



EWF/IIW Welding Diploma

Essential Technical Knowledge for Welding Coordination



There is a high demand for people with specific technical knowledge of welding to undertake the tasks of welding coordination. As a special process, the control of welding quality depends on the knowledge of welding coordinators.

To comply with the requirements of ISO 3834, it is necessary for an employer to show that responsible welding coordinators have the specific technical knowledge necessary to perform the essential welding-related tasks given in EN ISO 14731. The European/International Specialist, Technologist and Engineer Diploma provide demonstrable evidence of the basic technical knowledge requirements.

The EWF/IIW Diploma delivered by TWI is a modular programme, enabling progression in stages through three levels of qualification.

Specialist (IWS)

Personnel with some technical knowledge where the level of knowledge needs to be sufficient for the planning, executing, supervising and testing of tasks and responsibilities, within a limited technical field and involving simple welded constructions.

Technologist (IWT)

Personnel with specific technical knowledge, where the level of knowledge needs to be sufficient for the planning, executing, supervising and testing of tasks and responsibilities in welding fabrication, within a selective or limited technical field.

Engineer (IWE)

Personnel with comprehensive technical knowledge, where full knowledge is required for the planning, executing and supervising of all tasks and responsibilities in welding fabrication.

Is this course suitable for me?

This course will be of great interest to engineers, technologists, welding co-ordinators and managers in the following fields – process plants, structural steelwork, bridges, pressure vessels, pipework and pipelines, storage tanks, offshore structures, general heavy equipment, ship building and ship repairs, automotive, construction, rail, aerospace, power generator equipment, material testing or any industry where welding is the major joining method.

If you have some technical knowledge with at least 2 years' experience in welding-related tasks and are seeking to progress your career in welding engineering, the EWF/IIW diploma is for you.

How would attaining the EWF/IIW Diploma benefit me?

- Internationally-recognised qualification
- Evidence of knowledge and understanding of the essential welding-related tasks described in ISO 14731
- A qualification that may enable you to take up the role of responsible welding coordinator as defined in ISO 3834
- A qualification that supports your professional status; the EWF/IWS diploma satisfies the knowledge requirements for Engineering Technician registration with The Welding Institute
- Increases your knowledge of welding production, including design and advanced welding processes
- Increases your employability and value to the industry
- Provides verification of your welding skills when tendering for jobs
- Progresses your career, building your knowledge as you work through the modules towards achieving your Welding Engineer qualification
- Learn from internationally renowned TWI experts

Planning your training

The Diploma is available at three levels. You may not need to progress beyond the Specialist level, or you may wish to work your way all the way up to the Engineer level – it depends on the complexity of the welding tasks you and your company are involved with.

There are six modules in the Specialist level, another four modules in the Technologist level and a final 4 in the Engineer level.

Entry requirements for each level are detailed on pages 4 and 5. Don't worry if you don't meet the entry requirements for the higher levels when you begin your training – you can gain them as you progress through the Diploma. More information on how you can do this can be found on pages 4-6.

Once you begin studying towards the EWF/IIW Diploma, you must complete your chosen level within three years. Depending on your availability and the course schedule, you may be able to complete your level in a much shorter time.

Each module lasts five days, from Monday to Friday inclusive, and ends with an exam on the final day. The only exception to this is at Specialist level: the modules 'Advanced Welding Processes and Equipment' (AWP) and 'Welding Processes and Equipment (Foundation)' (WPE1) is taken over two weeks with a single exam at the end of the second week. We recommend you take these modules together if you can.

You can choose the order in which you take the modules making up your level, except for the 'Fabrication and Application' module, which must be taken last in each level.

If you have limited practical welding experience, we recommend you take the 'Practical Welding Technology' (PWT) module before taking the two Welding Processes modules (AWP and WPE1).

The vast majority of candidates who wish to take the Engineer level start with the six Specialist modules and build on their knowledge with the four technologist modules and final four engineer modules. However, if you possess relevant academic qualifications and can prove that you have sufficient relevant welding experience in a working environment, you may be granted exemption from some modules. See pages 4 and 5 for details.

For exemption from the practical module candidates would need to have certificates across a variety of welding processes from City & Guilds or ECITB or other welding certification bodies.

If you meet the entry requirements for more than one level then you also have the option of taking the modules together (eg. MAB1 one week, MAB2 the next and MAB3 the week after) which suits some of our candidates who need to complete the training within a short space of time. This also means the details are fresh in your mind as you move onto the more advanced material.

When you have been approved to take the Specialist level, you can start your Specialist and Technologist modules together while working towards achieving your TWI Diploma in Welding Technology or meeting the additional entry requirements for your EWF/IIW Technologist Certificate providing these are achieved within the 3 year time limit allowed.

If you are considering applying for IEng status to enable you to meet the entry requirements, please contact theweldinginstitute@twi.co.uk to discuss how you can achieve this as soon as possible.

Pre-course work

For each module we recommend that you spend as much time studying outside of the classroom as you do in the classroom. We strongly advise you to read the course notes we provide before beginning your module. We also provide five technical text books to support your understanding of the topics covered.

Homework

You will be expected to complete a minimum of two hours' homework each evening during the course. This will consist of exercises and revision of the topics covered that day.

Feedback

We have a very good success rate but if you are unsuccessful, we offer free feedback on your failed exam paper and two days free refresher training.

EWF/IIW Welding Diploma – 2017 UK dates

TWI Ltd, Granta Park, Great Abington, Cambridge CB21 6AL

SPECIALIST LEVEL

PWT – Practical Welding Technology (Foundation)

16 – 20 January 2017
27 – 31 March 2017
22 – 26 May 2017
7 – 11 August 2017
6 – 10 November 2017

AWP – Advanced Welding Processes and Equipment The examination for this module is taken at the end of the WPE1

6 – 10 February 2017
5 – 9 June 2017
9 – 13 October 2017

WPE1 – Welding Processes and Equipment (Foundation)

13 – 17 February 2017
12 – 16 June 2017
16 – 20 October 2017

DAC1 – Design and Construction (Foundation)

6 – 10 March 2017
18 – 22 September 2017
4 – 8 December 2017

MAB1 – Materials and their Behaviour (Foundation)

8 – 12 May 2017
30 Oct – 1 November 2017

FAA1 – Fabrication and Application (Foundation)*

3 – 7 July 2017
20 – 24 November 2017

TECHNOLOGIST LEVEL

WPE2 – Welding Processes and Equipment (Intermediate)

20 – 24 February 2017
19 – 23 June 2017

DAC2 – Design and Construction (Intermediate)

13 – 17 March 2017
25 – 29 September 2017

MAB2 – Materials and their Behaviour (Intermediate)

15 – 19 May 2017
6 – 10 November 2017

FAA2 – Fabrication and Application (Intermediate)*

10 – 14 July 2017
27 Nov – 1 December 2017

ENGINEER LEVEL

WPE3 – Welding Processes and Equipment (Advanced)

27 Feb – 3 March 2017
26 – 30 June 2017

DAC3 – Design and Construction (Advanced)

20 – 24 March 2017
2 – 6 October 2017

MAB3 – Materials and their Behaviour (Advanced)

22 – 26 May 2017
13 – 17 November 2017

FAA3 – Fabrication and Application (Advanced)*

17 – 21 July 2017
4 – 8 December 2017

We recommend that the Practical Welding Technology module is taken before the Welding Processes and Equipment modules

* You must complete all other modules in your level before you can take the 'Fabrication and Application' module and exam.



Entry requirements

Entry requirements for each level can be found on the table opposite. Don't worry if you don't meet the entry requirements for the higher levels when you begin your training. You can either gain additional qualifications as you progress through the diploma or continue studying the modules to receive the TWI Diploma in Welding Technology and TWI Diploma in Welding Engineering. The TWI diploma is designed to provide professional development routes for those candidates who do not satisfy the entry requirements for the International/European Welding Technologist or Engineer diploma. The TWI Diploma in Welding Technology provides a significant contribution towards some higher education courses. Talk to your chosen college to discuss your options and what CATS credits they would award. More information on how you can do this can be found on the career progress flow chart on page 6.

*** Entry examination**

Some of the entry requirements for the Specialist level are marked with an asterisk. If you meet these requirements you will need to pass an entry exam before you can begin studying towards the Diploma. There is no charge for this exam and you can take it at our training centres in Cambridge, Middlesbrough or Aberdeen.

The entry exam is a 45-minute paper made up of 30 multi-choice questions. You will be provided with further details and a practice paper if applicable.

Exemption for some modules

The vast majority of candidates who wish to take the Engineer level start with the six modules at Specialist level and build on their knowledge with another four modules at Technologist level and then a final four at Engineer level.

For exemption from the practical module, candidates would need to have certificates across a variety of welding processes from City & Guilds or ECITB or other certification bodies.

If you wish to be given exemption from any other modules candidates need to have at least four years experience as a Welding Engineer working across a variety of processes. It is essential that you are confident in the areas covered as the majority of the class will have already studied the earlier modules and the lecturer is not able to go back over the material already taught. In our experience, candidates without this experience would struggle to pass the examinations without completing all the training.

The EWF and IIW only allow candidates who have extensive experience working as a welding engineer to be given exemption from any modules. These are their rules which we must follow in order to be able to issue you with an IWE certificate when you successfully pass your exams

The assessor will review the details you provide when you request approval to enrol on the diploma and decide if any exemption is relevant.

If you are considering applying for IEng status to enable you to meet the entry requirements, please contact theweldinginstitute@twi.co.uk to discuss how you can achieve this as soon as possible.

SPECIALIST LEVEL

Six modules to be completed – each module lasts one week and finishes with an exam (standard route)

Entry Requirements

- Two years' relevant experience and one of the following:
 - A minimum of a CSWIP 3.2 Senior Welding Inspector certificate
 - A BTec/Scotvec, National Certificate in an engineering subject
 - An approved City & Guilds of London Institute Part 3 Certificates in an engineering subject
 - An approved Level 3 Qualification (NVQ, VRQ, Technical Certificate, Diploma, Apprenticeship) in an engineering subject
 - Professional Technician of Engineering Technician (EngTech) status granted by the Engineering Council UK, registered through The Welding Institute
 - A Level 2 qualification (eg NVQ level 2 Engineering, CSWIP 3.1) providing you pass the entry exam*

OR

- Five years' work experience (three years of which must be relevant work experience) and a minimum of four GCSEs at Grade C or above, providing you pass an entry examination*

WPE1
Welding Processes and Equipment (Foundation)

AWP1
Advanced Welding Processes and Equipment

PWT
Practical Welding Technology (Foundation)

MAB1
Materials and their Behaviour (Foundation)

DAC1
Design and Construction (Foundation)

FAA1
Fabrication and Application (Foundation)

EWF/IIW International Welding Specialist (EWS/IWS)

TECHNOLOGIST LEVEL

Four modules to be completed – each module lasts one week and finishes with an exam

Entry Requirements

- Complete the Specialist Level detailed above AND hold a Higher National Certificate (HNC) in an engineering discipline OR
- Professional engineer of Incorporated (IEng) status granted by the UK Engineering Council under mature candidates rules OR
- Level 4 National or Scottish Vocational Qualifications or other equivalent nationally recognised vocational qualifications in engineering subjects

WPE2
Welding Processes and Equipment (Intermediate)

MAB2
Materials and their Behaviour (Intermediate)

DAC2
Design and Construction (Intermediate)

FAA2
Fabrication and Application (Intermediate)

EWF/IIW International Welding Technologist (EWT/IWT)

ENGINEER LEVEL

Four modules to be completed – each module lasts one week and finishes with an exam

Entry Requirements

- Complete the Specialist and Technologist modules detailed above or be granted exemption from these modules AND hold a University degree in an engineering discipline OR
- Professional engineer of Chartered Engineer (CEng) status granted by the UK Engineering Council OR
- Professional engineer of Incorporated Engineer (IEng) status, granted by the UK Engineering Council, including as a minimum an HNC or Higher National Diploma (HND) or a Foundation degree or an NVQ Level 4 in an engineering discipline

WPE3
Welding Processes and Equipment (Advanced)

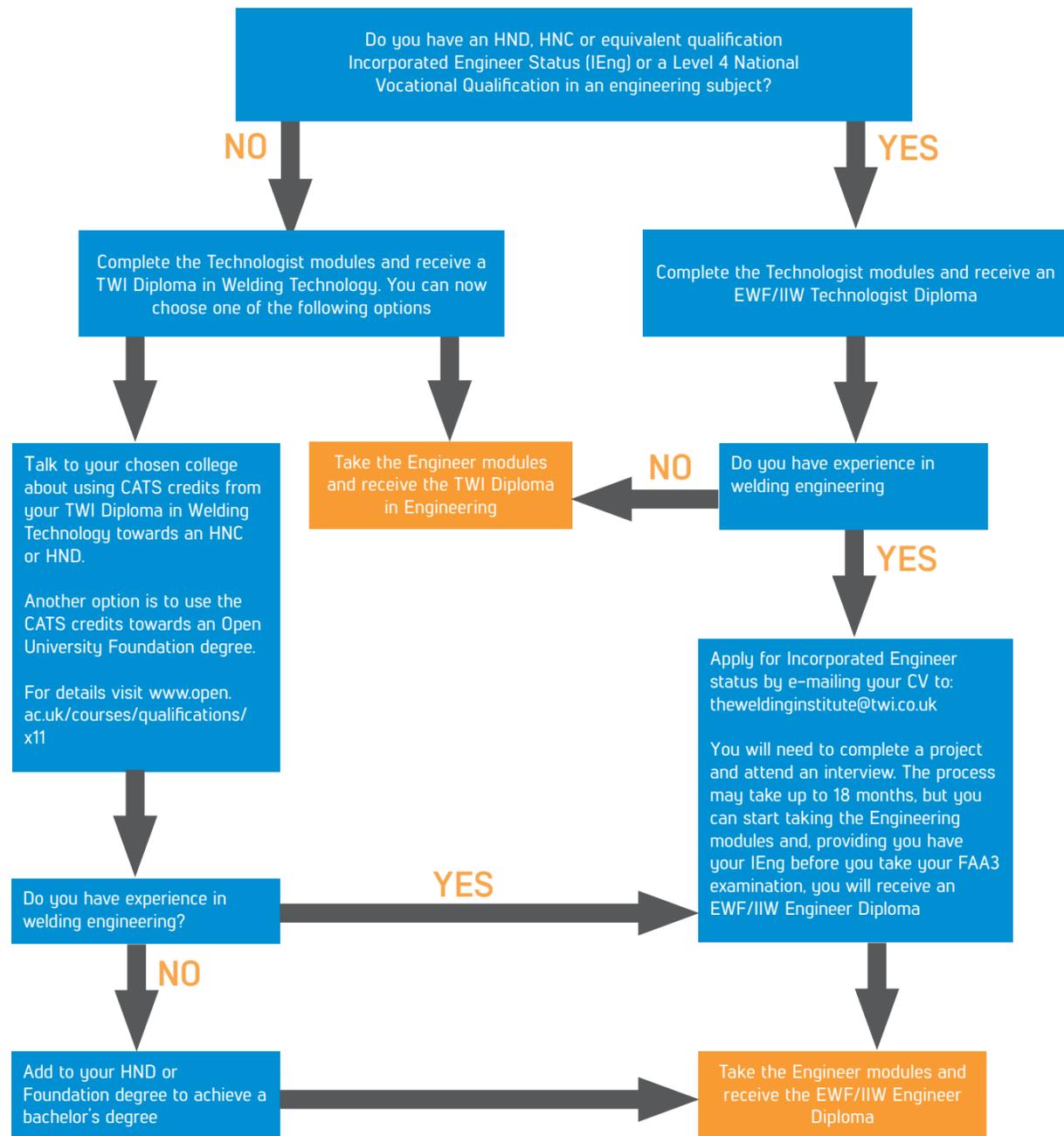
MAB3
Materials and their Behaviour (Advanced)

DAC3
Construction and Design (Advanced)

FAA3
Fabrication and Application (Advanced)

EWF/IIW International Welding Engineer (EWE/IWE)

Career progression: can I progress to the Engineer modules if I don't have a degree?



Course content

Practical welding

- MIG/MAG – The effects of different shielding gases and using different modes of metal transfer
- MMA – The use of basic, rutile and cellulosic electrodes and the effects of polarity on welding
- TIG – The effects of gas purging and the use of pulse welding current
- Gas Welding – Different flame types, the effect of nozzle sizes
- Safety and equipment
- Testing of welding joints

Welding processes and equipment

- General introduction to welding technology
- Oxy-gas welding and related processes
- Electrotechnics – a review
- The arc
- Power sources for arc welding
- Introduction to gas shielded arc welding
- TIG welding
- MIG/MAG and flux cored arc welding
- MMA welding
- Submerged-arc welding
- Resistance welding
- Other welding processes (laser, electron beam, plasma)
- Cutting and other edge preparation processes
- Joining processes for plastics
- Joining processes for ceramics and composites
- Consumables

Design and construction

- Basic theory of structural systems
- Fundamentals of the strength of materials
- Welded joint design
- Basics of weld design
- Behaviour of welded structures under different types of loading
- Design of welded structures with predominantly static loading
- Behaviour of welded structures under dynamic loading
- Design of dynamically loaded welded structures
- Design of welded pressure equipment
- Design of aluminium alloys structures
- Reinforcing-steel welded joints



Materials and their behaviour during welding

- Manufacture and designation of steels
- Testing materials
- Structure and properties of pure metals
- Alloys and phase diagrams
- Heat treatment
- Structure of the welded joint
- Steels: plain carbon, carbon-manganese, fine-grained, low-alloy, high-alloy etc.
- Cracking phenomena in welded joints
- Introduction to corrosion
- High-alloy creep-resistant and heat resistant steels
- Cast irons and steels
- Non-ferrous metals and alloys

Fabrication and application

- Introduction to quality assurance in welded fabrication
- Quality control during manufacture
- Residual stresses and distortion
- Plant facilities, welding jigs and fixtures
- Health and safety
- Measurement, control and recording in welding
- Non-destructive testing
- Economics
- Repair welding
- Fitness-for-purpose
- Case studies
- Welding qualifications and procedures



How to apply

1. Request an application form by e-mailing trainexam@twitraining.com
2. Return the completed form to the same the address, including a CV detailing your experience and copies of any certificates showing you meet the entry requirements
3. It should take around three weeks for the assessor to process your form and review your details – you will receive an e-mail confirmation when this process is complete
4. You can now book your training either by completing the application form provided or booking online at: www.twitraining.com

Funding

TWI is a learning provider approached by the Skills Funding Agency. If you are funding your course yourself, you may wish to consider a Professional and Career Development Loan. For detailed information visit www.gov.uk/career-development-loans



TWI Training and Examination Services

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