



# The Southern African Institute of Welding

Founded 1948

Promoting Excellence in Welding in Africa



# The Southern African Institute of Welding

## Introduction

The Southern African Institute of Welding (SAIW) is a non-profit technical organisation dedicated to furthering standards in welding-fabrication and related technologies. Established in 1948, it is a founder member of the International Institute of Welding (IIW).

Based in Johannesburg, with branches in Cape Town and Durban, it is active throughout Southern Africa and also has experience further afield – predominantly in Central and East Africa, the Indian Ocean Islands and the United Arab Emirates.

The SAIW has offered training courses for more than 30 years. An SAIW qualification has long been regarded as the industry standard in South Africa and also enjoys international recognition.

The SAIW also offers consultancy and industry support services.

## The International Institute of Welding (IIW)



Founded in 1948 the IIW is the world's leading authority on welding and boasts a membership of 59 countries from five continents. The IIW acts as the worldwide network for "knowledge exchange of joining technologies to improve the global quality of life".

The SAIW is the South African Member Society of IIW and is also an Authorised Training Body (ATB) offering a wide range of IIW courses – International Welding Engineer (IWE), Technologist (IWT), Specialist (IWS), Practitioner (IWP), International Welder and International Welding Inspection Personnel (IWIP).

## SAIW Certification

Qualification and Certification services are administered by a separate not-for-profit company, **SAIW Certification** – (see separate brochure). All the examination and certification activities for the various SAIW programmes are conducted by this company.

**SAIW Certification** is accredited by IIW since 2003 as an Authorised Nominated Body (ANB) to issue IIW qualifications and certifications as well as by South African National Accreditation System (SANAS) for personnel certification to the international standard for personnel certification ISO 17024.

## SAIW Welding Fabricator Certification Scheme

**SAIW Certification** is authorised by the IIW as an Authorised Nominated Body for Company Certification (ANBCC) to operate the IIW's Manufacturer Certification Scheme in South Africa based on the ISO 3834 standard. SAIW Certification was the first organisation outside of Europe to receive authorisation to run this scheme.

## SAIW Welding Challenge

The SAIW is at the forefront of promoting welding to the youth and more experienced welders in South Africa. It's most important vehicle for doing this is the well-known biennial welding competition, which comprises the SAIW Youth Welding Challenge and the SAIW Senior Welding Challenge.

Winners often get international experience via the WorldSkills SA national welding competition and the ARC Cup in China.



SAIW Welding Challenge Participant

## SAIW Foundation

The SAIW Foundation is a company which the SAIW started in 2014 as a public benefit organisation to provide training to disadvantaged individuals in a wide range of areas including welding and inspection, the training of trainers for welding and related technologies and more.

In the first two years the Foundation had more than 10 graduates successfully complete internationally recognised programmes

## Material Testing Laboratory and Consulting Services

The SAIW's Material Testing Lab (MTL) is fully equipped to perform a wide range of mechanical and non-destructive testing on weld samples, either welded for performance assessment in the welding school or during the validation of welding procedure qualifications in industry.

The MTL is accredited by SANAS to comply with ISO 17025, the single most important standard for testing laboratories in this country and the rest of the world.

The MTL increasingly supports the consulting services offered by the SAIW, which include: failure analysis, welding related research and development, welding consumable evaluation, weld procedure qualification, welder qualification, post weld heat treatment and positive material identification.



*Successful SAIW Foundation Students*



*SAIW Materials Testing Lab Technician*

## Membership

The SAIW is a membership-based industry association constituted for the benefit of its members and the industry at large. One of the central purposes of the SAIW is to represent the interest of its members across the welding industry spectrum

**For any company or person who is in any way connected to the welding, NDT or related industries, being a member of the leading welding organisation on the African continent brings a range of benefits which include:**

**PROFESSIONAL** recognition through affiliation with the SAIW, signified by a Membership Certificate.

**PREFERENTIAL** rates on training courses.

**PREFERENTIAL** rates on technical support.

**REDUCED** rates for seminars and conferences and access to the most up-to-date information on new technologies.

**FREE** telephonic technical advice on almost any welding/ NDT related issues including advice on access to the latest international standards and how they are applied in South Africa and Africa.

**FREE** copies of African Fusion, the official publication of the SAIW and of Fusion, our bi-monthly newsletter which has a plethora of interesting technical and newsworthy articles.

**FREE** exposure on the Membership page in Fusion for any relevant announcement

**NETWORKING OPPORTUNITIES** at monthly meetings in Johannesburg, Cape Town and Durban where professionals, academics and international experts share their knowledge on a variety of welding and /or NDT related subjects.

## Courses offered by the SAIW



*Paint Inspectors Course*



*Welding Symbols Course*



*Welding Quality Control Course*

**International Welding Inspection Personnel (IWIP)** – these programmes are tailored to meet industry requirements for welding inspection personnel involved in a wide range of industries. Qualification as a Welding Inspector is an ideal platform to build a career in the welding industry. The IIW Welding Inspection programme is offered at three levels; Basic, Standard and Comprehensive. This course replaces the SAIW Inspector Level 1 & 2 courses, which together are equivalent to the IIW Welding Inspector at Standard Level. 

**IIW International Welder** – Developed by the IIW to achieve harmonisation in the training, examination and qualification of welders globally. The International Welder programme provides a combination of comprehensive theory and

high-end practical skills and is presented at three different progressive levels i.e. fillet, plate and pipe welder. 

**IIW Welding Coordination Personnel** – this programme is offered at four different levels and is ideal for welding personnel who want to improve the productivity of welders by improving their knowledge of welding technology and quality control. This series of courses is aimed at equipping personnel with the skills and technical knowledge to plan, execute, supervise and test welding operations at an applicable level. The courses are suitable for many different careers in the field of welding including for trainers and those involved in technical sales. The courses are offered at Practitioner (IWP), Specialist (IWS), Technologist (IWT) and Engineer (IWE) levels with the latter course undertaken by university partners.

A bridging course option is also offered for candidates who have completed SAIW Welding Inspector Level 2 to obtain the IIW International Welding Specialist diploma. 

**Welding Quality Control** – enables candidates who have no industry experience to familiarise themselves with the basics of welding quality control.

**Welding Safety** – builds an understanding of general and welding-specific safe work practices.



*Appreciation of Welding*

**Appreciation of Welding** – gives personnel in senior positions an appreciation of welding technology to ensure that maintenance, fabrication and construction work is being carried out effectively in terms of quality and cost-effectiveness.

**ASME Codes of Construction** – ideal for those involved in boiler and/or pressure vessel fabrication, repair or modification according to the ASME codes. Mandatory for individuals wanting to become a certified Inspector of Pressurised Equipment (IPE) as per the Pressurised Equipment Regulations mandated by the Department of Labour.

**AWS D1.1 Steel Structures** – for personnel involved in inspection, quality control and fabrication of steel structures. This course is used widely both locally and internationally for managing welding quality in the steel construction industry.

**PWHT Heat Treatment Practitioner** – for PWHT Heat Treatment practitioners and maintenance personnel who are performing or supervising heat treatment operations.

**Competent Persons Training** – a series of courses for persons intending to work as In-Service Inspector for an Approved Inspection Authority (AIA). The course covers the legislative and inspection requirements for in-service inspection according to the Pressure Equipment Regulations for Pressure Equipment including Pressure Vessels and Steam Generators (boilers).

**Paint Inspectors** – provides the basic knowledge of surface preparation and paint application for the protection of engineering materials from environmental decay and corrosion.

**Welding Symbols** – provides a detailed review of the use of welding symbols in the fabrication environment. Welding symbols are a ‘pictorial language’ conveying weld requirements in fabrication.

**Welder Qualification** – this course teaches students how to qualify welders according to the AWS D1.1, ASME IX and ISO 9606 standards.

**Welding Procedure Qualification** – designed to teach how to qualify weld procedures that are compliant with manufacturing codes in order to produce welds that conform to design requirements.

**Robotic Welding** – trains personnel in the robotic welding industry on welding technology that is applicable to automated welding processes.

**Weld Quality Management and Welding Coordination** – aimed at assisting those in welding coordination teams to understand the requirements of ISO 3834 such that they can implement the necessary processes as well as understand and familiarise themselves with their roles as stated in ISO 14731.

**Practical Welder Training** – for those who want to improve their skills in a certain area of welding. This course is tailored around the needs of the student whether he/she is a beginner or a skilled welder.

## NON-DESTRUCTIVE TESTING (NDT) COURSES

NDT refers to the testing of material and components without inhibiting its further usefulness. The SAIW is the leading NDT trainer in Africa and offers the following courses and various levels and aligned with various standards and codes.

There are two broad categories of NDT courses – Surface Testing and Volumetric Testing.

### Surface Testing includes:

**Portable Hardness Testing** – the main purpose of hardness testing is to determine the suitability of a material for a given application. This course defines hardness, conventional methods of hardness testing and various methods of portable hardness testing and deals with the important considerations for accurate measurement of in-site testing.

**Replica Metallography** – metallographic inspections play a key role in determining the remaining life assessment, creep life of pressure vessels, pipelines, power plants and in verifying the material and heat treatment of fabricated equipment. This course gives an insight into the different types of materials and how to do laboratory and replica metallography.



**Magnetic Testing (MT)** – detects surface and slightly subsurface discontinuities in ferromagnetic materials such as iron, nickel, cobalt, and some of their alloys.

**Eddy Current Testing (ECT)** – makes use of electromagnetic induction to detect and characterise surface and sub-surface flaws in magnetic materials.

**Penetrant Testing (PT)** – low-cost inspection method used to locate surface-breaking defects in metals using the capillary action of a dye.

**Visual Testing (VT)** – the most common and essential of all NDT methods. It does not require special equipment or consumables to reveal an indication but only requires the human eye to look at the material sometimes with very basic visual aids. The course details the requirements of visual analysis and develops an understanding on light and detection techniques using the human eye.

### Volumetric Testing includes:

**Radiographic Testing (RT)** – a method of inspecting materials for hidden flaws by using the ability of short wavelength electromagnetic radiation to penetrate various materials.

**Ultrasonic Testing** – a family of techniques based on the propagation of ultrasonic waves in the object or material tested to detect hidden flaws within the material.

**FOR MORE INFORMATION ON THESE PROGRAMMES AND COURSES GO TO [WWW.SAIW.CO.ZA](http://WWW.SAIW.CO.ZA) AND DOWNLOAD THE LATEST SAIW COURSE PROSPECTUS OR CALL SAIW ON 011 298 2100**

## The Southern African Institute of Welding

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