



Indian Institute of Welding ANB



Provides an opportunity to Qualify as **International WELDING COORDINATION PERSON IWE / IWT / IWS / IWP**

International Institute of Welding-IIW has developed and administers through its International Authorisation Board (IAB) a Unified International System for Education, Examination and Qualification of Welding Personnel, which is globally recognised and accepted.

A Division of The Indian Institute of Welding (Responsible Member Society) has been accredited by IIW as the 'Authorised Nominated Body' in India (to be referred to as ANB-India) to operate its above international schemes and award International Diplomas to welding personnel at various levels.

1 International Welding Co Ordination Personnel: Why required ?

Quality Assurance System: The reliability of quality standard in general in an organisation is guided by the provisions of ISO 9000 series of standards. *Within the ISO 9000 series of standards for quality systems, welding is to be treated as a "special process" since welds cannot be fully verified by subsequent inspection and testing of the product to ensure that the required quality standards have been met.* **Quality cannot be inspected into a product; it has to be built into it.** Even the most extensive and sophisticated non-destructive testing does not improve the quality of welds. For welded construction to be effective and free from serious problem during production and in service, it is necessary to provide controls from the design phase, material selection, process used for fabrication and subsequent inspection. Supervision at various levels needs to be implemented to ensure that the specified quality is maintained. **The manufacturing sectors using welding have to critically address three distinct areas with specific requirements;**

1.1 Manufacturing Organisation: covers all Welding Workshops or sites under same technical and quality management. With introduction of strict quality reliability standard, the wider introduction of **ISO 3834** - "Quality Requirement for Welding-Fusion" welding of metallic materials has become mandatory due to demand of quality sensitive customers. The salient features are :

- Welded products are differently treated according to the specific needs of the welding manufacturing process. Fabricators are assured of a welding quality system through implementation of ISO 3834.
- Implementation of **ISO 3834** is the foundation for implementation international product standards like **EN 15085, EN 1090, EN 13445** and CE marking
- The specific areas of competence (for personnel & companies) are explicitly encompassed and registered in the schedule

1.2 Welding coordination personnel: The Standard 'ISO: 3834-Fusion Welding of metallic material for Welding' is applicable in any manufacturing unit using welding and allied processes as major manufacturing process. The quality system certification as per ISO 3834-2 & 3 clause no 7.3 requires involvement of Welding Coordination Personnel. This is also specifically mentioned in **ISO 3834-5** Annexure A. **ISO: 14731-19** describes the "Tasks and Responsibilities": clause 4, "Job Description": Clause 5 and "Technical Knowledge & Competence": Clause 6 required for Welding Coordination Personnel. According to the definition of ISO 14731, competence is the 'proven ability to use knowledge, skills and personal and social/methodological abilities in work situation in terms of responsibility and autonomy at three levels i.e. Comprehensive, Specific and Basic'. The **Guideline IAB-252** for "Personnel with Qualification for Welding Coordination" for the International education, training, examination and qualification has been prepared by the International Authorisation Board (IAB) of the International Institute of Welding (IIW) to more than meet the above requirement.

1.3 Welding Inspection: Examining, Testing and measuring of welding related NDT form part of the whole system and is covered by **ISO: 9712 / IS: 13805 / ASNT: SNT-TC-1A** for Non Destructive testing. The activity is essential part of welding coordination as per **ISO 3834-5** and IWIP qualification of IIW-IAB offered by IIW-India ANB more than fulfils this requirement.

2. Welding Coordination requirement for personnel ISO 14731 & IIW Qualifications

IWE – Knowledge, Competence and Management (Comprehensive level)

In item 6.2.2 of the ISO14731-2019 standard: “Comprehensive level”, the requirements for “highly specialized problem-solving skills” are described.

A candidate completing the IWE training under this program is expected to acquire advanced knowledge and critical understanding of welding technology application. He / she shall have advanced competence and skills at a level that is required in the field of welding technology which demonstrate:

- Technology Mastery and required innovation
- Ability to solve high-level complex and unpredictable problems, manage high complex technical and professional activities or projects related to welding applications
- Taking responsibility for decision making in unpredictable work or study context
- Taking responsibility for managing professional development of individuals and groups

IWT – Knowledge, Competence and Management (Specific level)

In item 6.2.3 of the ISO 14731-2019 standard: “Specific level”, the requirements for “advanced problem-solving skills” are described. *However an IWT may be in a position to discharge the responsibility overlapping with the requirement of “Comprehensive level” if his depth of knowledge & competency fulfills the particular requirement in the judgment of ISO 3834 Assessor.*

A candidate completing the IWT training under this program is expected to acquire an overall knowledge and understanding of welding technology application. He / she shall have competence and skills at a level that is required in the field of welding technology which demonstrate:

- Ability to solve low-level complex problems
- Ability to manage in detail the welding applications and related professional activities or projects taking responsibility for decision making in low-level complex work or study context
- Taking responsibility to define the tasks of welding or related personnel
- Ability to manage professional development of individuals and groups

IWS – Knowledge, Competence and Management (Basic level)

In item 6.2.4 of the standard ISO 14731-2019: “Basic level”, the requirements for fundamental problem-solving skills are described. *However an IWS may be in a position to discharge the responsibility overlapping with the requirement of “Specific level” if his depth of knowledge & competency fulfills the particular requirement in the judgment of ISO 3834 Assessor.*

A candidate completing the IWS training under this program is expected to acquire a specialized and factual knowledge in the field of welding technology. He / she shall have competence and skills at a level that is required in the field of welding technology which demonstrate:

- Ability to develop solutions on common/regular problems
- Ability to manage and supervise common or standard welding applications and related professional activities
- Taking responsibility for decision making in common or standard work
- Taking responsibility to supervise the tasks of welding and related personnel.

IWP – Knowledge, Competence and Management

An IWP may be in a position to discharge the responsibility overlapping with the requirement of “Basic level” as in item 6.2.4 of the standard ISO 14731-2019, if his depth of knowledge & competency fulfills the particular requirement in the judgment of ISO 3834 Assessor. A candidate completing the IWP training under this program is expected to acquire a basic knowledge in the field of welding technology. He / she shall have competence and skills at a level that is required in the field of welding technology which demonstrate:

- Ability to develop solutions on basic and specific problems
- Ability to supervise basic welding applications and related professional activities
- Taking responsibility for decision making in basic work
- Taking responsibility to supervise the tasks of welding and related personnel

Qualified candidates may need to obtain additional knowledge & skill specific to the industry and his/ her job function for attaining required competency unless he/ she had already acquired the same earlier during his employment.

3. International Welding Coordinator: IWE, IWT, IWS, IWP (Curriculum)

All candidates interested to qualify must have acquired the basic eligibility termed “Access Condition” as approved by IIW-IAB for a country. These condition for India is summarised below.

Diploma		Access Condition for Qualification
1	Engineer (IWE)	Option 1: Degree in Engineering/AMIIW or equivalent professional qualification
2	Technologist (IWT)	Option 1: Diploma in Engineering with minimum 3 years study after Secondary Education
3	Specialist (IWS)	Option 1: Professional Technician Certificate with minimum 2 years study after Secondary Education with 2 years' experience in welding or an IWP Diploma o Option 2: Degree in physical Science (B Sc.)+ 5 Years' experience in welding.
4	Practitioner (IWIP)	Option 1: Class X pass+ recognised welder training+ Valid welder approval as per ISO 9606/EN 287 for plate or ASME Sec IX G / International Plate Welder in any process + 2 Years' Experience as a Welder.

The guideline IAB 252 (Latest version) covers the minimum requirement for education and training in terms of objectives, scope, expected results and the teaching hours to be devoted to achieve them. It is reviewed periodically by IIW-IAB to take into account changes to reflect "state of the art". Students having successfully completed this course of education and appropriate examinations will be expected to be capable of applying technology required in welding engineering as covered by the guideline.

It is to be noted that the overall structure of the syllabus for all levels is similar, but some topics are not covered in full depth or considered in all levels of qualification.

The depth to which a topic is dealt is indicated by the number of hours allocated to it in the guideline. This will be reflected in the scope and depth of the examination

(Figures against the subject heads are minimum lesson hours as per Guideline IAB-252r5-19)

Modules of Theoretical and practical skills		Lesson Hours			
		IWE	IWT	IWS	IWP
1	Welding Process and Equipment - Mod 1	95	86	53	32
2	Materials and their behaviour during welding – Mod 2	115	96	56	23
3	Construction and Design – Mod 3	62	44	24	6
4	Fabrication, application engineering – Mod 4	116	83	56	29
5	Fundamental Practical skills	60	60	60	60
Recommended Minimum Total Lesson Hours		448	369	249	150

4. International Welding Co-Ordination Personnel (Routes to Qualification)

- I. **Standard Route:** Involves study at an Approved Training Body (ATB) as per full syllabus for IWE/ IWT/IWS/IWP as mentioned above and followed by ANB conducted examination as per IAB Guideline. This is the route in which the syllabus could be covered in most comprehensive manner to meet all the requirements of IAB guideline. These could be a University, Technical College or part of a corporate body with separate training setup suitably isolated from its business operation. For the current list of ATB the candidates are advised to refer to our Website <http://www.iiwindia.com> (Refer to ANB Contacts under 'International Qualifications' in the website.) or contact us directly.
- II. **Alternative Route:** The candidate must have educational qualification conforming to the Access Condition as required for the 'Standard Route' for the appropriate level along with relevant claimed pre-existing knowledge in all the 4 Modules with added training and experience. Candidate must have minimum 4 years' experience in welding Industry at the Welding Engineer/Welding Technologist level. The Route exempts the eligible candidate from attending the full lessons as per IAB Guideline at an ATB.
 - ✓ The intending Candidate is required to apply in a **Prescribed Application Form** which is a detailed evaluation checklist along with copies of his qualification and experience proofs to evaluate his knowledge and experience already acquired covering the various aspects of welding technology
 - ✓ The Application is evaluated by independent Assessors to determine level of pre-existing knowledge as claimed (**Self-Assessment**) to exempt the candidate for attending lesson in an ATB and approves the Alternative Route.
 - ✓ The candidate is required to prepare and **submit a short project Report** in the form of a Case study based on Fabrication, application engineering – (Module 4) on a topic in which he has been personally involved and has gained enough understanding of the subject.

- ✓ The Report is first subjected to **preliminary paper check** by an independent expert assessor.
- ✓ Once cleared by above he is required to make a **successful presentation the Project** to a team of Examiners. Along with verification of claimed pre-existing knowledge in the four Modules. When these conditions are fulfilled, the candidate will be allowed to appear for the final examination covering Module 1, 2, 3, 4 & Oral Examination to be conducted by ANB India based on the full IAB curriculum.

Examination: The final written and oral examination to assess student performance in all 4 Modules, based on the approved curriculum and in accordance with the relevant IIW examination guideline and IAB rules is conducted by ANB-India. This examination is mandatory for award of Diploma and is independent of any assessment procedure conducted by ATB. *The Standard Route and Alternative Route Candidates are required to appear in the same examination after being approved by the ANB following prescribed procedure.*

- III. Transition Arrangement:** Existing professionals in a country doing similar nature of work having the qualification meeting the requisite access condition qualification AND additional knowledge and experience in welding based on IAB approved "Transition Criteria" for an ANB, have the attractive option of acquiring the International Diploma if eligible by the Transition Arrangement. *Eligibility of candidates are scrutinised by an independent Assessment Committee and restricted to those meeting the criteria on or before 3rd Jan 2011 & 13th Jan 2014 for IWCP & IWIP respectively.* Eligible candidates are required to attend a refresher course for 5 days followed by written test and interview at different venues in India by an ANB authorised examiners/interview Board. For further details please visit website link: <http://iiwindia.com/personnel-qualification-certification/courses-calendar/>

Diploma		Criteria for Transition to be attained as on 03 - 01 - 2011
1	Engineer (IWE)	Option 1: Degree in Engineering/AMIIW + M Tech/Ph.D. in Welding + 3 yrs.' Experience in job similar to that of Welding Engineer. Option 2: Degree in Engineering/AMIIW + 8 yrs.' experience out of which 5 yrs.' Experience in job similar to that of Welding Engineer.
2	Technologist (IWT)	Option 1: Diploma in Engineering in Mainstream Engineering or with specialisation in Welding + 8 Years' work experience out of which 5 years in welding and last 3 yrs.' Experience in job similar to that of Welding Technologist Option 2: Degree in Engineering/AMIIW/AMIE/AIIM + 5 Years' work experience out of which 3 yrs.' Experience in job similar to that of Welding Technologist.
3	Specialist (IWS)	Option 1: Professional Technician Certificate/IWP Diploma+ <i>Welders Training Course</i> + 3 yrs.' Experience in job similar to that of Welding Specialist. Option 2: B Sc./IWP Diploma+ 8 yrs.' experience out of which 5 yrs.' Experience in job similar to that of Welding Specialist.
4	Practitioner (IWP)	Option 1: Class X pass+ recognised welder training / IPW+ Valid welder approval as per ISO 9606/EN 287 for plate or ASME Sec IX G + 8 Years' Experience of which 3 years as welding Foreman or similar to job of International Welding Practitioner Option 2: Class X pass+ IPW & Valid welder approval as per ISO 9606/EN 287 for plate or ASME Sec IX G+ 12 Years' Experience of which 5 years as welding Foreman or similar to job of International Welding Practitioner

Interested candidates or sponsoring organisations are requested to visit our website link <http://iiwindia.com/personnel-qualification-certification/> for detailed information on Personnel Qualification and Certification and may directly send a mail to IIW-India ANB at anb@iiwindia.com.



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