)
- Diploma in welding Technology (TWI/IIW U.K)
- Diploma in Welding Specialist (European Welding Federation)
- Diploma in International Welding Specialist (International Institute of Welding)
- Diploma in Welding (TWI U.K.)
- Diploma in European Inspection Specialist (European Welding Federation)
- Diploma in European Inspection practitioner (European Welding Federation)
- Registered Senior Welding Inspector.
- CSWIP Senior Welding Inspector 3.2
- Registered Welding Inspector.
- CSWIP Welding Inspector 3.1.
- CSWIP Welding Inspector 3.0
- CSWIP Radiographic Interpreter 3.4 (A and B group)
- Certificate in Electrical Engineering (Industrial Training Institute)

Special Skills and Knowledge:- Welding Processes, Material and Behaviour, Design and Construction, Welding Inspection, Welding Technology, Fabrication and Application, Electrical Engineering, and Non Destructive Testing.