# ECITB TRAINING STANDARDS CATALOGUE

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## Contents



 

## Introduction

Training standards set out the training necessary to develop the knowledge and skills required to perform an activity in engineering construction. They do not form part of any recognised regulated qualification, but their contents are aligned with either the assessment requirements of a related ECITB RQF qualification, performance and/or knowledge criteria of a National Occupational Standard or another nationally recognised standard/approved code of practice.

## About the structure of training standards

1. Training standard documents are structured so that each learning outcome is supported by 'enabling objectives' (the sentence) and 'key learning points' (the list) which, when collectively achieved, will result in the fulfilment of the specified learning outcome.
2. The key learning points are there to both contextualise the enabling objective and state what should be known/understood or demonstrated by the learner upon completion of training.
3. Exercises and 'real-life' examples used in course materials must be contextualised to the learners' working environment e.g., the Engineering Construction Industry.
4. Practical elements of training should be underpinned by practical instruction in addition to sufficient study time for consolidation of learning.

## Guidance for developing courses

Courses can be developed from one or more training standards to meet the training needs of a company. If a training standard is used as a basis for a course, then all of its content must be used. The learner must be able to provide evidence that they have achieved the learning outcomes through assessment of the enabling objectives. Some courses have training pre-requisites and these are detailed on each training standard.

## Learning consolidation

At the end of the training course, a consolidation activity must take place. This can be a knowledge test, submission of a personal action plan linked to the training by the learner or something else.

When a course is submitted for approval to PCAS it must include a consolidation activity at the end of the training. A rational for the consolidation activity along with an explanation of how completion of the activity will be ensured, must be included with the course PCAS submission.

The consolidation activity must clearly cover all the learning outcomes and all enabling objectives – demonstrate this by including it in the mapping.

If the consolidation is a knowledge test, then ensure that the question paper includes a minimum of one multiple-choice or short answer question for each of the enabling objective IDs. Ideally short answer questions should have an emphasis on real examples and test the candidates understanding of how to behave appropriately in each situation.

## Provider course approval scheme

- Obtain a training standards licence
- Design the course to meet the standard(s) including:
    - Course Scheme of Work
    - Lesson Plans
    - Slides and learner handouts/resources
    - Testing materials
- Complete the:
    - PCAS questionnaire
    - PCAS Learning Outcome matrix OR the right-hand column on newer standards
- Request a ShareFile link from ray.skene@ecitb.org.uk (craft & technical) or catherine.lambert@ecitb.org.uk (management & professional)
- Submit your course for approval

## Craft and Technical standards

### Abrasive wheels

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|---|---|
| TS AW 01 | Principles of abrasive wheels |
| TS AW 02 | Hand-held abrasive wheels |
| TS AW 03 | Mounted abrasive wheels |

### Grinding, profiling and polishing

| | |
|---|---|
| TS GPP 01 | Basic grinding, profiling and polishing |

### Common

| | |
|---|---|
| TS CO 02 | Work safely and minimise risk in engineering construction |
| TS CO 03 | Identify and deal with hazards and emergencies in the engineering construction work environment |

### Condition monitoring

| | |
|---|---|
| TS CM 01 | Review an engineering asset to determine the condition monitoring requirements |
| TS CM 02 | Perform asset condition monitoring |
| TS CM 03 | Review effectiveness of condition monitoring activities |

### Drone operations

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|---|---|
| TS IDO01 | Industrial drone operations |

### Mechanical joint integrity

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|---|---|
| TS MJI 01 | Mechanical joint integrity first principles |
| TS MJI 10 | Hand torque bolted flange connections |
| TS MJI 11 | Hand torque bolted clamp connections |
| TS MJI 18 | Hydraulically tensioned bolted connections |
| TS MJI 19 | Hydraulically torqued bolted flange connections |
| TS MJI 20 | Hydraulically torqued bolted clamp connections |
| TS MJI 21 | Hydraulically tensioned subsea bolted connections |
| TS MJI 22 | Hydraulically torqued subsea bolted connections |
| TS MJI 23 | Powered torque gun bolted connections |
| TS WT02-MJI33 | Torque and tension wind turbine bolted connections |

### Moving loads

#### Appointed person moving loads

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|---|---|
| TS APML 01 | Appointed person moving loads |

#### Inspection

| | |
|---|---|
| TS WRI-01 | Wire rope inspection |

#### Slinger/banksman

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|---|---|
| SB01 | Slinger/banksman |

### Non-destructive testing

| | |
|---|---|
| TS NDT 01 | Inspect engineering construction components and plant for discontinuity using NDT eddy current testing |
| TS NDT 02 | Deal with identified indications and defects in engineering construction components and plant using NDT eddy current testing |
| TS NDT 03 | Inspect engineering construction components and plant for discontinuity using NDT magnetic testing |
| TS NDT 04 | Deal with identified indications and defects in engineering construction components and plant using NDT magnetic testing |
| TS NDT 05 | Inspect engineering construction components and plant for discontinuity using NDT ultrasonic testing |
| TS NDT 06 | Deal with identified indications and defects in engineering construction components and plant using NDT ultrasonic testing |
| TS NDT 07 | Inspect engineering construction components and plant for discontinuity using NDT radiographic testing |
| TS NDT 08 | Deal with identified indications and defects in engineering construction components and plant using NDT radiographic testing |
| TS NDT 09 | Inspect engineering construction components and plant for discontinuity using NDT penetrant testing |
| TS NDT 10 | Deal with identified indications and defects in engineering construction components and plant using NDT penetrant testing |

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|---|---|
| TS NDT 11 | Inspect engineering construction components and plant for discontinuity using NDT visual testing |
| TS NDT 12 | Deal with identified indications and defects in engineering construction components and plant using NDT visual testing |

**On-site machining**

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|---|---|
| TS OSM 01 | On-site pipe cutting and pipe end weld preparation |
| TS OSM 02 | On-site joint face machining - full & raised face flanges |
| TS OSM 03 | On-site drilling and thread tapping |
| TS OSM 04 | On-site milling |
| TS OSM 05 | On-site joint face machining - RTJ & clamp connector hubs |

**Pipefitting**

Welding pipe

| | |
|---|---|
| TS WPL 07 | Interpret welding procedures, specifications and standards in engineering construction |
| TS WPP 01 | Join pipe in engineering construction by TIG welding |
| TS WPP 02 | Join pipe in engineering construction by flux cored welding |
| TS WPP 03 | Join pipe in engineering construction by TIG/MMA |
| TS WPP 04 | Join pipe in engineering construction by MMA |
| TS WPP 05 | Join pipe in engineering construction by MIG/MAG |

**Plating**

Welding plate

| | |
|---|---|
| TS WPL 01 | Join plate in engineering construction by TIG welding |
| TS WPL 02 | Join plate in engineering construction by flux cored welding |
| TS WPL 03 | Join plate in engineering construction by TIG/MMA |
| TS WPL 04 | Join plate in engineering construction by MMA |
| TS WPL 05 | Join plate in engineering construction by MIG/MAG |
| TS WPL 06 | Gouging in engineering construction for welding activities |
| TS WPL 07 | Interpret welding procedures, specifications and standards in engineering construction |

**Pressure safety valves**

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|---|---|
| TS PSV01 | Fundamentals of pressure safety valves |

**Scaffolding (International only)**

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| TS SCF01 | Scaffolding labourer |
| TS SCF02 | Scaffolding level 2 |
| TS SCF03 | Scaffolding level 3 |
| TS SCF04 | Scaffolding inspection |
| TS SCF05 | System scaffolding |

**Small bore tubing**

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|---|---|
| TS SBTC 01 | Assemble and install small bore tubing assemblies – twin ferrule |
| TS SBTC 02 | Assemble and install small bore tubing with cone & threaded medium and high-pressure module |
| TS SBTC 03 | Assemble and install small bore tubing with cone & threaded medium and high pressure |
| TS SBTC 04 | Hydrotest SBT assemblies |

**Supporting engineering activities**

Grinding, profiling and polishing

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|---|---|
| TS GPP 01 | Basic grinding, profiling and polishing |

**Welding**

High integrity

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|---|---|
| TS HIW 01 | Welding Metallurgy |
| TS HIW 02 | Main steam pipe CrMoV high integrity manual welding (paired welder) |
| TS HIW 03 | Main steam pipe CrMoV high integrity semi-automated welding (paired welder) |
| TS HIW 04 | Tight access tube TIG welding |

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|---|---|
| TS HIW 05 | Tight access tube TIG/MMA (paired welder) |
| TS HIW 06 | Stainless steel large bore pipe TIG/MMA welding |
| TS HIW 07 | Nickel alloy large bore pipe TIG/MMA welding |
| TS HIW 08 | High alloy ferritic, creep resistant steel TIG welding |
| TS HIW 09 | Duplex steel TIG welding |
| TS HIW 10 | High nickel alloy TIG welding |
| TS HIW 11 | TIG welding with restricted visual access |
| TS HIW 12 | TIG and MMA window welding |
| TS HIW 13 | Non-purged welding of high alloy pipe |
| TS HIW 14 | Stainless steel pipe welding (MMA root) |
| TS HIW 15 | High alloy creep resistant MMA welding |
| TS HIW 16 | Orbital welding |

### Pipe

| | |
|---|---|
| TS WPL 07 | Interpret welding procedures, specifications and standards in engineering construction |
| TS WPP 01 | Join pipe in engineering construction by TIG welding |
| TS WPP 02 | Join pipe in engineering construction by flux cored welding |
| TS WPP 03 | Join pipe in engineering construction by TIG/MMA |
| TS WPP 04 | Join pipe in engineering construction by MMA |
| TS WPP 05 | Join pipe in engineering construction by MIG/MAG |

### Plate

| | |
|---|---|
| TS WPL 01 | Join plate in engineering construction by TIG welding |
| TS WPL 02 | Join plate in engineering construction by flux cored welding |
| TS WPL 03 | Join plate in engineering construction by TIG/MMA |
| TS WPL 04 | Join plate in engineering construction by MMA |
| TS WPL 05 | Join plate in engineering construction by MIG/MAG |
| TS WPL 06 | Gouging in engineering construction for welding activities |
| TS WPL 07 | Interpret welding procedures, specifications and standards in engineering construction |

## Wind turbines

### General

| | |
|---|---|
| TS HBR 01 | Wind turbine hub rescue |
| TS WT02-MJI33 | Torque and tension wind turbine bolted connections |
| TS WTT01 | Simple composite blade repairs |
| TS WTT02 | Wind turbine composite blade repairs |

### Statutory inspection

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|---|---|
| TS WT01-01 | Wind core module |
| TS WT01-02 | Wind turbine lift maintenance and statutory inspection |
| TS WT01-03 | Compact and davit cranes |
| TS WT01-04 | Inspection of working at height systems and equipment |

Other standards in craft and technical, health and safety and management and professional sections are also applicable to the wind industry.

## Health & safety standards

These training standards are specific to their area. They do not contain general site health and safety information. Centres wishing to deliver a general ECITB site health and safety course should apply to be a CCNSG Safety Passport provider.

### Confined space working

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|---|---|
| TS CS 01 | Working in low risk confined spaces |
| TS CS 02 | Working in medium risk confined spaces |
| TS CS 03 | Working in high risk confined spaces |
| TS CS 04 | Confined space appreciation |
| TS CS 05 | Principles of operating in confined spaces |

### Fire watching

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|---|---|
| FW01 | Fire watcher |

### Manual handling

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| TS MH 01 | Manual handling |

### Working at height

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| TS WH 01 | Working at height |

### Working safely with tools

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| WST04 | Working safely with hand and power tools |

## Management & professional standards

### Commercial awareness

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|---|---|
| TS CA 01-01 | An introduction to commercial awareness for the engineering construction industry |
| TS HCA1-01 | Setting up engineering construction projects in a modern contracting environment |
| TS HCA1-02 | Understanding key commercial contract terms and provisions in an engineering construction project |
| TS HCA1-03 | Managing commercial expectations of an engineering construction project |
| TS HCA1-04 | Managing commercial performance of an engineering construction project |

### Commissioning and start up

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| TS CSU01 | Commissioning and start up manager |
| TS CSU02 | Commissioning and start up engineer |

### Design and draughting

#### Plant layout and design

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|---|---|
| PLD 01 | Principles of plant equipment layout |
| PLD 04 | Cranes and access |
| PLD 08 | Pipe racks and sleepers |
| PLD 10 | Flares |
| PLD 12 | Storage tanks |
| PLD 13 | Piping design |
| PLD 24 | Horizontal, vertical and sloping vessels |
| PLD 25 | Heat exchangers and air coolers |
| PLD 26 | Pumps and turbines |
| PLD 28 | Fired heaters |

### Diversity and inclusion

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|---|---|
| TS DI-01 | Introduction to diversity and inclusion |
| TS DI-02 | Unconscious bias |

### Human performance

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|---|---|
| TS HuP 01 | Human performance - foundation |

### Managing welding operations

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|---|---|
| TS MWO 01 | Identify and assess the hazards arising from welding operations |
| TS MWO 02 | Review an engineering activity to determine welding requirements |
| TS MWO 03 | Determine and secure resource requirements to achieve welding objectives |
| TS MWO 04 | Deploy resources to welding activities |
| TS MWO 05 | Monitor welding activities |
| TS MWO 06 | Solve problems in weld production |
| TS MWO 07 | Participate in welding quality control and quality improvement |
| TS MWO 08 | Promote productivity improvement in welding activities |
| TS MWO 09 | Develop the welding team |

### Offshore decommissioning

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|---|---|
| TS OSD 01 | Introduction to offshore decommissioning |

### Project control, estimating, planning & scheduling

#### Level 2 (GCSE equivalent)

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|---|---|
| PC TS02-01 | Introduction to project controls |
| PC TS02-02 | Introduction to Commercial Awareness and Risk |
| PC TS02-03 | Gather and Process Data for Project Control Activities |
| PC TS02-04 | Introduction to Monitoring, Forecasting and Reporting |
| PC TS02-05 | Introduction to Quality Management Systems and Change Management |
| PC TS02-06 | Introduction to Estimating |
| PC TS02-07 | Introduction to Planning and Scheduling |
| PC TS02-08 | Introduction to Cost Engineering |
| PC TS02-09 | Communicating with Stakeholders |
| PC TS02-10 | Introduction to Health & Safety, Environmental, Ethical and Behavioural Procedures |
| PC TS02-11 | Introduction to Self-development |

### Level 3 (A-level equivalent)

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|---|---|
| PC TS03-01 | Project control overview |
| PC TS03-02 | Breakdown and coding structures |
| PC TS03-03 | Project control reporting and related governance systems |
| PC TS03-04 | Monitoring risk, opportunity and uncertainty |
| PC TS03-05 | Monitoring, tracking, forecasting and reporting project progress |
| PC TS03-06 | Commercial awareness and planning procurement activities |
| PC TS03-07 | Financial controls and techniques |
| PC TS03-08 | Estimating practice |
| PC TS03-09 | Planning and scheduling practice |
| PC TS03-10 | Budgeting and cost control practice |
| PC TS03-11 | Supporting construction or manufacturing planning |
| PC TS03-12 | Optimisation and efficiency |
| PC TS03-13 | Generating and using statistical data |
| PC TS03-14 | Using learning curve models |
| PC TS03-15 | Communicating with stakeholders |
| PC TS03-16 | Professional ethics |
| PC TS03-17 | Professional development |

### Level 5 (Foundation degree equivalent)

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|---|---|
| PC TS05- 01 | Manage effective application of quality processes and IT |
| PC TS05- 02 | Scoping and requirements definition |
| PC TS05- 03 | Acquiring and acting on information |
| PC TS05- 04 | Risk analysis and management (including opportunity and uncertainty) |
| PC TS05- 05 | Maintaining, controlling and reporting on project progress |
| PC TS05- 06 | Task & project close-out |
| PC TS05- 07 | Advanced estimating practice |
| PC TS05- 08 | Advanced planning and scheduling practice |
| PC TS05- 09 | Advanced budgeting and cost control practice |
| PC TS05- 10 | Interpreting and applying financial controls |
| PC TS05- 11 | Leading the establishment of construction or manufacturing plans |
| PC TS05- 12 | Earned value management |
| PC TS05- 13 | Advanced optimisation and efficiency practice |
| PC TS05- 14 | Analysing and interpreting statistical data |
| PC TS05- 15 | Developing and calibrating learning curve models |
| PC TS05- 16 | Continuous improvement |
| PC TS05- 17 | Bids, tenders and commercial contracts |
| PC TS05- 18 | Managing procurement activities |
| PC TS05- 19 | Claims and dispute resolution |
| PC TS05- 20 | Stakeholder management |
| PC TS05- 21 | Professional ethics |
| PC TS05- 22 | Continuing professional development (self and others) |
| PC TS05- 23 | Managing and developing others |

### Root cause analysis

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|---|---|
| TS RCA 01 | Root cause analysis |

### Supervising excavations

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|---|---|
| IES 03 | Supervising excavations |