

# apprenticeship FRAMEWORK

## Rail Infrastructure Engineering (Wales)

### IMPORTANT NOTIFICATION FOR ALL APPRENTICESHIP STARTS FROM 14 OCTOBER 2016

Modifications to SASW came into effect on 14 October 2016. These changes relate to the **Essential Skills and Employer Rights and Responsibilities** requirements of a framework and they **ONLY** apply to new Apprenticeship starts on, or after, 14th October. Apprenticeship starts before this date must continue to meet the 2013 SASW requirements for Essential Skills and Employer Rights and Responsibilities.

For more details of the changes and how they will affect new apprenticeship starts, please read the following preface page to the framework document. NB: Please check the "Revising a Framework" section for information on any additional changes that may have been made to this framework.

### Latest framework version?

For any previous versions of this framework: [www.acwcerts.co.uk/framework\\_library](http://www.acwcerts.co.uk/framework_library)

Issue date: 25 November 2016

Published By

SEMTA

Apprenticeship Certification  
Wales

<https://acwcerts.co.uk/web/>

Document Status:

Issued

# Rail Infrastructure Engineering (Wales)

## Contents

### Contents

Framework information.....	3
Contact information.....	4
Revising a framework.....	5
Purpose of this framework .....	6
Entry conditions for this framework.....	11
Level 2: Foundation Apprenticeship in Rail Infrastructure Engineering .....	16
Level 2, Pathway 1: Track Maintenance .....	17
Level 2, Pathway 2: Electrification.....	26
Level 2, Pathway 3: Signal Installation .....	35
Level 3: Apprenticeship in Rail Infrastructure Engineering .....	44
Level 3, Pathway 1: Signalling.....	45
Level 3, Pathway 2: Track.....	56
Level 3, Pathway 3: Telecoms .....	66
Level 3, Pathway 4: Electrification.....	77
Equality and diversity .....	87
On and off the job training .....	89
Wider key skills assessment and recognition .....	95

# Framework information

## Information on the Issuing Authority for this framework:

SEMTA

The Apprenticeship sector for occupations in science, engineering and manufacturing technologies.

Issue number: 3	<b>This framework includes:</b>
Framework ID: FR03998	Level 2 <input checked="" type="checkbox"/> Level 3 <input checked="" type="checkbox"/> Level 4-7 <input type="checkbox"/>
Date this framework is to be reviewed by: DD/MM/YYYY	<b>This framework is for use in: Wales</b>

## Short description

The purpose of the Foundation Apprenticeship and Apprenticeship in Rail Infrastructure Engineering is to train new apprentices and upskill the existing workforce to the industry recognised standard of competency at Level 2 & 3 in the various rail infrastructure engineering disciplines of track, signalling, telecoms and electrification. The pathways within this framework cover semi-skilled and fully skilled job roles in these areas. Rail track maintenance workers (Level 2) and skilled Technicians (Level 3) play a key role in ensuring that the infrastructure systems that make up the rail network are installed and maintained to the correct standards to ensure the safe and efficient running of the railway.

# Contact information

## Proposer of this framework

Semta has assumed responsibility for Rail Engineering from People 1st on behalf of GoSkills. We have been principally working with the National Skills Academy for Rail Engineering (NSARE), Network Rail and Transport for London (London Underground) and the Railway Industry Association (RIA) who represent the bulk of companies working in the rail engineering sector.

## Developer of this framework

Name: Bonita Searle-Barnes

Organisation: Semta

Organisation Type: Sector Skills Council

Job Title: Technical Specialist

Phone: 01923 238441

Email: frameworks@semta.org.uk

Postal address: Unit 2, The Orient Suite  
Greycaine Road Watford  
Herts WD24 7GP

Website: www.semta.org.uk

## Issuing Authority's contact details

Issued by: SEMTA

Issuer contact name: David George

Issuer contact phone: 0845 6439001

Issuer Email: IssuingAuthority@semta.org.uk

## Contact Details

Who is making this revision | Bonita Searle-Barnes

Your organisation | Semta

Your email address: | frameworks@semta.org.uk

# Revising a framework

## Why this framework is being revised

This framework is being revised to:

- remove the requirement to achieve Wider Key Skills qualifications at both Level 1 and Level 2, as a new set of qualifications has been developed to replace the current Key Skills and Wider Key Skills qualifications. These new qualifications are part of the Essential Skills Qualifications (ESQ) and the current Wider Key Skills qualifications are now being withdrawn.

For new apprenticeship starts on, or after, 14th October 2016:

- to include the new range of proxy qualifications for ESQ that can be accepted
- to remove the requirement for Employer Rights and Responsibilities (ERR)

## Summary of changes made to this framework

The requirement to achieve Wider Key Skills qualifications has been removed from both the Rail Infrastructure Engineering Foundation Apprenticeship (L2) and Rail Infrastructure Engineering Apprenticeship (L3).

Proxies for ESQ for the Foundation Apprenticeship (Level 2) and Apprenticeship (Level3) - these are given at the front of this framework document.

ERR is no longer compulsory in frameworks - please refer to the Employer Rights and Responsibilities section within the framework document to confirm specific requirements.

## Qualifications removed

*Improving own learning and performance*

- Rail Infrastructure Engineering Foundation Apprenticeship requirement at level 1.
- Rail Infrastructure Engineering Apprenticeship requirement at level 2

*Working with others*

- Rail Infrastructure Engineering Foundation Apprenticeship requirement at level 1.
- Rail Infrastructure Engineering Apprenticeship requirement at level 2

## Qualifications added

None.

## Qualifications that have been extended

None.

# Purpose of this framework

## Summary of the purpose of the framework

Foundation Apprenticeships and Apprenticeships are jobs with an accompanying skills development programme designed by employers in the sector. They allow the apprentice to gain technical knowledge and real practical experience, along with essential and personal skills, required for their immediate job and future career. These are acquired through a mix of learning in the workplace, formal off the job training and the opportunity to practice and embed new skills in a real work context. This broader mix differentiates the Apprenticeship experience from training delivered to meet narrowly focused job needs.

All apprentices commencing their Foundation Apprenticeship or Apprenticeship must have an Apprenticeship Agreement between the employer and apprentice. This can be used to reinforce the understanding of the requirements of the apprenticeship. On completion of the apprenticeship the apprentice must be able to undertake the full range of duties, in the range of circumstances appropriate to the job, confidently and competently to the standard set by the industry.

Semta has assumed responsibility by agreement with employers and People 1st SSC for the Rail Engineering footprint. This includes the review and development of Rail Engineering National Occupational Standards (NOS) from which new and revised qualifications have been developed. Semta have also taken responsibility for the development, review and issue (where applicable) of current and new Apprenticeship Frameworks in each Nation. Responsibility for Apprenticeship Certification for SASW Frameworks has also been transferred to Semta.

The rail industry is a vital part of the country's transport infrastructure, its continued well being and expansion is vital to ensure the economy can continue to operate and grow. The UK rail industry is currently benefitting from an ambitious programme of infrastructure investment with exciting plans and projects reaching well into the next decade. It is vital therefore that the industry gains an understanding of the volume and types of skills that will be required to deliver this level of expansion in a safe and efficient manner.

The National Skills Academy for Rail Engineering (NSARE) was commissioned by the Office of Rail Regulation to produce a long term skills forecast by first establishing the size and employment demographics of the current workforce and then collecting data on all current and proposed future engineering projects involving infrastructure renewals and rolling stock procurements.

A comprehensive skills forecasting model has been developed which uses this data to predict the skills requirements for future projects involving new infrastructure, renewals, and maintenance and predicts the number of additional people needed to both meet and anticipate this growth given the age profile and subsequent industry leavers and retirements.

#### Activities:

- Track
- Signalling and Telecommunications (S&T)
- Electrification and Plant (E&P)
- Traction and Rolling Stock (T& RS)

#### Skills Levels:

- Professional engineer (NQF Levels 6-8)
- Technical /Manager (NQF Levels 4-5)
- Skilled (NQF Level 3)
- Semi-Skilled (NQF Level 2)

For each type of activity Track, S&T, (E&P) and (T&RS), the skills forecasting model estimates the level of resource required year on year to complete the work anticipated. The model considers maintenance and project renewals separately.

#### Maintenance

For maintenance activity it uses the existing maintenance workforce and, by applying an annual % change in the activity required, forecasts increases or decreases in the number of people required.

#### Projects and Renewals

For projects and renewals the future workforce requirement is derived from the information in the aggregated investment programme.

#### The Current Workforce

Over 100 companies were approached and asked to provide individual data about railway engineering staff. A total of 51 companies responded providing a rich data sample in excess of 44,000 people. From this data it was possible to extrapolate an existing railway engineering workforce of some 100,000 people, 84,500 of whom are involved in railway specific engineering activities. Nearly 70% work in track, almost half are semi-skilled and 4.4 % are female. The highest average age is in T&RS activities where some 20% are over the age of 55.

#### Numbers of Skills Levels

The total extrapolated workforce (2012) is comprised as shown below:

- Track - 55,000
- S&T - 12,000
- E&P - 3,500
- Other non-Railway Specific -15,500

#### Total Infrastructure - 86,500

- T&RS - 13,500

#### Total - 100,000

The 'other non-Railway Specific' numbers includes those individuals not working in specific railway engineering activities, e.g. in civil work such as bridges, embankments, station refurbishment and platform lengthening. When the non-railway specific numbers are discarded this indicates that some 66% of the workforce are in track, 16% in T&RS, 14% in S&T and just

4% in E&P.

#### *Workforce Analysis by Skill Level*

- Semi-Skilled (Level 2) - 47,000
- Skilled (Level 3) - 37,000
- Technician/Manager (Level 4-5) - 12,000
- Engineering /General Manager (Level 6-8) - 4,000

*Total - 100,000*

#### **Gender**

Women make up 4.4% of the railway engineering workforce. However there is a wide disparity between the low percentage of women undertaking apprenticeships (3.3%) compared to those joining the industry as graduates (14%). According to the IET's Engineering and Technology Skills and Demand in Industry 2012 report, some 4% of technicians and 6% of professional engineers nationally are female indicating that while overall numbers in railway engineering are not significantly different to the National Average; the graduate percentage is encouraging and should be commended. The female workforce is not evenly distributed across the four activities with women relatively well represented in S&T and E&P compared to Track and T&RS.

#### *Age Profile*

The age profile of the workforce was also analysed by activity; the results for infrastructure show a normal distribution of age with the exception of the T&RS profile which has a particularly ageing workforce with some 20% of people over the age of 55.

#### *Planning For Retirements*

Access to the employment demographics shows the impact of retirements across the workforce. This is an area for concern for some employers who expressed difficulty in planning for retirement due to a number of factors including:

- Removal of the compulsory 65 years retirement age
- Changes to the age at which the basic state pension entitlement starts
- Reduction in the number of final salary pension schemes and employees' pension savings

#### *Retirement at 65*

- Next 5 years - 3,600
- 6 to 10 years - 7,400
- 11 to 15 years - 11,400

#### *Retirement at 60*

- Next 5 years - 7,400
- 6 to 10 years - 11,400
- 11 to 15 years - 13,800

In addition to these numbers, there are currently some 700 people in the workforce aged 65 and above. It can be assumed these will retire over the next few years adding to the total above.

#### *Future Workload to 2019*

In the next seven years the industry will be spending £25bn on over 200 projects including infrastructure enhancements and renewals as well as rolling stock new build and refurbishment.



### *Future Workforce Requirements – to 2019*

The NSARE skills forecasting model looks at the number of people needed each year for projects/renewals and maintenance, compares it to previous years requirements and then estimates the 'gap' or 'surplus'. For year 1 the required workforce is compared to the current workforce. The model then adds the additional people required to fill the gaps left by retirees and other leavers to give an overall resource 'gap' or 'surplus' by skill level and by activity type.

### *Track*

Based on the existing workforce numbers and the forecast requirements there is no gap in the overall numbers in the Track workforce. This is, at least in part, due to the large volume of flexible, part time individuals available at the semi-skilled level. This picture masks an important issue however - the need to replace a number of higher qualified and experienced people that will retire over the coming years.

### *Signalling and Telecommunications*

The modelling indicates a need for 1,600 to 2,000 new people in the next five years with 30% of these being at technician level or above.

### *Electrification and Plant*

The significant increase in E&P activity anticipated in the next few years will underpin the need for around 1,000 new people which is equivalent of almost 30% of the existing workforce. Of these, some 750 will be required as a direct result of major electrification programmes. A number of actions are already in hand by the industry to address this need. It will be important to ensure that:

- effort is focussed in the right skills areas
- sufficient emphasis is given to ensuring the capacity and capability of training providers and trainers to deliver the required skills
- there is co-ordination across the supply chain

### *In summary:*

New people required in the next 5 years

### *Track*

Technicians - 1,950

Skilled - 1,000

### *S&T*

Technicians – 2,000

Skilled – 1,550

### *E&P*

Technicians – 1,100

Skilled – 950

Critical to meeting the predicted skills requirements for an expanded workforce in Wales over the next five years is the availability of suitable apprenticeship frameworks that will address the skills requirements within the track; signals; telecoms; electrification, and plant skill areas.

The Foundation Apprenticeship (Level 2) and Apprenticeship (Level 3) in Rail Infrastructure Engineering will meet the ongoing skills needs of apprentices who will form the backbone of the new entrants required at level 2 and level 3 within the track; signals; telecoms; electrification & plant sub-sectors.]

## **Aims and objectives of this framework (Wales)**

[The aim of these apprenticeship frameworks is to train new entrants and upskill the existing workforce to the industry recognised standard of competence in the appropriate rail infrastructure engineering disciplines. These apprenticeships will also aim to meet current and future skills needs by supporting retention, motivation and performance, providing apprentices with the skills, underpinning knowledge and transferable skills required to carry out a wide variety of defined operative/semi-skilled, craft and technician roles through the pathways described.

The objectives of this apprenticeship are to:

- provide a structured training programme to develop and upskill the workforce
- provide training to a common national standard that enables individuals to move between employers in the rail industry
- attract new people into the Welsh rail sector from a diverse range of backgrounds to replace those who naturally leave the sector and those 11% who are 60+ who will retire sometime in the next 5 years
- provide apprentices with the relevant operator, semi-skilled, craft or technician skills required by Welsh rail engineering employers
- ensure apprentices can undertake rail infrastructure operations safely and effectively
- improve overall operational performance through improving skills
- help improve recruitment and retention rates within the industry by offering appropriate career progression
- improve productivity rates and thus profitability (GVA per employee)
- tackle the diversity issue within the sector, especially under representation of women (only 4.4% of the workforce is female, compared to 50% for all sectors in Wales).
- increase the overall level of participation in apprenticeship training from its current 9%
- increase the level of general literacy and numeracy through ESQ
- develop apprentices' employability and skills making them more attractive to all employers whichever career they choose.]

# Entry conditions for this framework

The Level 2 framework offers a range of occupations via 3 pathways. Employers are looking to attract applicants who want to apply engineering principles, enjoy solving problems, and are willing to work shifts.

As a guide, the Foundation Apprenticeship in Rail Infrastructure Engineering is suitable for applicants who have four relevant GCSEs grades D to E in English, Maths and a Science. The selection process on behalf of employers may include initial assessment where applicants will be asked if they have any qualifications or experience that can be accredited against the requirements of the apprenticeship. They may also be required to take tests in basic numeracy and literacy, communication skills and spatial awareness. There may also be an interview to ensure applicants have selected the right occupational sector and are motivated to become an apprentice, as undertaking an apprenticeship is a major commitment for both the individual and the employer.

Applicants who have completed the Welsh Baccalaureate may have completed units or short courses which will provide underpinning knowledge towards the Foundation Apprenticeship. This will be assessed during an initial assessment allowing Recognition of Prior Learning (RPL), where appropriate.

Employers would be interested in applicants who:

- are keen and motivated to work in a rail engineering environment or
- are willing to undertake a course of training both on-the-job and off-the-job and apply this learning in the workplace or
- have previous work experience or employment in the rail sector or
- have completed an Enhanced Engineering Programme (formerly Pathways to Apprenticeship programme) in a relevant discipline or
- have GCSEs grades D to E in English, Maths and Science or
- have a Welsh Baccalaureate or
- without formal qualifications can show, possibly through a portfolio, that they have the potential to complete this apprenticeship, through having previously worked in the sector at Level 2 or
- have completed the Essential Skills Wales (ESW) or Essential Skills Qualifications (ESQ) qualifications or
- have completed tests in basic numeracy, literacy and communication skills and have spatial awareness and
- are able and prepared to work outside often in challenging weather environments.

Due to the safety critical nature of the role, applicants should be prepared to:

- go through checks for physical health including hearing and eyesight (colour blindness)
- be tested for drugs and alcohol abuse
- undergo checks through the Criminal Records Bureau.

## *Initial Assessment*

Training providers/colleges and employers will use initial assessment to ensure that applicants have a fair opportunity to demonstrate their ability and to tailor programmes to meet individual needs, recognising prior qualifications and experience.

### *Rules to avoid the need to repeat qualifications*

To avoid the need to repeat qualifications, processes exist to ensure applicants with prior knowledge, qualifications and/or experience are not disadvantaged. Colleges, Training Providers and Awarding Organisations will be able to advise applicants on the current rules for accrediting prior learning (APL) and experience. There are no relaxations or proxies for any qualifications specified in a framework in SASW, however providers are encouraged to identify additional on-the-job training programmes that customise the learning to the new workplace.

It is understood that where applicants have accredited prior learning that apprentices must be offered training which helps them to deliver new skills and learning at a higher level.

### *Essential Skills Qualifications*

Changes in 2016 include a new set of Essential Skills Qualifications (ESQ): Essential Communication Skills, Essential Application of Number Skills, and Essential Digital Literacy Skills. Learners who have enrolled prior to 31st December 2015 can continue to work towards either Key Skills / Essential Skills Wales (AON, Comms, and ICT / Digital Literacy) which will be accepted within SASW.

Any apprentices registered on a SASW Apprenticeship **on or after 1st January 2016 must undertake** the required mandatory new ESQ in Communication Skills and Application of Number Skills at Level 1, although the industry via the OLEC partners have indicated that ICT/Digital Literacy is not required for this job role.

Essential Skills Wales or ESQ qualifications achieved in the context of the Welsh Baccalaureate Qualification (WBQ) can be accepted, provided the specific certification of the title(s) and level(s) of those ESW/ESQ qualifications is provided. The WBQ certificate itself does not provide this specific evidence.

### *Note:*

As from 1st September 2015 there are new GCSEs with ESQ content that can be considered as proxies - these are listed in the front of this framework document.

The Welsh Baccalaureate Qualification (WBQ) is also changing this year and the certification will include the ESQ and GCSE components. Candidates undertaking the new WBQ will not be required to provide individual certificates as evidence.

### *Knowledge qualifications*

If applicants already have one of the knowledge qualifications or individual QCF units at Level 2 (see knowledge qualifications page) before starting their apprenticeship, they may count this and will not have to repeat the qualification providing they have achieved this qualification within five years of starting their apprenticeship. For example, they may have already achieved the knowledge element as part of the Welsh Baccalaureate. Furthermore the hours that were spent gaining the qualification may be counted towards the total hours for the apprenticeship.

The Welsh Baccalaureate with its Core programme of personal learning and development studies along with options such as NVQs, Vocational Qualifications and Principal Learning (Engineering World, Discovering Engineering Technology and Engineering the Future) could

provide significant opportunities for accreditation of Prior Learning against the components of this framework. The same processes can be applied to GCSEs. Training providers/colleges should be able to advise entrants on the potential reduction in programme duration that could result from accrediting previous qualifications and experience.

#### *Competence qualifications*

If applicants already have one of the competence qualifications at Level 2 (see competence qualifications page) before starting their apprenticeship, they may count this and will not have to repeat the qualification providing they have achieved this qualification within five years of starting their apprenticeship. The hours that were spent gaining the competence qualification may be counted towards the total hours for the apprenticeship.

It is important however that there is agreement between the employer and the apprentice that the applicant is currently competent.

#### *Wider Key Skills*

Wider Key Skills qualifications are no longer required for this framework.

**Note:** Apprentices already registered on an earlier framework can have Wider Key Skills qualifications previously attained in the context of the Welsh Baccalaureate Qualification (WBQ) accepted, provided the specific proof of certification of the title(s) and level(s) of those qualifications is provided. The WBQ certificate does not provide this specific evidence.

#### *Prior experience in the sector*

Applicants that are already working in the sector or who have recently worked in the sector at the appropriate level can apply to have their experience formally recognised by an Awarding Organisation and this could count towards the qualification(s) in this framework.

**The Level 3 framework** offers a broad range of occupations via 4 pathways. Employers would welcome applicants from a wide and diverse background and wish to attract applicants who have an interest to work in a rail engineering environment.

As a guide, the Apprenticeship in Rail Infrastructure is suitable for applicants who have four GCSEs grade C or above including Maths, English, and a Science. This is not a hard and fast rule but may vary according to the pathway chosen (craft or technician) and the suitability of individual applicants.

Applicants who have completed the Welsh Baccalaureate may have completed units or short courses which will provide underpinning knowledge towards the Apprenticeship. This will be assessed during an initial assessment allowing Recognition of Prior Learning (RPL), where appropriate.

Employers would be interested in applicants who:

- have completed a Foundation Apprenticeship at Level 2 in the relevant rail infrastructure occupational discipline or
- have GCSEs in English, Maths and a Science - grade C or above or
- have a Welsh Baccalaureate or
- have previous work experience or employment in the rail sector or
- without formal qualifications can show, possibly through a portfolio, that they have the potential to complete this apprenticeship, through having previously worked in the rail sector at Level 3 or

- are willing to undertake a course of training both on-the-job and off-the-job and apply this learning in the workplace or
- have completed the Essential Skills Wales (ESW) or Essential Skills Qualifications (ESQ) qualifications or
- are keen and motivated to work in a rail engineering environment or
- have the ability to follow instructions and diagrams
- have literacy and numeracy skills to work with data
- are a good team worker, who can also work under own initiative
- are keen and motivated to work in a rail engineering environment
- are able and prepared to work outside, often in challenging weather environments.

Due to the safety critical nature of the role, applicants should be prepared to:

- go through checks for physical health including hearing and eyesight (colour blindness)
- be tested for drugs and alcohol abuse
- undergo checks through the Criminal Records Bureau.

#### *Selection Process*

The selection process on behalf of employers may include initial assessment activity such as tests in basic numeracy, literacy, communication skills and spatial awareness. There may also be an interview to ensure potential apprentices have selected the right occupational sector to meet their needs and expectations and those of their employer, as undertaking an apprenticeship is a major commitment for both the individual and the employer.

#### *Rules to avoid the need to repeat qualifications*

To avoid the need to repeat qualifications, processes exist to ensure applicants with prior knowledge, qualifications and/or experience are not disadvantaged. Colleges, Training Providers and Awarding Organisations will be able to advise applicants on the current rules for accrediting prior learning (APL) and experience. There are no relaxations or proxies for any qualifications specified in a framework in SASW, however, providers are encouraged to identify additional on-the-job training programmes that customise the learning to the new workplace.

#### *Essential Skills Qualifications*

Changes in 2016 include a new set of Essential Skills Qualifications (ESQ): Essential Communication Skills, Essential Application of Number Skills, and Essential Digital Literacy Skills. Learners who have enrolled prior to 31st December 2015 can continue to work towards either Key Skills / Essential Skills Wales (AON, Comms, and ICT / Digital Literacy) which will be accepted within SASW.

Any apprentices registered on a SASW Apprenticeship on or after 1st January 2016 must undertake the required mandatory new ESQ in Communication Skills and Application of Number Skills at Level 2, although the industry via the OLEC partners have indicated that ICT/Digital Literacy is not required for this job role.

Essential Skills Wales or ESQ qualifications achieved in the context of the Welsh Baccalaureate Qualification (WBQ) can be accepted, provided the specific certification of the title(s) and level(s) of those ESW/ESQ qualifications is provided. The WBQ certificate itself does not provide this specific evidence.

#### *Note:*

As from 1st September 2015 there are new GCSEs with ESW content that can be considered as proxies in the future - these are listed at the front of this framework document.

The Welsh Baccalaureate Qualification (WBQ) is also changing later this year and the certification will include the ESQ and GCSE components. Candidates undertaking the new WBQ will not be required to provide individual certificates as evidence.

#### *Knowledge qualifications*

If applicants already have one of the knowledge qualifications or individual QCF units at Level 3 (see knowledge qualifications page) before starting their apprenticeship, they may count this and will not have to repeat the qualification providing they have achieved this qualification within five years of starting their apprenticeship. For example, they may have already achieved the knowledge element as part of the Welsh Baccalaureate. Furthermore the hours that were spent gaining the qualification may be counted towards the total hours for the apprenticeship.

The Welsh Baccalaureate with its Core programme of personal learning and development studies along with options such as NVQs, Vocational Qualifications and Principal Learning (Engineering World, Discovering Engineering Technology and Engineering the Future) could provide significant opportunities for accreditation of Prior Learning against the components of this framework. The same processes can be applied to GCSEs. Training providers/colleges should be able to advise entrants on the potential reduction in programme duration that could result from accrediting previous qualifications and experience.

#### *Competence qualifications*

If applicants already have one of the competence qualifications at Level 3 (see competence qualifications page) before starting their apprenticeship, they may count this and will not have to repeat the qualification providing they have achieved this qualification within five years of starting their apprenticeship. It is important however that there is agreement between the employer and the apprentice that the applicant is currently competent. As is the case with the knowledge element above the hours that were spent gaining the competence qualification may be counted towards the total hours for the apprenticeship.

#### *Wider Key Skills*

Wider Key Skills qualifications are no longer required for this framework.

**Note:** Apprentices already registered on an earlier framework can have Wider Key Skills qualifications previously attained in the context of the Welsh Baccalaureate Qualification (WBQ) accepted, provided the specific proof of certification of the title(s) and level(s) of those qualifications is provided. The WBQ certificate does not provide this specific evidence.

#### *Prior experience in the sector*

Applicants that are already working in the sector or who have recently worked in the sector at the appropriate level can apply to have their experience formally recognised by an Awarding Organisation and this could count towards the qualification(s) in this framework.



# Level 2

Title for this framework at level 2

# Foundation Apprenticeship in Rail Infrastructure Engineering

Pathways for the framework at level 2:

- Pathway 1: Track Maintenance
- Pathway 2: Electrification
- Pathway 3: Signal Installation



# Level 2, Pathway 1: Track Maintenance

## Description of this pathway

Pathway duration approximately 18 months depending on the qualification and unit options selected

Total minimum credit value (made up of the total on and off-the-job training for all the components) = 77 credits

*Pathway with minimum total learning hours = 545 training hours*

- Competence = minimum 179 hours/ minimum 37 credits
- Knowledge = minimum 180 hours (smallest technical certificate training hours)
- Knowledge = minimum 28 credits (smallest technical certificate credit)
- Essential Skills (notional value 60 hours x 2) = 120 hours /12 credits
- Mentoring 66 weeks x 1 hour/week = 66 hours Year 1 =

363 Hours Year 2 = 182 Hours **Minimum credit value =**

**77 credits**

*Minimum off-the-job training hours = 366 training hours*

Knowledge - Pearson BTEC Level 2 Extended Certificate in Engineering (QCF) (180 training hours) plus 186 additional training hours for Essential Skills Qualifications and Mentoring

## Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions

Job title(s)	Job role(s)
Track Maintenance Operative	Inspecting track, undertaking both visual inspections and the use of measuring devices; carrying out general track upkeep and maintenance tasks using manual and automated tools.

# Qualifications

## Competence qualifications available to this pathway

### C1 – Level 2 NVQ Diploma in Rail Engineering Track Maintenance (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	601/0198/2	EAL	37	179	N/A
C1b	600/1076/9	City & Guilds	37	179	N/A

## Knowledge qualifications available to this pathway

### K1 – EAL Level 2 Certificate In Rail Engineering Underpinning Knowledge (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	601/0160/X	EAL	28	280	N/A

### K2 – City & Guilds Level 2 Certificate in Rail Underpinning Knowledge (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K2a	501/2174/1	City & Guilds	28	280	N/A

### K3 – Pearson BTEC Level 2 Extended Certificate in Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K3a	500/7577/9	Pearson	30	180	N/A

## Combined qualifications available to this pathway

N/A

## Relationship between competence and knowledge qualifications

The competence qualification, C1, has been developed to support job roles in Track Maintenance.

*K1 - K3 provide general theoretical underpinning engineering knowledge to support C1.*

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications support key areas of technical knowledge development needed for apprentices in the rail engineering industry to carry out their duties in a safe and efficient manner. Delivery methods for knowledge based qualifications may vary, from a conventional college based environment, to delivery through a combination of this and written/web-based/distance learning materials.

Employers have agreed that their apprentices should have access to a number of different technical knowledge qualifications that specify varying degrees of theoretical concepts required, including a broad range of mathematical, scientific and engineering principles and processes.

# Essential Skills

An apprenticeship framework must specify as a Welsh certificate requirement the expected achievement levels of Essential Skills in Communication and the Application of Number.

Where Essential Skills qualifications are specified in an apprenticeship framework, the apprenticeship framework must specify the acceptance of a recognised proxy qualification for Communication and Application of Number.

## Communication

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Communication achievement above the minimum SASW requirement?**    **YES**     **NO**

If YES, please state the grade/level required for English and give a brief **REASON** as to why this is required: [Enter alternative grade/level requirements and reasons here.]

## Application of Number

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Application of Number achievement above the minimum SASW requirement?**    **YES**     **NO**

If YES, please state the grade/level required for Maths and give a brief **REASON** as to why this is required: [Enter alternative grade/level requirements and reasons here.]

## Inclusion of Digital Literacy (ICT)

Digital Literacy (ICT) is an **optional** framework requirement.

Is Digital Literacy a requirement in this framework?    **YES**     **NO**

# Progression routes into and from this pathway

## *Progression routes into this pathway*

Entrants to this pathway are likely to primarily be school leavers who have completed their GCSE or Welsh Baccalaureate studies, and in some cases relevant vocational activity such as a Pre-Apprenticeship programme or extended work experience.

More specifically they may:

- have previous employment or work experience in the rail sector or
- have completed a 14 to 19 Diploma in Engineering or
- have GCSE's in English, Maths and a Science (grade D to E or higher) or
- have a Welsh Baccalaureate or
- have completed an Enhanced Engineering Programme (formerly Pathways to Apprenticeship programme) or
- be keen and motivated to work in the rail engineering sector or
- be practically minded and want to work with their hands or
- be willing to undertake a course of training both on-the-job and off-the job and apply this learning in the workplace or
- have completed a Pre-Apprenticeship in Engineering or other related area or
- have completed the Essential Skills Wales (ESW) or Essential Skills Qualifications (ESQ) or
- have an interest in problem solving and organising activities or
- have completed tests in basic numeracy, literacy and communications skills and have spatial awareness.

Other entrants may have experience from working in the sector, and are now seeking to become qualified by undertaking an apprenticeship programme.

Particular interest would be shown to those applicants who have had previous work experience or employment in the rail sector.

## *Progression routes from this pathway*

On completion of the Foundation Apprenticeship, individuals may continue working as Track Operatives or can go on to become team leaders and supervisors. Alternatively completion of the Level 2 Foundation Apprenticeship in Rail Infrastructure (Track) may support progression onto the Level 3 Apprenticeship in Rail Infrastructure.

## *Useful websites*

To further assist apprentices plan their careers we recommend they visit the following websites:

<https://nationalcareersservice.direct.gov.uk/advice/planning/jobprofiles/Pages/RailEngineeringTechnician.aspx>

<http://www.networkrail.co.uk/careers/>

[www.nsare.org](http://www.nsare.org) |

**UCAS points for this pathway:**

|N/A|

# Employee rights and responsibilities

Please note that for Apprenticeship starts from 14/10/2016 onwards ERR is no longer a **mandatory** requirement in all frameworks.

However, it may still be included in some frameworks and where it is not explicitly stated that ERR is not a requirement then confirmation of an Apprentice's ERR achievement will still remain a requirement for Apprenticeship certification purposes.

Is ERR a requirement for this framework? **YES**  **NO**

## Delivery and assessment

**Employee Rights and Responsibilities (ERR) is no longer compulsory**, but Semta recommends that all apprentices (especially the 16 years -18 years group) receive it as part of their induction.

There are two methods of achieving ERR as set out below:

### *Method 1 - Qualifications*

**1a.** EAL have produced a stand-alone qualification that covers all 9 outcomes of ERR requirements.

Qualification details:

EAL Level 2 Award in Employment Rights and Responsibilities for new Entrants into the Science, Engineering and Manufacturing Sectors (QCF)

QCF qualification ref no: 600/0290/6

Credit value: 5 credits

Training hours: 41

**1b.** ERR is covered by completion of the Employment Rights and Responsibilities unit which is embedded within the City & Guilds and EAL competency and knowledge qualifications in the framework. The Apprentice must elect to complete this unit as part of the competency qualifications. This unit has been specifically developed to cover all nine national outcomes for ERR. ERR will automatically be evidenced at certification by the achievement of these qualifications.

For this pathway the competency qualification is the Level 2 NVQ Diploma In Rail Engineering Track Maintenance (QCF) and the additional unit required is Employment Rights and Responsibilities in the Passenger Transport Sector. Evidence of completion of this unit is required for certification of the framework. The awarding organisations offering this qualification are listed below:

- EAL 601/0198/2 and City & Guilds 600/1076/9

**1c.** Pearson have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements if Unit 2 is achieved.

Qualification details:

Pearson BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)

QCF qualification ref no: 501/1793/2

Credit value: 4 credits Training hours: 40

**Please note:** The Pearson BTEC Level 2 Award consists of a mandatory unit as an introduction to apprenticeships. Apprentices **must then complete Unit 2** which covers the ERR requirements (included within content). This qualification is designed to be assessed in the context of the sector relevant to the apprenticeship framework being undertaken (ie rail engineering in this case).

**1d.** City & Guilds have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements.

Qualification details:

City & Guilds Level 2 Subsidiary Award in Employment and Personal Learning at Work (QCF)

QCF qualification ref no: 600/2819/1

Credit value: 2 credits

Training hours: 15

**Please note:** Although it may be possible to complete ERR in a minimum of 15 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

**1e.** Agored Cymru have developed an on-line learning and assessment package that supports learners achieve accreditation for ERR for Welsh apprenticeship frameworks.

Qualification details:

Agored Cymru Level 2 Award In Employment Rights and Responsibilities (QCF)

QCF qualification ref no: 600/7776/1

Credit value: 3

Training hours: 24

**Please note:** Although it may be possible to complete ERR in a minimum of 24 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

These qualifications will enable apprentices to both know and understand the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

*Apprentices achieving the qualifications will have demonstrated that they have the underpinning knowledge relevant for the rail engineering environment which satisfies the Specification for Apprenticeship Standards for Wales.*

*Method 2 - Workbook*

Semta has produced an Apprentice ERR workbook that is available from: [customercare@eal.org.uk](mailto:customercare@eal.org.uk)



The requirements for completing it must be explained to the apprentice right at the start of their training in order that they may take full advantage of their \*company induction where significant amounts of information towards the national outcomes will be covered. The workbook is intended to enable apprentices to know, understand and record the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

**\*Please note:** All apprentices must receive a company induction programme. ]

# Level 2, Pathway 2: Electrification

## Description of this pathway

Pathway duration approximately 18 months depending on the qualification and unit options selected

Total minimum credit value (made up of the total on- and off-the-job training for all the components) = 60 credits

*Pathway with minimum total learning hours = 588 training hours*

- Competence = minimum 122 hours/ minimum 20 credits
- Knowledge = minimum 280 hours (smallest technical certificate training hours)
- Knowledge = minimum 28 credits (smallest technical certificate credit)
- Essential Skills (notional value 60 hours x 2) = 120 hours /12 credits
- Mentoring 66 weeks x 1 hour/week = 66 hours

Year 1 = 392 Hours Year 2 = 196 Hours

*Minimum credit value = 60 credits*

### **Minimum off-the-job training hours = 466 training hours**

Knowledge - City & Guilds Level 2 Certificate in Rail Engineering Underpinning Knowledge (QCF) (280 training hours) plus 186 additional training hours for Essential Skills Qualifications and Mentoring

## Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions

Job title(s)	Job role(s)
<p>Electrification Maintenance Fitter</p>	<p>Carry out linesman maintenance engineering work, example activities: reading of technical drawings, use of measuring equipment. Use of looselifting tackle for which you are trained and are competent to use. Operate equipment for the maintenance of OLE structures on the railway infrastructure</p>

# Qualifications

## Competence qualifications available to this pathway

### C1 – City & Guilds Level 2 NVQ Certificate in Rail Engineering Electrification Maintenance (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	600/3243/1	City & Guilds	20	122	N/A

### C2 – City & Guilds Level 2 NVQ Certificate in Rail Engineering Electrification Construction (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C2a	600/3242/X	City & Guilds	20	122	N/A

## Knowledge qualifications available to this pathway

### K1 – City & Guilds Level 2 Certificate in Rail Engineering Underpinning Knowledge (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	501/2174/1	City & Guilds	28	280	N/A

### K2 – EAL Level 2 Certificate In Rail Engineering Underpinning Knowledge (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K2a	601/0160/X	EAL	28	280	N/A

## Combined qualifications available to this pathway

N/A

## Relationship between competence and knowledge qualifications

The competence qualifications C1 and C2 have been developed to support job roles in rail engineering electrification.

*K1 and K2 provide the general theoretical underpinning engineering knowledge to support C1 and C2.*

The designated technical certificate underpins the knowledge elements of the competence qualifications in this pathway. The knowledge qualification supports key areas of technical knowledge development needed for apprentices in the rail engineering industry to carry out their duties in a safe and efficient manner. Delivery methods for knowledge based qualifications may vary, from a conventional college based environment, to delivery through a combination of this and written/web-based/distance learning materials.

Employers have agreed that their apprentices should have access to a number of different technical knowledge qualifications that specify varying degrees of theoretical concepts required, including a broad range of mathematical, scientific and engineering principles and processes.

# Essential Skills

An apprenticeship framework must specify as a Welsh certificate requirement the expected achievement levels of Essential Skills in Communication and the Application of Number.

Where Essential Skills qualifications are specified in an apprenticeship framework, the apprenticeship framework must specify the acceptance of a recognised proxy qualification for Communication and Application of Number.

## Communication

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Communication achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for English and give a brief **REASON** as to why this is required: Enter alternative grade/level requirements and reasons here.

## Application of Number

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Application of Number achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for Maths and give a brief **REASON** as to why this is required: Enter alternative grade/level requirements and reasons here.

## Inclusion of Digital Literacy (ICT)

Digital Literacy (ICT) is an **optional** framework requirement.

Is Digital Literacy a requirement in this framework?    **YES**        **NO**

# Progression routes into and from this pathway

## *Progression routes into this pathway*

Entrants to this pathway are likely to primarily be school leavers who have completed their GCSE or Welsh Baccaalaureate studies, and in some cases relevant vocational activity such as a Pre-Apprenticeship programme or extended work experience.

More specifically they may:

- have previous employment or work experience in the rail sector or
- have completed a 14 to 19 Diploma in Engineering or
- have GCSE's in English, Maths and a Science (grade D to E or higher) or
- have completed an Enhanced Engineering Programme (formerly Pathways to Apprenticeship programme) or
- have a Welsh Baccaalaureate or
- be keen and motivated to work in the rail engineering sector or
- be practically minded and want to work with their hands or
- be willing to undertake a course of training both on-the-job and off-the job and apply this learning in the workplace or
- have completed a Pre-Apprenticeship in Engineering or other related area or
- have completed the Essential Skills Wales (ESW) or Essential Skills Qualifications (ESQ) qualifications or
- have an interest in problem solving and organising activities or
- have completed tests in basic numeracy, literacy and communications skills and have spatial awareness.

Other entrants may have experience from working in the sector, and are now seeking to become qualified by undertaking an apprenticeship programme. Particular interest would be shown to those applicants who have had previous work experience or employment in the rail sector.

## *Progression routes from this pathway*

On completion of the Foundation Apprenticeship, individuals may continue working as Electrification Maintenance Operatives or can go on to become team leaders and supervisors. Alternatively completion of the Level 2 Foundation Apprenticeship in Rail Infrastructure (Electrification) may support progression onto the Level 3 Apprenticeship in Rail Infrastructure.

## *Useful websites*

To further assist apprentices plan their careers we recommend they visit the following websites:

<https://nationalcareersservice.direct.gov.uk/advice/planning/jobprofiles/Pages/RailEngineeringTechnician.aspx>

<http://www.networkrail.co.uk/careers/>

[www.nsare.org](http://www.nsare.org)

## **UCAS points for this pathway:**

N/A

# Employee rights and responsibilities

Please note that for Apprenticeship starts from 14/10/2016 onwards ERR is no longer a **mandatory** requirement in all frameworks.

However, it may still be included in some frameworks and where it is not explicitly stated that ERR is not a requirement then confirmation of an Apprentice's ERR achievement will still remain a requirement for Apprenticeship certification purposes.

Is ERR a requirement for this framework? **YES**  **NO**

## Delivery and assessment

**Employee Rights and Responsibilities (ERR) is no longer compulsory**, but Semta recommends that all apprentices (especially the 16 years -18 years group) receive it as part of their induction.

There are two methods of achieving ERR as set out below:

### *Method 1 - Qualifications*

**1a.** EAL have produced a stand-alone qualification that covers all 9 outcomes of ERR requirements.

Qualification details:

EAL Level 2 Award in Employment Rights and Responsibilities for new Entrants into the Science, Engineering and Manufacturing Sectors (QCF)

QCF qualification ref no: 600/0290/6

Credit value: 5 credits

Training hours: 41

**1b.** ERR is covered by completion of the Employment Rights and Responsibilities unit which is embedded within the City & Guilds and EAL competency and knowledge qualifications in the framework. The Apprentice must elect to complete this unit as part of the competency qualifications. This unit has been specifically developed to cover all nine national outcomes for ERR. ERR will automatically be evidenced at certification by the achievement of these qualifications.

For this pathway the competency qualification is the City & Guilds Level 2 NVQ Certificate in Rail Engineering Electrification Maintenance (QCF) and City & Guilds Level 2 NVQ Certificate in Rail Engineering Electrification Construction (QCF) and the additional unit required is Employment Rights and Responsibilities in the Passenger Transport Sector. Evidence of completion of this unit is required for certification of the framework. The awarding organisation offering these qualifications is listed below:

- City & Guilds 600/3243/1
- City & Guilds 600/3242/X

**1c.** Pearson have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements if Unit 2 is achieved.



Qualification details:

Pearson BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)

QCF qualification ref no: 501/1793/2

Credit value: 4 credits

Training hours: 40

**Please note:** The Pearson BTEC Level 2 Award consists of a mandatory unit as an introduction to apprenticeships. Apprentices **must then complete Unit 2** which covers the ERR requirements (included within content). This qualification is designed to be assessed in the context of the sector relevant to the apprenticeship framework being undertaken (ie rail engineering in this case).

**1d.** City & Guilds have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements.

Qualification details:

City & Guilds Level 2 Subsidiary Award in Employment and Personal Learning at Work (QCF)

QCF qualification ref no: 600/2819/1

Credit value: 2 credits

Training hours: 15

**Please note:** Although it may be possible to complete ERR in a minimum of 15 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

**1e.** Agored Cymru have developed an on-line learning and assessment package that supports learners achieve accreditation for ERR for Welsh apprenticeship frameworks.

Qualification details:

Agored Cymru Level 2 Award In Employment Rights and Responsibilities (QCF)

QCF qualification ref no: 600/7776/1

Credit value: 3

Training hours: 24

**Please note:** Although it may be possible to complete ERR in a minimum of 24 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

These qualifications will enable apprentices to both know and understand the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

Apprentices achieving the qualifications will have demonstrated that they have the underpinning knowledge relevant for the rail engineering environment which satisfies the Specification for Apprenticeship Standards for Wales.

Method 2 - Workbook

Semta has produced an Apprentice ERR workbook that is available from: [customercare@eal.org.uk](mailto:customercare@eal.org.uk)

The requirements for completing it must be explained to the apprentice right at the start of their training in order that they may take full advantage of their \*company induction where significant amounts of information towards the national outcomes will be covered. The workbook is intended to enable apprentices to know, understand and record the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

**\*Please note:** All apprentices must receive a company induction programme.

# Level 2, Pathway 3: Signal Installation

## Description of this pathway

Pathway duration approximately 18 months depending on the qualification and unit options selected

Total minimum credit value (made up of the total on- and off-the-job training for all the components) = 57 credits

*Pathway with minimum total learning hours = 549 training hours*

- Competence = minimum 83 hours/ minimum 17 credits
- Knowledge = minimum 280 hours (smallest technical certificate training hours)
- Knowledge = minimum 28 credits (smallest technical certificate credit)
- Essential Skills (notional value 60 hours x 2) = 120 hours /12 credits
- Mentoring 66 weeks x 1 hour/week = 66 hours

Year 1 = 366 Hours Year 2 = 183 Hours

*Minimum credit value = 57 credits*

### **Minimum off-the-job training hours = 466 training hours**

Knowledge - City & Guilds Level 2 Certificate in Rail Engineering Underpinning Knowledge (QCF) (280 training hours) plus 186 additional training hours for Essential Skills Qualifications and Mentoring

## Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions

Job title(s)	Job role(s)
Signal Installation Assistant	Assist the Technician - obtain information for work activities, check safe access to work locations, carry out the installation, wiring and termination of signalling, reinstate the work area, assist with tests and check the signalling equipment to establish compliance with specifications

# Qualifications

## Competence qualifications available to this pathway

### C1 – City & Guilds Level 2 NVQ Certificate in Railway Engineering Signalling Installer (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	QAN	X	X	X	N/A

## Knowledge qualifications available to this pathway

### K1 – City & Guilds Level 2 Certificate in Rail Engineering Underpinning Knowledge (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	501/2174/1	City & Guilds	28	280	N/A

### K2 – - EAL Level 2 Certificate in Rail Engineering Underpinning Knowledge (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K2a	601/0160/X	EAL	28	280	N/A

## Combined qualifications available to this pathway

N/A

## Relationship between competence and knowledge qualifications

The competence qualification, C1, has been developed to support job roles in Signal Installation.

*K1 and K2 provide general theoretical underpinning engineering knowledge to support C1.*

The designated technical certificate underpins the knowledge elements of the competence qualification in this pathway. The knowledge qualifications support key areas of technical knowledge development needed for apprentices in the rail engineering industry to carry out their duties in a safe and efficient manner. Delivery methods for knowledge based qualifications may vary, from a conventional college based environment, to delivery through a combination of this and written/web-based/distance learning materials.

Employers have agreed that their apprentices should have access to a number of different technical knowledge qualifications that specify varying degrees of theoretical concepts required, including a broad range of mathematical, scientific and engineering principles and processes.

# Essential Skills

An apprenticeship framework must specify as a Welsh certificate requirement the expected achievement levels of Essential Skills in Communication and the Application of Number.

Where Essential Skills qualifications are specified in an apprenticeship framework, the apprenticeship framework must specify the acceptance of a recognised proxy qualification for Communication and Application of Number.

## Communication

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Communication achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for English and give a brief **REASON** as to why this is required: Enter alternative grade/level requirements and reasons here.

## Application of Number

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Application of Number achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for Maths and give a brief **REASON** as to why this is required: Enter alternative grade/level requirements and reasons here.

## Inclusion of Digital Literacy (ICT)

Digital Literacy (ICT) is an **optional** framework requirement.

Is Digital Literacy a requirement in this framework?    **YES**        **NO**

# Progression routes into and from this pathway

## *Progression routes into this pathway*

Entrants to this pathway are likely to primarily be school leavers who have completed their GCSE or Welsh Baccalaureate studies, and in some cases relevant vocational activity such as a Pre-Apprenticeship programme or extended work experience.

More specifically they may:

- have previous employment or work experience in the rail sector or
- have completed a 14 to 19 Diploma in Engineering or
- have GCSE's in English, Maths and a Science (grade D to E or higher) or
- have completed an Enhanced Engineering Programme (formerly Pathways to Apprenticeship programme) or
- have a Welsh Baccalaureate or
- be keen and motivated to work in the rail engineering sector or
- be practically minded and want to work with their hands or
- be willing to undertake a course of training both on-the-job and off-the job and apply this learning in the workplace or
- have completed a Pre-Apprenticeship in Engineering or other related area or
- have completed the Essential Skills Wales (ESW) or Essential Skills Qualifications (ESQ) qualifications or
- have an interest in problem solving and organising activities or
- have completed tests in basic numeracy, literacy and communications skills and have spatial awareness.

Other entrants may have experience from working in the sector, and are now seeking to become qualified by undertaking an apprenticeship programme. Particular interest would be shown to those applicants who have had previous work experience or employment in the rail sector.

## *Progression routes from this pathway*

On completion of the Foundation Apprenticeship, individuals may continue working as Signal Installation Operatives or can go on to become team leaders and supervisors. Alternatively completion of the Level 2 Foundation Apprenticeship in Rail Infrastructure (Signal Installation) may support progression onto the Level 3 Apprenticeship in Rail Infrastructure.

## *Useful websites*

To further assist apprentices plan their careers we recommend they visit the following websites:

<https://nationalcareersservice.direct.gov.uk/advice/planning/jobprofiles/Pages/RailEngineeringTechnician.aspx>  
<http://www.networkrail.co.uk/careers/>  
[www.nsare.org](http://www.nsare.org)

## **UCAS points for this pathway:**

N/A



# Employee rights and responsibilities

Please note that for Apprenticeship starts from 14/10/2016 onwards ERR is no longer a **mandatory** requirement in all frameworks.

However, it may still be included in some frameworks and where it is not explicitly stated that ERR is not a requirement then confirmation of an Apprentice's ERR achievement will still remain a requirement for Apprenticeship certification purposes.

Is ERR a requirement for this framework? **YES**  **NO**

## Delivery and assessment

**Employee Rights and Responsibilities (ERR) is no longer compulsory**, but Semta recommends that all apprentices (especially the 16 years -18 years group) receive it as part of their induction.

There are two methods of achieving ERR as set out below:

### *Method 1 - Qualifications*

**1a.** EAL have produced a stand-alone qualification that covers all 9 outcomes of ERR requirements.

Qualification details:

EAL Level 2 Award in Employment Rights and Responsibilities for new Entrants into the Science, Engineering and Manufacturing Sectors (QCF)

QCF qualification ref no: 600/0290/6

Credit value: 5 credits

Training hours: 41

**1b.** ERR is covered by completion of the Employment Rights and Responsibilities unit which is embedded within the City & Guilds and EAL competency and knowledge qualifications in the framework. The Apprentice must elect to complete this unit as part of the competency qualifications. This unit has been specifically developed to cover all nine national outcomes for ERR. ERR will automatically be evidenced at certification by the achievement of these qualifications.

For this pathway the competency qualification is the City & Guilds Level 2 NVQ Certificate in Railway Engineering Signalling Installer (QCF) and the additional unit required is Employment Rights and Responsibilities in the Passenger Transport Sector. Evidence of completion of this unit is required for certification of the framework. The awarding organisation offering this qualification is listed below:

- City & Guilds 600/1567/6

**1c.** Pearson have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements if Unit 2 is achieved.

Qualification details:

Pearson BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)  
QCF qualification ref no: 501/1793/2

Credit value: 4 credits

Training hours: 40

**Please note:** The Pearson BTEC Level 2 Award consists of a mandatory unit as an introduction to apprenticeships. Apprentices **must then complete Unit 2** which covers the ERR requirements (included within content). This qualification is designed to be assessed in the context of the sector relevant to the apprenticeship framework being undertaken (ie rail engineering in this case).

**1d.** City & Guilds have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements.

Qualification details:

City & Guilds Level 2 Subsidiary Award in Employment and Personal Learning at Work (QCF)  
QCF qualification ref no: 600/2819/1

Credit value: 2 credits

Training hours: 15

**Please note:** Although it may be possible to complete ERR in a minimum of 15 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

**1e.** Agored Cymru have developed an on-line learning and assessment package that supports learners achieve accreditation for ERR for Welsh apprenticeship frameworks.

Qualification details:

Agored Cymru Level 2 Award In Employment Rights and Responsibilities (QCF)  
QCF qualification ref no: 600/7776/1

Credit value: 3

Training hours: 24

**Please note:** Although it may be possible to complete ERR in a minimum of 24 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

These qualifications will enable apprentices to both know and understand the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

*Apprentices achieving the qualifications will have demonstrated that they have the underpinning knowledge relevant for the rail engineering environment which satisfies the Specification for Apprenticeship Standards for Wales.*

*Method 2 - Workbook*

Semta has produced an Apprentice ERR workbook that is available from: [customercare@eal.org.uk](mailto:customercare@eal.org.uk)

The requirements for completing it must be explained to the apprentice right at the start of their training in order that they may take full advantage of their \*company induction where significant amounts of information towards the national outcomes will be covered. The workbook is intended to enable apprentices to know, understand and record the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

**\*Please note:** All apprentices must receive a company induction programme.

# Level 3

Title for this framework at level 3

## Apprenticeship in Rail Infrastructure Engineering

Pathways for the framework at level 3:

- |            |                 |
|------------|-----------------|
| Pathway 1: | Signalling      |
| Pathway 2: | Track           |
| Pathway 3: | Telecoms        |
| Pathway 4: | Electrification |

# Level 3, Pathway 1: Signalling

## Description of this pathway

Pathway duration approximately 36 months depending on the qualification and unit options selected

Total minimum credit value (made up of the total on- and off-the-job training for all the components) = 73 credits

*Pathway with minimum total learning hours = 704 training hours*

- Competence = minimum 102 hours/ minimum 15 credits
- Knowledge = minimum 350 hours (smallest technical certificate training hours)
- Knowledge = minimum 46 credits (smallest technical certificate credit )
- Essential Skills (notional value 60 hours x 2) = 120 hours /12 credits
- Mentoring 132 weeks x 1 hour/week = 132 hours

Year 1 = 235 Hours Year 2 = 235 Hours Year 3 = 234 Hours

*Minimum off-the-job training hours = 602 training hours*

Knowledge - EAL Level 3 Diploma In Installation and Maintenance of Engineering Assets (QCF) (350 training hours) plus 252 additional training hours for Essential Skills and Mentoring

**Minimum on-the-job training hours = 102 training hours** and is evidenced by completion of the Level 3 NVQ Certificate in Rail Engineering Signalling Installer (QCF)

*Minimum credit value = 73 credits*

## Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions

Job title(s)	Job role(s)
Junior Signal Technical Engineer	Undertake surveys of the signalling equipment, analyse technical data on signalling equipment performance, maintain records of signalling diagrams and control systems, prepare specifications, assist with method statement preparation and / or plans for design work and requisition of materials
Signal Technician	Inspect control systems, cabling and signals, fault find when there are signal failures, maintain the signals and cabling and replace the signalling assets and components

# Qualifications

## Competence qualifications available to this pathway

### C1 – Level 3 NVQ Diploma in Rail Engineering Signalling Maintainer and Fault Finder (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	600/1491/X	City & Guilds	42	212	N/A
C1b	601/0246/9	EAL	42	212	N/A

### C2 – EAL Level 3 NVQ Diploma in Rail Engineering Signalling Installer (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C2a	601/3865/8	EAL	37	252	N/A

### C3 – EAL Level 3 NVQ Certificate in Rail Engineering Signalling Installer (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C3a	601/3839/7	EAL	15	102	N/A

### C4 – EAL level 3 NVQ Certificate in Rail Engineering Signalling Functional Tester (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C4a	601/3855/5	EAL	29	165	N/A

## Knowledge qualifications available to this pathway

### K1 – Pearson BTEC Level 3 Diploma in Electrical / Electronic Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	500/8098/2	Pearson	120	720	N/A

### K2 – Pearson BTEC Level 3 Diploma in Manufacturing Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K2a	500/7319/9	Pearson	120	720	N/A

### K3 – Pearson BTEC Level 3 Diploma in Operations and Maintenance Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K3a	500/7315/1	Pearson	120	720	N/A

### K4 – City & Guilds Level 3 Diploma in Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K4a	600/0882/9	City & Guilds	54	480	N/A

### K5 – Pearson BTEC Level 3 Subsidiary Diploma in Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K5a	500/7841/0	Pearson	60	360	N/A

### K6 – EAL Level 3 Diploma in Installation and Maintenance of Engineering Assets (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K6a	601/0161/1	EAL	46	350	N/A

### K7 – Pearson BTEC Level 3 Diploma in Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K7a	500/8154/8	Pearson	120	720	N/A



## K8 – EAL Level 3 Diploma in Engineering Technology (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K8a	501/1130/9	EAL	78	600	N/A

## K9 – EAL Level 3 Diploma in Engineering and Technology (Progressive) (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K9a	501/1419/0	EAL	97	750	N/A

## K10 – EAL Level 3 Subsidiary Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K10a	601/5799/9	EAL	48	375	N/A

## K11 – EAL Level 3 Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K11a	601/5801/3	EAL	68	525	N/A

## K12 – EAL Level 3 Extended Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K12a	601/5802/5	EAL	98	750	N/A

### Combined qualifications available to this pathway

N/A

### Relationship between competence and knowledge qualifications

The competence qualification, C1, has been developed to support job roles with varying emphasis on fault finding and rectification of signal engineering assets while C2 and C3 focus on installing signalling equipment, and C4 focuses on testing the signalling equipment.

*K1 - K12 provide general theoretical underpinning engineering knowledge to support C1 - C4.*

However, K1, K2, and K3 would be most suited to an apprentice working towards the Junior Signal Technical Engineer role as they provide an additional emphasis on a particular engineering discipline i.e. electrical/electronic engineering (K1), mechanical engineering (K2) and maintenance engineering (K3). K4 - K12 would be most suited to an apprentice working towards the Signal Technician role. Please note that requirements of individual job roles may vary and the apprentice should undertake the knowledge qualification most relevant to their role.

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications support key areas of technical knowledge development needed for apprentices in the rail engineering industry to carry out their duties in a safe and efficient manner. Delivery methods for knowledge based qualifications may vary, from a conventional college based environment, to delivery through a combination of this and written/web-based/distance learning materials.

Employers have agreed that their apprentices should have access to a number of different technical knowledge qualifications that specify varying degrees of theoretical concepts required, including a broad range of mathematical, scientific and engineering principles and processes.

# Essential Skills

An apprenticeship framework must specify as a Welsh certificate requirement the expected achievement levels of Essential Skills in Communication and the Application of Number.

Where Essential Skills qualifications are specified in an apprenticeship framework, the apprenticeship framework must specify the acceptance of a recognised proxy qualification for Communication and Application of Number.

## Communication

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Communication achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for English and give a brief **REASON** as to why this is required:    Enter alternative grade/level requirements and reasons here.

## Application of Number

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Application of Number achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for Maths and give a brief **REASON** as to why this is required:    Enter alternative grade/level requirements and reasons here.

## Inclusion of Digital Literacy (ICT)

Digital Literacy (ICT) is an **optional** framework requirement.

Is Digital Literacy a requirement in this framework?    **YES**        **NO**

# Progression routes into and from this pathway

## *Progression routes into this pathway*

Entrants to this pathway are likely to primarily be school leavers who have completed their GCSE or Welsh Baccaulaureate studies and in some cases relevant vocational activity such as Pre-Apprenticeship programme or extended work experience.

More specifically they may:

- have GCSEs in English, Maths and a Science - grade C or above or
- have a Welsh Baccaulaureate or
- have completed a 14 to 19 Diploma in Engineering or
- have A or AS levels in Science, Technology, Engineering or Mathematics subjects or
- have completed a Foundation level apprenticeship in Rail Infrastructure Engineering or
- have previous work experience or employment in the Rail or Engineering sector or
- be willing to undertake a course of training both on-the-job and off-the-job and apply this learning in the workplace and
- be keen and motivated to work in a rail engineering environment

Other entrants may have experience from working in the sector, and are now seeking to become qualified by undertaking an apprenticeship programme. Particular interest would be shown to those applicants who have had previous work experience or employment in the rail sector.

## *Progression routes from this pathway*

While significant numbers of Apprentices will seek internal progression to team leader or supervisory roles or follow a route into a senior technical role within their companies, some will want to progress to a Higher Apprenticeship in Engineering (Rail Pathway) and others may decide to opt for a Foundation Degree in Railway Engineering or HNC/HND. More generally, most ex-apprentices aspire to a combination of internal promotion while at the same time undertaking company sponsored qualifications as specified above.

## *Useful websites*

<https://nationalcareersservice.direct.gov.uk/advice/planning/jobprofiles/Pages/RailEngineeringTechnician.aspx>

<http://www.networkrail.co.uk/careers/>

[www.nsare.org](http://www.nsare.org)

## **UCAS points for this pathway:**

N/A

# Employee rights and responsibilities

Please note that for Apprenticeship starts from 14/10/2016 onwards ERR is no longer a **mandatory** requirement in all frameworks.

However, it may still be included in some frameworks and where it is not explicitly stated that ERR is not a requirement then confirmation of an Apprentice's ERR achievement will still remain a requirement for Apprenticeship certification purposes.

Is ERR a requirement for this framework? **YES**  **NO**

## Delivery and assessment

**Employee Rights and Responsibilities (ERR) is no longer compulsory**, but Semta recommends that all apprentices (especially the 16 years -18 years group) receive it as part of their induction.

There are two methods of achieving ERR as set out below:

### *Method 1 - Qualifications*

**1a.** EAL have produced a stand-alone qualification that covers all 9 outcomes of ERR requirements.

Qualification details:

EAL Level 2 Award in Employment Rights and Responsibilities for new Entrants into the Science, Engineering and Manufacturing Sectors (QCF)

QCF qualification ref no: 600/0290/6

Credit value: 5 credits

Training hours: 41

**1b.** ERR is covered by completion of the Employment Rights and Responsibilities unit which is embedded within the City & Guilds and EAL competency qualifications in the framework. The Apprentice must elect to complete this unit as part of the competency qualification. These units has been specifically developed to cover all nine national outcomes for ERR. ERR will automatically be evidenced at certification by the achievement of the qualification.

For this pathway the competency qualification is the Level 3 NVQ Diploma in Rail Engineering Signalling Maintainer and Fault Finder and the additional unit required is Employment Rights and Responsibilities in the Passenger Transport Sector. Evidence of completion of this unit is required for certification of the framework. The awarding organisations offering this qualification are listed below:

- Ref: 600/1491/X (City and Guilds) and 601/0246/9 (EAL)

**1c.** Pearson have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements if Unit 2 is achieved.

Qualification details:

Pearson BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)

QCF qualification ref no: 501/1793/2

Credit value: 4 credits Training hours: 40

**Please note:** The Pearson BTEC Level 2 Award consists of a mandatory unit as an introduction to apprenticeships. Apprentices **must then complete Unit 2** which covers the ERR requirements (included within content). This qualification is designed to be assessed in the context of the sector relevant to the apprenticeship framework being undertaken (ie rail engineering in this case).

**1d.** Pearson have produced a Level 3 stand-alone qualification that can cover all 9 outcomes of ERR requirements if Units 2 and 4 are achieved.

Qualification details:

Pearson BTEC Level 3 Award in WorkSkills for Effective Learning and Employment (QCF)

QCF qualification ref no: 501/1791/9

Credit value: 4 credits

Training hours: 40

The Pearson BTEC Level 3 Award consists of a mandatory unit as an introduction to apprenticeships. Apprentices **must then complete Units 2 and 4** which cover the ERR requirements (included within content). This qualification is designed to be assessed in the rail engineering sector in this case).

**1e.** City & Guilds have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements.

Qualification details:

City & Guilds Level 2 Subsidiary Award in Employment and Personal Learning at Work (QCF)

QCF qualification ref no: 600/2819/1

Credit value: 2 credits

Training hours: 15

**Please note:** Although it may be possible to complete ERR in a minimum of 15 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

**1f.** Agored Cymru have developed an on-line learning and assessment package that supports learners achieve accreditation for ERR for Welsh apprenticeship frameworks.

Qualification details:

Agored Cymru Level 2 Award In  
Employment Rights and  
Responsibilities (QCF)

QCF qualification ref no: 600/7776/1

Credit value: 3

Training hours: 24

**Please note:** Although it may be possible to complete ERR in a minimum of 24 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

These qualifications will enable apprentices to both know and understand the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

Apprentices achieving the qualifications will have demonstrated that they have the underpinning knowledge relevant for the rail engineering environment which satisfies the Specification for Apprenticeship Standards for Wales.

#### *Method 2 - Workbook*

Semta has produced an Apprentice ERR workbook that is available from: [customercare@eal.org.uk](mailto:customercare@eal.org.uk)

The requirements for completing it must be explained to the apprentice right at the start of their training in order that they may take full advantage of their \*company induction where significant amounts of information towards the national outcomes will be covered. The workbook is intended to enable apprentices to know, understand and record the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

**\*Please note:** All apprentices must receive a company induction programme.

# Level 3, Pathway 2: Track

## Description of this pathway

Pathway duration approximately 36 months depending on the qualification and unit options selected

Total minimum credit value (made up of the total on- and off-the-job training for all the components) = 95 credits

*Pathway with minimum total learning hours = 769 training hours*

- Competence = minimum 167 hours/ minimum 37 credits
- Knowledge = minimum 350 hours (smallest technical certificate training hours)
- Knowledge = minimum 46 credits (smallest technical certificate credit )
- Essential Skills (notional value 60 hours x 2) = 120 hours /12 credits
- Mentoring 132 weeks x 1 hour/week = 132 hours

Year 1 = 257 Hours Year 2 = 257 Hours Year 3 = 255 Hours

*Minimum off-the-job training hours = 600 training hours*

Knowledge - EAL Level 3 Diploma In Installation and Maintenance of Engineering Assets (QCF) (350 training hours) plus 250 additional training hours for Essential Skills Qualifications and Mentoring

**Minimum on-the-job training hours = 167 training hours** and is evidenced by completion of the Level 3 NVQ Diploma In Rail Engineering Track Maintenance (QCF)

*Minimum credit value = 95 credits*

## Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions



Job title(s)	Job role(s)
Junior Track Technical Engineer	Undertake track surveys, analyse technical track data, maintain records, prepare specifications for renewals, assist with method statement preparation and/or plans for design work and requisition materials
Track Technician	Inspect track using specialist equipment, fault find when there are track equipment failures, maintain the track and replace the track assets and components

# Qualifications

## Competence qualifications available to this pathway

### C1 – Level 3 NVQ Diploma in Rail Engineering Track Maintenance (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	600/1100/2	City & Guilds	37	167	N/A
C1b	601/0196/9	EAL	37	167	N/A

## Knowledge qualifications available to this pathway

### K1 – Pearson BTEC Level 3 Diploma in Manufacturing Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	500/7319/9	Pearson	120	720	N/A

### K2 – City & Guilds Level 3 Diploma in Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K2a	600/0882/9	City & Guilds	54	480	N/A

### K3 – Pearson BTEC Level 3 Subsidiary Diploma in Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K3a	500/7841/0	Pearson	60	360	N/A

### K4 – EAL Level 3 Diploma in Installation and Maintenance of Engineering Assets (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K4a	601/0161/1	EAL	46	350	N/A

### K5 – Pearson BTEC Level 3 Diploma in Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K5a	500/8154/8	Pearson	120	720	N/A

### K6 – EAL Level 3 Diploma in Engineering and Technology (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K6a	501/1130/9	EAL	78	600	N/A

### K7 – EAL Level 3 Diploma in Engineering and Technology (Progressive) (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K7a	501/1419/0	EAL	97	750	N/A

### K8 – EAL Level 3 Subsidiary Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K8a	601/5799/9	EAL	48	375	N/A

### K9 – EAL Level 3 Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K9a	601/5802/5	EAL	98	750	N/A

### K10 – EAL Level 3 Extended Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K10a	601/5802/5	EAL	98	750	N/A

### Combined qualifications available to this pathway

N/A

## Relationship between competence and knowledge qualifications

The competence qualification, C1, has been developed to support various job roles at level 3 in track maintenance.

*K1 - K10 provide general theoretical underpinning engineering knowledge to support C1.*

The ten knowledge qualifications (K1 – K10) provide general theoretical underpinning engineering knowledge to support C1 however, K1 and K5 would be most suited to an apprentice working towards the Junior Track Technical Engineer role, while K2, K3, K4 and K6 - K10 would be most suited to an apprentice working towards the Track Technician role. Please note that requirements of individual job roles may vary and the apprentice should undertake the knowledge qualification most relevant to their role.

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications support key areas of technical knowledge development needed for apprentices in the rail engineering industry to carry out their duties in a safe and efficient manner. Delivery methods for knowledge based qualifications may vary, from a conventional college based environment, to delivery through a combination of this and written/web-based/distance learning materials.

Employers have agreed that their apprentices should have access to a number of different technical knowledge qualifications that specify varying degrees of theoretical concepts required, including a broad range of mathematical, scientific and engineering principles and processes.

# Essential Skills

An apprenticeship framework must specify as a Welsh certificate requirement the expected achievement levels of Essential Skills in Communication and the Application of Number.

Where Essential Skills qualifications are specified in an apprenticeship framework, the apprenticeship framework must specify the acceptance of a recognised proxy qualification for Communication and Application of Number.

## Communication

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Communication achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for English and give a brief **REASON** as to why this is required: Enter alternative grade/level requirements and reasons here.

## Application of Number

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Application of Number achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for Maths and give a brief **REASON** as to why this is required: Enter alternative grade/level requirements and reasons here.

## Inclusion of Digital Literacy (ICT)

Digital Literacy (ICT) is an **optional** framework requirement.

Is Digital Literacy a requirement in this framework?    **YES**        **NO**

# Progression routes into and from this pathway

## *Progression routes into this pathway*

Entrants to this pathway are likely to primarily be school leavers who have completed their GCSE or Welsh Baccalaureate studies and in some cases relevant vocational activity such as Pre-Apprenticeship programme or extended work experience.

More specifically they may:

- have GCSEs in English, Maths and a Science - grade C or above or
- have a Welsh Baccalaureate or
- have a 14-19 Diploma in Engineering or
- have A or AS levels in Science, Technology, Engineering or Mathematics subjects or
- have completed a Foundation level apprenticeship in Rail Infrastructure Engineering or
- have previous work experience or employment in the Rail or Engineering sector or
- be willing to undertake a course of training both on-the-job and off-the-job and apply this learning in the workplace and
- be keen and motivated to work in a rail engineering environment

Other entrants may have experience from working in the sector, and are now seeking to become qualified by undertaking an apprenticeship programme. Particular interest would be shown to those applicants who have had previous work experience or employment in the rail sector.

## *Progression routes from this pathway*

While significant numbers of Apprentices will seek internal progression to team leader or supervisory roles or follow a route into a senior technical role within their companies, some will want to progress to a Higher Apprenticeship in Engineering (Rail Pathway) and others may decide to opt for a Foundation Degree in Railway Engineering or HNC/HND. More generally, most ex-apprentices aspire to a combination of internal promotion while at the same time undertaking company sponsored qualifications as specified above.

## *Useful websites*

<https://nationalcareersservice.direct.gov.uk/advice/planning/jobprofiles/Pages/RailEngineeringTechnician.aspx>

<http://www.networkrail.co.uk/careers/>

[www.nsare.org](http://www.nsare.org)

## **UCAS points for this pathway:**

N/A

# Employee rights and responsibilities

Please note that for Apprenticeship starts from 14/10/2016 onwards ERR is no longer a **mandatory** requirement in all frameworks.

However, it may still be included in some frameworks and where it is not explicitly stated that ERR is not a requirement then confirmation of an Apprentice's ERR achievement will still remain a requirement for Apprenticeship certification purposes.

Is ERR a requirement for this framework? **YES**  **NO**

## Delivery and assessment

**Employee Rights and Responsibilities (ERR) is no longer compulsory**, but Semta recommends that all apprentices (especially the 16 years -18 years group) receive it as part of their induction.

There are two methods of achieving ERR as set out below:

### *Method 1 - Qualifications*

**1a.** EAL have produced a stand-alone qualification that covers all 9 outcomes of ERR requirements.

Qualification details:

EAL Level 2 Award in Employment Rights and Responsibilities for new Entrants into the Science, Engineering and Manufacturing Sectors (QCF)

QCF qualification ref no: 600/0290/6

Credit value: 5 credits

Training hours: 41

**1b.** ERR is covered by completion of the Employment Rights and Responsibilities unit which is embedded within the City & Guilds and EAL competency qualifications in the framework. The Apprentice must elect to complete this unit as part of the competency qualification. These units has been specifically developed to cover all nine national outcomes for ERR. ERR will automatically be evidenced at certification by the achievement of the qualification.

For this pathway the competency qualification is the Level 3 NVQ Diploma in Rail Engineering Track Maintenance and the additional unit required is Employment Rights and Responsibilities in the Passenger Transport Sector. Evidence of completion of this unit is required for certification of the framework. The awarding organisations offering this qualification are listed below:

- Ref: 600/1100/2 (City and Guilds) and 601/0196/9 (EAL)

**1c.** Pearson have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements if Unit 2 is achieved.

Qualification details:

Pearson BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)

QCF qualification ref no: 501/1793/2

Credit value: 4 credits

Training hours: 40

**Please note:** The Pearson BTEC Level 2 Award consists of a mandatory unit as an introduction to apprenticeships. Apprentices **must then complete Unit 2** which covers the ERR requirements (included within content). This qualification is designed to be assessed in the context of the sector relevant to the apprenticeship framework being undertaken (ie rail engineering in this case).

**1d.** Pearson have produced a Level 3 stand-alone qualification that can cover all 9 outcomes of ERR requirements if Units 2 and 4 are achieved.

Qualification details:

Pearson BTEC Level 3 Award in WorkSkills for Effective Learning and Employment (QCF)

QCF qualification ref no: 501/1791/9

Credit value: 4 credits

Training hours: 40

The Pearson BTEC Level 3 Award consists of a mandatory unit as an introduction to apprenticeships. Apprentices **must then complete Units 2 and 4** which cover the ERR requirements (included within content). This qualification is designed to be assessed in the rail engineering sector in this case).

**1e.** City & Guilds have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements.

Qualification details:

City & Guilds Level 2 Subsidiary Award in Employment and Personal Learning at Work (QCF)

QCF qualification ref no: 600/2819/1

Credit value: 2 credits

Training hours: 15

**Please note:** Although it may be possible to complete ERR in a minimum of 15 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

**1f.** Agored Cymru have developed an on-line learning and assessment package that supports learners achieve accreditation for ERR for Welsh apprenticeship frameworks.

Qualification details:

Agored Cymru Level 2 Award In Employment Rights and Responsibilities (QCF)

QCF qualification ref no: 600/7776/1

Credit value: 3

Training hours: 24

**Please note:** Although it may be possible to complete ERR in a minimum of 24 training hours,



Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

These qualifications will enable apprentices to both know and understand the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

Apprentices achieving the qualifications will have demonstrated that they have the underpinning knowledge relevant for the rail engineering environment which satisfies the Specification for Apprenticeship Standards for Wales.

#### *Method 2 - Workbook*

Semta has produced an Apprentice ERR workbook that is available from: [customercare@eal.org.uk](mailto:customercare@eal.org.uk)

The requirements for completing it must be explained to the apprentice right at the start of their training in order that they may take full advantage of their \*company induction where significant amounts of information towards the national outcomes will be covered. The workbook is intended to enable apprentices to know, understand and record the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

**\*Please note:** All apprentices must receive a company induction programme.

# Level 3, Pathway 3: Telecoms

## Description of this pathway

Pathway duration approximately 36 months depending on the qualification and unit options selected

Total minimum credit value (made up of the total on- and off-the-job training for all the components) = 78 credits

*Pathway with minimum total learning hours = 732 training hours*

- Competence = minimum 130 hours/ minimum 20 credits
- Knowledge = minimum 350 hours (smallest technical certificate training hours)
- Knowledge = minimum 46 credits (smallest technical certificate credit )
- Essential Skills (notional value 60 hours x 2) = 120 hours /12 credits
- Mentoring 132 weeks x 1 hour/week = 132 hours

Year 1 = 244 Hours Year 2 = 244 Hours Year 3 = 244 Hours

*Minimum off-the-job training hours = 600 training hours*

Knowledge - EAL Level 3 Diploma In Installation and Maintenance of Engineering Assets (QCF) (350 training hours) plus 250 additional training hours for Essential Skills Qualifications and Mentoring

**Minimum on-the-job training hours = 130 training hours** and is evidenced by completion of the Level 3 NVQ Certificate in Rail Engineering Telecoms Installer (QCF)

*Minimum credit value = 78 credits*

## Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions

Job title(s)	Job role(s)
Junior Telecoms Technical Engineer	Undertake surveys of telecoms equipment, analyse technical data from telecoms systems, maintain records, prepare specifications for maintenance and renewals, assist with method statement preparation and/or plans for design work and requisition materials
Telecoms Technician	Inspect telecoms control systems and cabling, fault find when there are telecoms failures, maintain and replace the telecoms assets and components

# Qualifications

## Competence qualifications available to this pathway

### C1 – Level 3 NVQ Diploma in Rail Engineering Telecoms Maintainer and Fault Finder (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	600/1498/2	City & Guilds	46	245	N/A
C1b	601/0158/1	EAL	46	245	

### C2 – EAL Level 3 NVQ Diploma in Rail Engineering Telecoms Installer (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C2a	601/3838/5	EAL	37	207	N/A

### C3 – EAL Level 3 NVQ Certificate in Rail Engineering Telecoms Installer (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C3a	601/3837/3	EAL	20	130	N/A

## Knowledge qualifications available to this pathway

### K1 – Pearson BTEC Level 3 Diploma in Electrical / Electronic Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	500/8098/2	Pearson	120	720	N/A

### K2 – Pearson BTEC Level 3 Diploma in Manufacturing Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K2a	500/7319/9	Pearson	120	720	N/A

**K3 – Pearson BTEC Level 3 Diploma in Operations and Maintenance Engineering (QCF)**

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K3a	500/7315/1	Pearson	120	720	N/A

**K4 – City and Guilds Level 3 Diploma in Engineering (QCF)**

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K4a	600/0882/9	City & Guilds	54	480	N/A

**K5 – Pearson BTEC Level 3 Subsidiary Diploma in Engineering (QCF)**

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K5a	500/7841/0	Pearson	60	360	N/A

**K6 – EAL Level 3 Diploma in Installation and Maintenance of Engineering Assets (QCF)**

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K6a	601/0161/1	EAL	46	350	N/A

**K7 – EAL Level 3 Diploma in Engineering Technology (QCF)**

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K7a	501/1130/9	EAL	78	600	N/A

**K8 – EAL Level 3 Diploma in Engineering and Technology (Progressive) (QCF)**

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K8a	501/1419/0	EAL	97	750	N/A

## K9 – EAL Level 3 Subsidiary Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K9a	601/5799/9	EAL	48	375	N/A

## K10 – EAL Level 3 Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K10a	601/5801/3	EAL	68	525	N/A

## K11 – EAL Level 3 Extended Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K11a	601/5802/5	EAL	98	750	N/A

### Combined qualifications available to this pathway

N/A

### Relationship between competence and knowledge qualifications

The competence qualification, C1, has been developed to support job roles with emphasis on fault diagnosis and rectification of telecoms assets while C2 and C3 focus on installing telecoms equipment.

*K1 - K11 provide general theoretical underpinning engineering knowledge to support C1 - C3.*

However, K1 - K3 would be most suitable to an apprentice working towards Junior Telecoms Engineer role as they provide an additional emphasis on a particular engineering discipline i.e. electrical/electronic engineering (K1), mechanical engineering (K2) and maintenance engineering (K3). K4 and K5 would be most suited to an apprentice working towards the Telecoms Technician role. K6 - K11 are suitable for Telecoms Technician. Please note that requirements of individual job roles may vary and the apprentice should undertake the knowledge qualification most relevant to their role.

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications support key areas of technical knowledge development needed for apprentices in the rail engineering industry to carry out their duties in a safe and efficient manner. Delivery methods for knowledge based qualifications

may vary, from a conventional college based environment, to delivery through a combination of this and written/web-based/distance learning materials.

Employers have agreed that their apprentices should have access to a number of different technical knowledge qualifications that specify varying degrees of theoretical concepts required, including a broad range of mathematical, scientific and engineering principles and processes.

# Essential Skills

An apprenticeship framework must specify as a Welsh certificate requirement the expected achievement levels of Essential Skills in Communication and the Application of Number.

Where Essential Skills qualifications are specified in an apprenticeship framework, the apprenticeship framework must specify the acceptance of a recognised proxy qualification for Communication and Application of Number.

## Communication

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Communication achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for English and give a brief **REASON** as to why this is required: Enter alternative grade/level requirements and reasons here.

## Application of Number

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Application of Number achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for Maths and give a brief **REASON** as to why this is required: Enter alternative grade/level requirements and reasons here.

## Inclusion of Digital Literacy (ICT)

Digital Literacy (ICT) is an **optional** framework requirement.

Is Digital Literacy a requirement in this framework?    **YES**        **NO**



# Progression routes into and from this pathway

## *Progression routes into this pathway*

Entrants to this pathway are likely to primarily be school leavers who have completed their GCSE or Welsh Baccalaureate studies and in some cases relevant vocational activity such as Pre-Apprenticeship programme or extended work experience.

More specifically they may:

- have GCSEs in English, Maths and a Science - grade C or above or
- have a Welsh Baccalaureate or
- have a 14-19 Diploma in Engineering or
- have A or AS levels in Science, Technology, Engineering or Mathematics subjects or
- have completed a Foundation level apprenticeship in Rail Infrastructure Engineering or
- have previous work experience or employment in the Rail or Engineering sector or
- be willing to undertake a course of training both on-the-job and off-the-job and apply this learning in the workplace and
- be keen and motivated to work in a rail engineering environment

Other entrants may have experience from working in the sector, and are now seeking to become qualified by undertaking an apprenticeship programme. Particular interest would be shown to those applicants who have had previous work experience or employment in the rail sector.

## *Progression routes from this pathway*

While significant numbers of Apprentices will seek internal progression to team leader or supervisory roles or follow a route into a senior technical role within their companies, some will want to progress to a Higher Apprenticeship in Engineering (Rail Pathway) and others may decide to opt for a Foundation Degree in Railway Engineering or HNC/HND. More generally, most ex-apprentices aspire to a combination of internal promotion while at the same time undertaking company sponsored qualifications as specified above.

## *Useful websites*

<https://nationalcareersservice.direct.gov.uk/advice/planning/jobprofiles/Pages/RailEngineeringTechnician.aspx>

<http://www.networkrail.co.uk/careers/>

[www.nsare.org](http://www.nsare.org)

## **UCAS points for this pathway:**

N/A

# Employee rights and responsibilities

Please note that for Apprenticeship starts from 14/10/2016 onwards ERR is no longer a **mandatory** requirement in all frameworks.

However, it may still be included in some frameworks and where it is not explicitly stated that ERR is not a requirement then confirmation of an Apprentice's ERR achievement will still remain a requirement for Apprenticeship certification purposes.

Is ERR a requirement for this framework? **YES**  **NO**

## Delivery and assessment

**Employee Rights and Responsibilities (ERR) is no longer compulsory**, but Semta recommends that all apprentices (especially the 16 years -18 years group) receive it as part of their induction.

There are two methods of achieving ERR as set out below:

### *Method 1 - Qualifications*

**1a.** EAL have produced a stand-alone qualification that covers all 9 outcomes of ERR requirements.

Qualification details:

EAL Level 2 Award in Employment Rights and Responsibilities for new Entrants into the Science, Engineering and Manufacturing Sectors (QCF)

QCF qualification ref no: 600/0290/6

Credit value: 5 credits

Training hours: 41

**1b.** ERR is covered by completion of the Employment Rights and Responsibilities unit which is embedded within the City & Guilds and EAL competency qualifications in the framework. The Apprentice must elect to complete this unit as part of the competency qualification. These units has been specifically developed to cover all nine national outcomes for ERR. ERR will automatically be evidenced at certification by the achievement of the qualification.

For this pathway the competency qualification is the Level 3 NVQ Diploma in Rail Engineering Telecoms Maintainer and Fault Finder and the additional unit required is Employment Rights and Responsibilities in the Passenger Transport Sector. Evidence of completion of this unit is required for certification of the framework. The awarding organisations offering this qualification are listed below:

- Ref: 600/1498/2 (City and Guilds) and 601/0158/1 (EAL)

**1c.** Pearson have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements if Unit 2 is achieved.

Qualification details:

Pearson BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)

QCF qualification ref no: 501/1793/2

Credit value: 4 credits

Training hours: 40

**Please note:** The Pearson BTEC Level 2 Award consists of a mandatory unit as an introduction to apprenticeships. Apprentices **must then complete Unit 2** which covers the ERR requirements (included within content). This qualification is designed to be assessed in the context of the sector relevant to the apprenticeship framework being undertaken (ie rail engineering in this case).

**1d.** Pearson have produced a Level 3 stand-alone qualification that can cover all 9 outcomes of ERR requirements if Units 2 and 4 are achieved.

Qualification details:

Pearson BTEC Level 3 Award in WorkSkills for Effective Learning and Employment (QCF)

QCF qualification ref no: 501/1791/9

Credit value: 4 credits

Training hours: 40

The Pearson BTEC Level 3 Award consists of a mandatory unit as an introduction to apprenticeships. Apprentices **must then complete Units 2 and 4** which cover the ERR requirements (included within content). This qualification is designed to be assessed in the rail engineering sector in this case).

**1e.** City & Guilds have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements.

Qualification details:

City & Guilds Level 2 Subsidiary Award in Employment and Personal Learning at Work (QCF)

QCF qualification ref no: 600/2819/1

Credit value: 2 credits

Training hours: 15

**Please note:** Although it may be possible to complete ERR in a minimum of 15 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

**1f.** Agored Cymru have developed an on-line learning and assessment package that supports learners achieve accreditation for ERR for Welsh apprenticeship frameworks.

Qualification details:

Agored Cymru Level 2 Award In Employment Rights and Responsibilities (QCF)

QCF qualification ref no: 600/7776/1

Credit value: 3

Training hours: 24

**Please note:** Although it may be possible to complete ERR in a minimum of 24 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

... Rail Infrastructure Engineering (Wales)  
..... level 3  
..... Pathway 3

These qualifications will enable apprentices to both know and understand the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

Apprentices achieving the qualifications will have demonstrated that they have the underpinning knowledge relevant for the rail engineering environment which satisfies the Specification for Apprenticeship Standards for Wales.

#### *Method 2 - Workbook*

Semta has produced an Apprentice ERR workbook that is available from: [customercare@eal.org.uk](mailto:customercare@eal.org.uk)

The requirements for completing it must be explained to the apprentice right at the start of their training in order that they may take full advantage of their \*company induction where significant amounts of information towards the national outcomes will be covered. The workbook is intended to enable apprentices to know, understand and record the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

**\*Please note:** All apprentices must receive a company induction programme.

# Level 3, Pathway 4: Electrification

## Description of this pathway

Pathway duration approximately 36 months depending on the qualification and unit options selected

Total minimum credit value (made up of the total on- and off-the-job training for all the components) = 80 credits

*Pathway with minimum total learning hours = 716 training hours*

- Competence = minimum 164 hours/ minimum 22 credits
- Knowledge = minimum 350 hours (smallest technical certificate training hours)
- Knowledge = minimum 46 credits (smallest technical certificate credit )
- Essential Skills (notional value 60 hours x 2) = 120 hours /12 credits
- Mentoring 132 weeks x 1 hour/week = 132 hours

Year 1 = 239 Hours Year 2 = 239 Hours Year 3 = 238 Hours

*Minimum off-the-job training hours = 600 training hours*

Knowledge - EAL Level 3 Diploma In Installation and Maintenance of Engineering assets (350 training hours) plus 250 additional training hours for Essential Skills Qualifications and Mentoring

**Minimum on-the-job training hours = 164 training hours** and is evidenced by completion of the Level 3 NVQ Diploma In Rail Engineering Electrification Maintenance (QCF)

*Minimum credit value = 80 credits*

## Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions

Job title(s)	Job role(s)
Junior Electrification Technical Engineer	Undertake surveys of contact system components, analyse technical data, maintain records, prepare specifications for installation, maintenance and renewal of the contact and electrification systems. Assist with method statement preparation and plans for design work and requisition materials
Electrification Technician	Inspect contact systems; fault find the contact systems following failures; maintain and replace the contact systems, electrification assets and components

# Qualifications

## Competence qualifications available to this pathway

### C1 – Level 3 NVQ Certificate in Rail Engineering Electrification Maintenance (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	600/3244/3	City & Guilds	22	164	N/A
C1b	601/0197/0	EAL	22	164	N/A

### C2 – Level 3 NVQ Certificate in Rail Engineering Electrification Construction (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C2a	600/3236/4	City & Guilds	31	202	N/A
C2b	601/3880/4	EAL	31	202	

## Knowledge qualifications available to this pathway

### K1 – Pearson BTEC Level 3 Diploma in Electrical / Electronic Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	500/8098/2	Pearson	120	720	N/A

### K2 – Pearson BTEC Level 3 Diploma in Manufacturing Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K2a	500/7319/9	Pearson	120	720	N/A

### K3 – Pearson BTEC Level 3 Diploma in Operations and Maintenance Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K3a	500/7315/1	Pearson	120	720	N/A

#### K4 – City and Guilds Level 3 Diploma in Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K4a	600/0882/9	City & Guilds	54	480	N/A

#### K5 – Pearson BTEC Level 3 Subsidiary Diploma in Engineering (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K5a	500/7841/0	500/7841/0	60	360	N/A

#### K6 – EAL Level 3 Diploma in Installation and Maintenance of Engineering Assets (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K6a	601/0161/1	EAL	46	350	N/A

#### K7 – EAL Level 3 Diploma in Engineering Technology (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K7a	501/1130/9	EAL	78	600	N/A

#### K8 – EAL Level 3 Diploma in Engineering and Technology (Progressive) (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K8a	501/1419/0	EAL	97	750	N/A

#### K9 – EAL Level 3 Subsidiary Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K9a	601/5799/9	EAL	48	375	N/A



## K10 – EAL Level 3 Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K10a	601/5801/3	EAL	68	525	N/A

## K11 – EAL Level 3 Extended Diploma in Engineering Technologies (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K11a	601/5802/5	EAL	98	750	N/A

### Combined qualifications available to this pathway

N/A

### Relationship between competence and knowledge qualifications

The competence qualification C1 focuses on electrification maintenance and C2 focuses on electrification construction/installation.

*K1 - K11 provide general theoretical underpinning engineering knowledge to support C1 and C2*

However, K1-K3 would be most suited to an apprentice working towards the Junior Electrification Technical Engineer role as they provide an additional emphasis on a particular engineering discipline i.e. electrical/electronic engineering (K1), mechanical engineering (K2) and maintenance engineering (K3). K4 - K11 would be most suited to an apprentice working towards the Electrification Technician role. Please note that requirements of individual job roles may vary and the apprentice should undertake the knowledge qualification most relevant to their role.

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications support key areas of technical knowledge development needed for apprentices in the rail engineering industry to carry out their duties in a safe and efficient manner. Delivery methods for knowledge based qualifications may vary, from a conventional college based environment, to delivery through a combination of this and written/web-based/distance learning materials.

Employers have agreed that their apprentices should have access to a number of different technical knowledge qualifications that specify varying degrees of theoretical concepts required, including a broad range of mathematical, scientific and engineering principles and processes

# Essential Skills

An apprenticeship framework must specify as a Welsh certificate requirement the expected achievement levels of Essential Skills in Communication and the Application of Number.

Where Essential Skills qualifications are specified in an apprenticeship framework, the apprenticeship framework must specify the acceptance of a recognised proxy qualification for Communication and Application of Number.

## Communication

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Communication achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for English and give a brief **REASON** as to why this is required: Enter alternative grade/level requirements and reasons here.

## Application of Number

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

**Does this framework require Application of Number achievement above the minimum SASW requirement?**    **YES**        **NO**   

If YES, please state the grade/level required for Maths and give a brief **REASON** as to why this is required: Enter alternative grade/level requirements and reasons here.

## Inclusion of Digital Literacy (ICT)

Digital Literacy (ICT) is an **optional** framework requirement.

Is Digital Literacy a requirement in this framework?    **YES**        **NO**

# Progression routes into and from this pathway

## *Progression routes into this pathway*

Entrants to this pathway are likely to primarily be school leavers who have completed their GCSE or Welsh Baccalaureate studies and in some cases relevant vocational activity such as Pre-Apprenticeship programme or extended work experience.

More specifically they may:

- have GCSEs in English, Maths and a Science - grade C or above or
- have a Welsh Baccalaureate or
- have a 14-19 Diploma in Engineering or
- have A or AS levels in Science, Technology, Engineering or Mathematics subjects or
- have completed a Foundation level apprenticeship in Rail Infrastructure Engineering or
- have previous work experience or employment in the Rail or Engineering sector or
- be willing to undertake a course of training both on-the-job and off-the-job and apply this learning in the workplace and
- be keen and motivated to work in a rail engineering environment

Other entrants may have experience from working in the sector, and are now seeking to become qualified by undertaking an apprenticeship programme. Particular interest would be shown to those applicants who have had previous work experience or employment in the rail sector.

## *Progression routes from this pathway*

While significant numbers of Apprentices will seek internal progression to team leader or supervisory roles or follow a route into a senior technical role within their companies, some will want to progress to a Higher Apprenticeship in Engineering (Rail Pathway) and others may decide to opt for a Foundation Degree in Railway Engineering or HNC/HND. More generally, most ex-apprentices aspire to a combination of internal promotion while at the same time undertaking company sponsored qualifications as specified above.

## *Useful websites*

<https://nationalcareersservice.direct.gov.uk/advice/planning/jobprofiles/Pages/RailEngineeringTechnician.aspx>

<http://www.networkrail.co.uk/careers/>

[www.nsare.org](http://www.nsare.org)

## **UCAS points for this pathway:**

N/A

# Employee rights and responsibilities

Please note that for Apprenticeship starts from 14/10/2016 onwards ERR is no longer a **mandatory** requirement in all frameworks.

However, it may still be included in some frameworks and where it is not explicitly stated that ERR is not a requirement then confirmation of an Apprentice's ERR achievement will still remain a requirement for Apprenticeship certification purposes.

Is ERR a requirement for this framework? **YES**  **NO**

## Delivery and assessment

**Employee Rights and Responsibilities (ERR) is no longer compulsory**, but Semta recommends that all apprentices (especially the 16 years -18 years group) receive it as part of their induction.

There are two methods of achieving ERR as set out below:

### *Method 1 - Qualifications*

**1a.** EAL have produced a stand-alone qualification that covers all 9 outcomes of ERR requirements.

Qualification details:

EAL Level 2 Award in Employment Rights and Responsibilities for new Entrants into the Science, Engineering and Manufacturing Sectors (QCF)

QCF qualification ref no: 600/0290/6 Credit value: 5 credits

Training hours: 41

**1b.** ERR is covered by completion of the Employment Rights and Responsibilities unit which is embedded within the City & Guilds and EAL competency qualifications in the framework. The Apprentice must elect to complete this unit as part of the competency qualification. These units has been specifically developed to cover all nine national outcomes for ERR. ERR will automatically be evidenced at certification by the achievement of the qualification.

For this pathway the competency qualification is the Level 3 NVQ Certificate in Rail Engineering Electrification Maintenance and the additional unit required is Employment Rights and Responsibilities in the Passenger Transport Sector. Evidence of completion of this unit is required for certification of the framework. The awarding organisations offering this qualification are listed below:

- 600/3244/3 and 600/3236/4 (City and Guilds)
- 601/0197/0 and 601/3880/4 (EAL)

**1c.** Pearson have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements if Unit 2 is achieved.

Qualification details:

Pearson BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF) QCF qualification ref no: 501/1793/2

Credit value: 4 credits Training hours: 40

**Please note:** The Pearson BTEC Level 2 Award consists of a mandatory unit as an introduction to apprenticeships. Apprentices **must then complete Unit 2** which covers the ERR requirements (included within content). This qualification is designed to be assessed in the context of the sector relevant to the apprenticeship framework being undertaken (ie rail engineering in this case).

**1d.** Pearson have produced a Level 3 stand-alone qualification that can cover all 9 outcomes of ERR requirements if Units 2 and 4 are achieved.

Qualification details:

Pearson BTEC Level 3 Award in WorkSkills for Effective Learning and Employment (QCF) QCF qualification ref no: 501/1791/9

Credit value: 4 credits Training hours: 40

The Pearson BTEC Level 3 Award consists of a mandatory unit as an introduction to apprenticeships. Apprentices **must then complete Units 2 and 4** which cover the ERR requirements (included within content). This qualification is designed to be assessed in the rail engineering sector in this case).

**1e.** City & Guilds have produced a stand-alone qualification that can cover all 9 outcomes of ERR requirements.

Qualification details:

City & Guilds Level 2 Subsidiary Award in Employment and Personal Learning at Work (QCF) QCF qualification ref no: 600/2819/1

Credit value: 2 credits Training hours: 15

**Please note:** Although it may be possible to complete ERR in a minimum of 15 training hours, Semta recommend a minimum of 40 GLH are taken to complete the ERR requirements.

**1f.** Agored Cymru have developed an on-line learning and assessment package that supports learners achieve accreditation for ERR for Welsh apprenticeship frameworks.

Qualification details:

Agored Cymru Level 2 Award In Employment Rights and Responsibilities (QCF) QCF qualification ref no: 600/7776/1

Credit value: 3

Training hours: 24

**Please note:** Although it may be possible to complete ERR in a minimum of 24 training hours, Semta recommend a minimum of 40 training hours are taken to complete the ERR requirements.

These qualifications will enable apprentices to both know and understand the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being. Apprentices achieving the qualifications will have demonstrated that they have the underpinning knowledge relevant for the rail engineering environment which satisfies the Specification for Apprenticeship Standards for Wales.

*Method 2 - Workbook*

Semta has produced an Apprentice ERR workbook that is available from:

[customercare@eal.org.uk](mailto:customercare@eal.org.uk)

The requirements for completing it must be explained to the apprentice right at the start of their training in order that they may take full advantage of their \*company

induction where significant amounts of information towards the national outcomes will be covered. The workbook is intended to enable apprentices to know, understand and record the principles associated with the nine national outcomes such as the world of work and how they are constrained by various legal and organisational procedures for their own well-being.

**\*Please note:** All apprentices must receive a company induction programme.

---

*The remaining sections apply to all levels and pathways within this framework.*

# How equality and diversity will be met

*Within the rail engineering industry, only about 4.4% of the workforce are women. The percentage of the workforce that is ethnic minority is also lower than the national average, at 5%.*

Semta recognises the training and business benefits of having apprentices from a wide variety of diverse backgrounds. We are committed to ensuring equality and diversity drives all aspects of apprentice selection and recruitment. Equal opportunity and diversity refers to the active elimination of unlawful or unfair discrimination against any person or group on the grounds of gender, race, colour, nationality, ethnic origin, religion, age, sexual orientation, marriage and civil partnership, pregnancy and maternity, political belief, disability and where appropriate, prison/offender background where this is deemed irrelevant.

Despite the encouraging numbers of both female participants and ethnic minorities on the 14 to 19 Engineering and Manufacturing Diplomas and Young Apprenticeship programmes, the Engineering sector still has a significant way to go to encourage women into engineering and manufacturing careers.

Semta wishes to make a Gender Equality Commitment. Semta has signed the United Kingdom Resource Centre (UKRC) CEO's charter in a bid to step up female recruitment in its key sectors and programmes. Due to impending skills gaps it is estimated that 204,000 people will be required to be recruited and trained between 2010-2016 within Semta's sectors of Rail (18,700) aerospace, automotive, composites, electrical, electronics, maintenance, marine, mathematics, metals and engineered metal products, renewables and science.

The UKRC is the Government's leading body for advanced gender equality in science, engineering and technology (SET) and the CEO's charter is a formal commitment to the UKRC's agenda to challenge the under-representation of women in SET. Women make up 50% of the labour market, yet they make up less than 20% of the labour market in science, engineering and technology.

The UKRC believes that only a concerted effort by the SET industry will break down the gender barriers that exist in traditionally male-dominated environments and we want to be part of a new consensus which will create an inclusive working environment for women. The

manufacturing industries in which this framework operates are traditionally dominated by a white, male workforce. However, faced with an ageing workforce and the probability of skill shortages we must look to attract new entrants from a much more diverse recruitment pool.

This means that all young people and adults considering engineering and manufacturing as a career are welcome.

Providers of apprenticeship training including employers must be able to demonstrate that there are no overt or covert discriminatory practices in the selection and employment of apprentices. This can be demonstrated by implementing a Single Equality Scheme (SES). The new Equality Duty (part of the Single Equality Bill) introduced to the public sector requires all public sector bodies to produce a SES combining their current race, disability and gender schemes and should be recognised by all providers of apprenticeship training. The implementation of a SES demonstrates the organisation's commitment to equality and diversity by identifying new and improved ways of working to ensure the organisation is more efficient and effective in meeting the diverse needs of both staff and customers.

All those who recruit apprentices, be they colleges, training providers or employers, must comply with the Equality act of 2010 and apply the Equality and Diversity legislation taking full account of the following:

- The Sex Discrimination Act 1975 and Code of Practice
- The Race Relations Act 1976 and Code of Practice
- The Disability Discrimination Act 1995 and Code of Practice
- Employment Equality (Religion or Belief) Regulations 2003
- Employment Equality (Sexual Orientation) Regulations 2003
- Employment Equality (Age) Regulations 2006
- The Equality Act 2010

Providers of apprenticeship training and employers must also actively monitor equality of opportunity and diversity procedures and take positive action where necessary to ensure equal access and treatment for all. Apprenticeships must be seen as a vital route to encourage and facilitate long term change in the equality and diversity of the engineering industry, therefore entry conditions into this framework are extremely flexible. All effort should be made to increase the diversity of our apprentice population.

Download the guidance on the Equality Act here: [www.equalityhumanrights.com/advice-and-guidance/new-equality-act-guidance/](http://www.equalityhumanrights.com/advice-and-guidance/new-equality-act-guidance/) |



# On and off the job training

## Summary of on- and off-the-job training

For both the Foundation Apprenticeship and Apprenticeship in Rail Infrastructure Engineering, the hours outlined in each section may vary depending on previous experience and attainment of the apprentice. Where a learner enters an apprenticeship agreement having previously attained or acquired some or all of the appropriate competence or knowledge, this prior learning needs to be recognised and documented using the relevant QCF credit transfer, QCF exemption or Recognition of Prior Learning (RPL) procedures.

The amount of 'on-the-job' training required to complete the apprenticeship under the apprenticeship agreement may then be reduced accordingly, provided the total numbers of 'on-the-job' hours for this framework can be verified for apprenticeship certification. Those apprentices who commence training under a new apprenticeship agreement with a new employer may bring a range of prior experience with them. When an apprentice can claim 5% or more hours towards the 'on-the-job' framework total through prior learning acquired from previous full-time education, employment or other vocational programme, then the apprentices' learning programme should include 'customisation'.

Training providers and colleges are encouraged to identify additional 'on-the-job' training programmes that customise the learning to the new workplace. Customisation programmes may include selecting appropriate additional unit(s) from QCF qualifications, or relevant units recognised as Quality Assured Lifelong Learning (QALL) through a CQFW recognised body, or follow Essential Skills at a level higher than that specified in the framework, or other competency-based qualifications/units relevant to the workplace.

### Note

The Rail Infrastructure Engineering framework primarily addresses the training needs of apprentices involved in ensuring that the infrastructure systems that make up the rail network are installed and maintained to the correct standards to ensure the safe and efficient running of the railway. Having discussed the requirement for Essential Skills Qualifications (ESQ), it was felt that only Communication and Application of Number would be required.

Any off-the-job training undertaken before the apprentice started may count towards the off-the-job training required for the apprenticeship if it was undertaken in relation to an accredited qualification contained in the framework for which an apprenticeship certificate is applied for. Both on and off-the-job training hours need to be planned, reviewed and jointly evaluated between the apprentice, training instructor, tutor or lecturer and workplace supervisor and where relevant the apprentices' mentor. The apprentice should have access to training support at all times, whether on or off-the job training.

On and off-the job training hours should be delivered through a variety of learning methods, individual and group teaching; team-working; e-learning; distance learning; coaching; mentoring; feedback and assessment.

The minimum training hours and credit value for each pathway are summarised in the pathway descriptions.

Evidence requirements for claiming a Foundation Apprenticeship or Apprenticeship Certificate

FISSS (The Federation of Industry Sector Skills & Standards), who were formerly known as The Alliance of Sector Skills Councils, are the certificating authority for Welsh Apprenticeships. FISSS have developed a new online system called ACW (Apprenticeship Certification Wales) for Welsh Apprenticeship completion certification.

If you are a Training Provider claiming an Apprenticeship completion certificate on behalf of an apprentice then you will need to register on ACW for a user name and password before you are able to register apprentices and claim certification.

If you are an apprentice claiming an Apprenticeship completion certificate for yourself then you will need to go to the ACW for an application form. |

## Off-the-job training

Off-the-job training is defined as time for learning activities away from normal work duties or away from the immediate pressures of the workplace.

The amount of off-the-job training hours required to complete this Foundation Apprenticeship or Apprenticeship framework varies according to the technical certificate selected - however all include a minimum number of training hours for Essential Skills Qualifications (Communication, Application of Number and Digital Literacy where appropriate) and mentoring.

Refer to each pathway description for a summary of the minimum off-the-job training hours.

## How this requirement will be met

### Off-the-job training needs to:

- achieve clear and specific outcomes which contribute directly to the successful achievement of the framework and this may include accredited and non-accredited elements of the framework
- be planned, reviewed and evaluated jointly between the apprentice and a tutor, teacher, mentor or manager
- allow the apprentice access, as and when required, to tutors, teachers, mentor(s) or manager
- be delivered through one or more of the following methods: individual and group tutoring, e-learning, distance learning, coaching, mentoring, feedback and assessment, collaborative/networked learning with peers or directed study.

Providers will not be required to record individual on and off-the-job training hours. However for certification purposes, the provider will be required to declare that the apprentice has completed the on and off-the-job training hours requirement as set out in this Apprenticeship framework.

Training hours delivered under an apprenticeship agreement may vary depending on the previous experience and attainment of the apprentice. The amount of off-the-job training required to complete the apprenticeship under the apprenticeship agreement may then be reduced accordingly, provided the total number of off-the-job hours for this framework can be verified for apprenticeship certification.

### Previous attainment

Where an apprentice enters an apprenticeship agreement having previously attained parts or all of the relevant qualifications, this prior learning needs to be recognised using either QCF credit transfer for achievements within the QCF, or through recording of exemptions for certificated learning outside of the QCF, for example Principal Learning qualifications.

For apprentices who have already achieved the relevant qualifications, they must have been certificated within 5 years of applying for the Foundation Apprenticeship or Apprenticeship Certificate.

#### Previous experience

Where an apprentice enters an apprenticeship agreement with previous work-related experience, this prior learning needs to be recognised (see QCF Guidance on Claiming Credit for further details). To count towards apprenticeship certification, previous experience must be recorded using the appropriate Awarding Organisation's QCF 'Recognition of Prior Learning' procedures and the hours recorded may then count towards the off-the-job hours required to complete the apprenticeship.

For apprentices with prior uncertificated learning experience, they must have been continuously employed in the relevant job role in the industry for five years duration.

The Technical Certificate may be delivered either by day or block release or a combination of the two at a local Training Provider or College of FE or delivered on the employer's premises (away from the immediate pressures of the workplace). There may also be a need for self study according to the Training Providers, Colleges or Awarding Organisations arrangements.

Essential Skills delivery methods may vary, however all methods should start with initial/early assessment of a learner's skills, and personalised learning should be based on assessing performance to date in order to inform and shape the next step in learning for that individual or group of individuals. Essential Skills are externally assessed and candidates need to be prepared in order to take the tests, again methods of preparation vary but the preferred method seems to be an intensive off-the-job coaching period where candidates are taught the techniques required to undertake previous test papers to become proficient.

If required, Employee Rights and Responsibilities (ERR) can be delivered as per the guidance in the ERR section of this framework. It is important that all new apprentices receive a comprehensive induction programme on joining their company and that they are aware of the evidence opportunities this presents to complete significant areas of the ERR requirements.

All three key elements will be delivered by a combination of group-based delivery and self-study. In addition there will be a company induction, and it is recommended that a mentor should be appointed for each apprentice to review their progress on a regular weekly basis. All of these activities will take place off-the-job.

The Technical Certificate and Essential Skills (and Employee Rights and Responsibilities if required) will be formally delivered by the training provider/college staff in accordance with the awarding organisation's delivery and assessment guidance.

#### Inclusion of Technical Certificates in the apprenticeship framework pathway

Working closely with a number of stakeholders including employers and awarding organisations, we have ensured that employers and apprentices have access to a range of technical certificates across a number of awarding organisations.

Awarding Organisation partners have ensured that each of the technical knowledge qualification in the pathway delivers, via a core and options approach, the minimum knowledge and understanding requirements for all the job roles selected in the appropriate NVQ. Employers have also demanded that they and apprentices have access to a number of different technical knowledge qualifications that specify varying degrees of theoretical concepts required in rail infrastructure principles.

The different sizes (credit value and hours) of the technical knowledge qualifications reflects the

varying degree in the complexity, breadth and depth of the skills, knowledge, understanding and theoretical concepts required in the rail engineering sector.

The benefit of this approach for both the employer and apprentices is that they can select the most appropriate qualification that meets the business requirements but also recognises the potential progression opportunities both in company including access to further and higher education and the career aspirations and abilities of the apprentice.

The providers of the technical knowledge qualification in partnership with the apprentice and employer could take the following into account and/or undertake further diagnostic assessments to ensure that the apprentice is enrolled on the most appropriate technical qualification:

- the career aspirations of the apprentice
- the skill and knowledge requirements of the employer for the selected occupational area (job role). The employer may have recruited the apprentice based on a workforce planning tool including succession planning
- an assessment of the academic qualifications achieved by the apprentice prior to undertaking the framework to determine if the apprentice will have the ability to achieve one of the more academically demanding technical knowledge qualifications
- the results of any psychometric tests that would ascertain whether the apprentice will be able to achieve one of the more academically demanding technical knowledge qualifications the preferred learning style of the apprentice including various assessment methodologies used by the different Awarding Organisations custom and practice within the sector, including any legislation requirements
- local and/or national Trade Union agreements

Evidence of off-the-job training

The range of evidence requirements are as follows:

- Copy of Awarding Organisation certificates for Communication and Application of Number and Digital Literacy as appropriate (Essential Skills Qualifications) **or**
- Copy of certificates for any proxy qualifications as listed in the front of this framework document, at the same level as the required Essential Skills Wales Qualifications
- Copy of the Awarding Organisation certificate for the knowledge qualification.

Any apprentices registered on a SASW Apprenticeship **on or after 1st January 2016 must undertake** the required mandatory new Essential Skills Qualifications (ESQ) and the evidence requirements in this issue of the framework is based upon this new suite.

As from 1st September 2015 there are new GCSEs with ESQ content that can be considered as proxies - these are given at the front of this framework document.

The Welsh Baccalaureate Qualification (WBQ) is also changing later this year and the certification will include the ESQ and GCSEs components. Candidates undertaking the new WBQ will not be required to provide individual certificates as evidence. |

## On-the-job training

*[Refer to each pathway description for a summary of the minimum on-the-job training hours.]*

## How this requirement will be met

In all the competence qualification pathways the apprentice will receive on-the-job training as required whilst working towards the achievement of the competence based qualification (NVQ Diploma). Apprentices will generate a work-based portfolio to record the evidence that they have achieved the appropriate competences. This will be overseen by a personal mentor who will monitor progress and offer guidance. The apprentice will then be formally assessed by a qualified Awarding Organisation assessor who will record the apprentice's progress towards completion of the competence qualification.

Assessment of the units in the competency qualifications should be carried out in line with the Assessment Strategies for Infrastructure NVQs produced originally by GoSkills. Copies can be requested via [customerservices@semta.org.uk](mailto:customerservices@semta.org.uk)

All apprentices are required to generate evidence in the workplace to demonstrate completion of the competence qualification, this may be through:

- apprentices generating a portfolio to record evidence of unit completion in accordance with the awarding organisation's requirements and this will be regularly reviewed by the assessor and mentor. A period of one hour per week has been set aside for mentors to review the ongoing progress of their apprentice

or

- apprentices generating portfolio evidence based on jobs undertaken will need to get this signed as having been completed by a responsible work colleague. This is then examined and agreed by the assessor as a contribution to demonstrating competence in the workplace.

Generation of portfolio evidence may be paper based, electronic with other mediums such as video evidence. Evidence may be gathered throughout the whole apprenticeship period.

On-the-job training hours should:

- achieve clear and specific outcomes which contribute directly to the successful achievement of the framework and this may include accredited and non-accredited elements of the framework
- be planned, reviewed and evaluated jointly between the apprentice and a tutor, teacher, mentor or manager
- allow access as and when required by the apprentice either to a tutor, teacher, mentor or manager
- be delivered during contracted working hours.

Examples of on-the-job training hours in a rail engineering context might be:

- induction where activities are covered within normal work duties
- task specific workplace instructions or team briefings
- team working and communications
- taught sessions by the workplace line manager/instructor
- environmental awareness

- employability skills
- coaching of learners.

These hours may vary depending on previous experience and attainment of the apprentice. Where a learner enters an apprenticeship agreement having previously attained or acquired the appropriate competencies or knowledge, this prior learning needs to be recognised and documented using the relevant QCF credit transfer, QCF exemption or RPL procedures (as off-the-job above).

The amount of on-the-job training required to complete the apprenticeship under the apprenticeship agreement may then be reduced accordingly, provided the total number of on-the-job hours for this framework can be verified for apprenticeship certification. |

# Wider key skills assessment and recognition

While Wider Key Skills are not a **mandatory** part of the framework, training providers are encouraged to provide apprentices the opportunity to achieve them.

For this framework, there are natural opportunities for Wider Key Skills to be embedded within the mandatory units of the following qualifications:

[Enter Qualification Names]

## Improving own learning and performance

[Give examples - signpost to specific units in framework qualifications that would meet these requirements]

## Working with others

[Give examples - signpost to specific units in framework qualifications that would meet these requirements]

## Problem solving

[Give examples - signpost to specific units in framework qualifications that would meet these requirements]

# apprenticeship FRAMEWORK

For more information visit-  
[www.acwcerts.co.uk/framework\\_library](http://www.acwcerts.co.uk/framework_library)