apprenticeship FRAMEWORK

Operations and Quality Improvement (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

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Prentisiaethau Apprenticeships

Operations and Quality Improvement (Wales)

Contents

Framework information

Information on the Issuing Authority for this framework:

SEMTA

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

Issue number: 5	**This framework includes:**
Framework ID: FR03927	Level 2 ☐ Level 3 ☒ Level 4-7 ☐
Date this framework is to be reviewed by: 31/12/2016	**This framework is for use in: Wales**

Short description

This Operations and Quality Improvement Apprenticeship Framework has been produced in partnership with major employers and their supply chains to develop a pool of talent across the UK to support businesses to become more productive and remain competitive often in global markets. The Framework components set out the skills, knowledge and understanding employees will require in order to support businesses to identify and then deliver continuous and sustainable quality, cost, delivery improvements for existing or new products, processes and/or services. Typical job roles could include Business Improvement Co-ordinators, Lean Manufacturing Facilitators, Production Team Leaders and Six Sigma Quality and Reliability Co-ordinators.

Contact information

Proposer of this framework

Semta has worked closely with its employers to define National Occupational Standards (NOS). From the NOS, qualifications such as NVQs and Technical Certificates have been developed that are suitable for use within this apprenticeship framework.

This framework has been produced in partnership with major employers, such as Jaguar Landrover, and their supply chains to develop a pool of talent across the UK to support businesses to become more productive and remain competitive often in global markets.

Developer of this framework

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Revising a framework

Why this framework is being revised

This framework is being revised to remove the requirement to achieve Wider Key Skills qualifications, 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 Wales suite of qualifications and the current Wider Key Skills qualifications are now being withdrawn.

Summary of changes made to this framework

The requirement to achieve Wider Key Skills qualifications has been removed from the framework

Qualifications removed

None

Qualifications added

None

Qualifications that have been extended

None

Purpose of this framework

Summary of the purpose of the framework

The long term profitability and therefore survival of the Welsh manufacturing base is reliant on being able to manufacture high value added products more cost effectively and with greater quality and productivity than international competition.

Between 2000 to 2009 Gross Value Added productivity (GVA) per employee in the engineering sector in Wales saw a significant improvement from £38,500 to £57,800 per employee, an increase of 50%. Similar productivity improvements will be needed in the manufacturing sector to ensure we remain internationally competitive.

Operations and Quality Improvement Level 3 framework provides an industry standard programme centred on the proven tools and techniques of lean process and quality improvement activities. It is designed to support continuous improvement by promoting effective team working and developing lean skills across the wider workforce.

Demographic profile
There are 2,500 team leaders/supervisors employed in manufacturing engineering in Wales. The main occupations for this group include metal working, machining, inspection, test and assembly.

Work status - 99% of team leaders/supervisors are employed full-time
Age - 16% are aged 60 plus
Disability - 13% have some sort of disability
Ethnicity – less than 1% are from an ethnic minority

Apprenticeship demand
The importance of business improvement techniques to the sector can be seen by the strong growth in numbers taking B-IT S/NVQs at both level 2 and level 3. Over the last five years over 72,000 B-IT Level 2 qualifications and 5,000 Level 3 qualifications have been completed in the sector across Great Britain.

In terms of the current workforce in the engineering manufacturing sector in Wales, three-quarters of team leaders and supervisors are qualified at NVQ Level 3 or above. Those working with qualifications below NVQ Level 3 could provide a market potential for just over 600 people to undertake an Operations and Quality Improvement Level 3 Apprenticeship.

Skills gaps in operator occupations will make imperative that there are sufficient numbers of qualified team leaders/ supervisors in operator occupations to lead teams to deliver productivity gains through process improvement.

Apprenticeship Certification
Wales

Despite the recession, employers in these sectors have a substantial demand for new recruits. In 2009, 8% of engineering manufacturing establishments had vacancies, over 800 vacancies in total of which 200 were operator vacancies.

In addition there would be natural wastage and retirement to be compensated for that would provide a steady requirement for new entrants. It is estimated that there were over 50 team leader/supervisor vacancies across engineering manufacture in Wales. In addition, over 500 team leader/supervisors (approximately 90 per annum) will need to be recruited into technical operator occupations over the period 2011-2016 to replace those retiring in the sector. The Operations and Quality Improvement Level 3 apprenticeship framework would be a particularly relevant qualification for these new entrants to undertake.

The Operations and Quality Improvement Level 3 Apprenticeship is delivered by high-achieving manufacturing practitioners and is a down-to-earth, hands-on programme designed for:
• supervisors, team leaders and facilitators in companies that have lean systems in place and are responsible for carrying out business improvement activities
• people who through Continuous Professional Development are being prepared to take on staff responsibilities in a business improvement environment
• other people involved in the business at all levels who require a more in-depth understanding of business improvement practices

This programme will be essential in ensuring that engineering manufacturing companies in Wales can compete against strong international competition.

Aims and objectives of this framework (Wales)

The framework components set out the skills, knowledge and understanding employees will require in order to support the business to identify and then deliver continuous and sustainable quality, cost and delivery improvements for existing or new products, processes and/or services.

It aims to assist organisations in improving their business activities by applying the tools and techniques of continuous improvement. The implementation of a continuous improvement policy requires the organisation to focus its attention on improving its processes by the elimination of all forms of waste (which is defined as anything that does not add value for the customer), reduced variation, and defect prevention. The improvements must then be maintained through the standardisation and continuous monitoring of the operations.

By ensuring that all activities add value and are standardised, a robust quality system is created that:

- eliminates the risk of defective products reaching the customer
- reduces manufacturing costs and

- improves profitability and competitiveness.

Further objectives are to:

- attract new people into the engineering/manufacturing sector from a diverse range of backgrounds to replace those who naturally leave the sector and those who will retire sometime in the next 5 years
- provide a structured training programme to develop and upskill the workforce
- provide a Business Improvement Techniques (B-IT) pathway to benefit organisations across all sectors where there is a need to review business processes in order to identify and eliminate waste and to improve quality
- improve overall operational performance through quality improvement
- 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.

Entry conditions for this framework

Employers wish to attract applicants that have an interest to work in an environment where it is business critical to continually improve the organisations products, processes or services in order to remain competitive, and welcome applicants from a diverse range of backgrounds and anticipate that they will have a wide range of experience, achievements and qualifications.

They have strongly recommended that they would be interested in candidates who have:

- previous work experience or employment in the relevant sector and/or occupation
- achieved an N/SVQ Level 2 and/or Level 3 or equivalent in a relevant sector/occupation such as engineering, manufacturing or science
- completed a Foundation Apprenticeship framework in the relevant sector such as Engineering Manufacture or Improving Operational Performance.

Employers may also consider candidates who:

- are willing to undertake a course of training both on-the-job and off-the-job and apply this learning in the workplace
- are analytical and have an aptitude for finding solutions to problems
- enjoy working as part of a team
- have 5 GCSEs or equivalents including English, Maths, and Science - grade C or above or
- have a Welsh Baccalaureate or
- have A Levels or equivalents in Maths, Science, business or other vocational subject relevant to the sector

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.

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. 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 and are motivated to become an apprentice, as undertaking an apprenticeship is a major commitment for both the individual and the employer.

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

Processes exist to make sure that applicants with prior knowledge, qualifications and/or experience are not disadvantaged by having to repeat learning. Training providers, Colleges and Awarding Organisations will be able to advise applicants on the current rules for accrediting prior learning (APL) and recognising 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 develop new skills and learning at a higher level.

Essential Skills Wales

Key skills are accepted as alternatives to Essential Skills Wales qualifications, provided the Key Skills Certificate(s) attained are at the same level(s) as those specified for Essential Skills Wales Qualifications. However, Key Skills cannot be completed as part of this framework.

Apprentices must complete Essential Skills Wales qualifications in Communication and Application of Number at Level 2 and the industry has stated that IT is relevant to effective performance and must also be achieved at Level 2.

Essential Skills Wales 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 qualifications is provided. The WBQ certificate itself does not provide this specific evidence.

Note:

Please be aware that from 1st September 2015 the new Essential Skills Qualifications (ESQ) will be available. Any apprentices registered on a SASW Apprenticeship **on or after 1st January 2016 must undertake** the required mandatory ESQ's in Communication Skills and Application of Number Skills (at the level specified in the framework). Please also note that some frameworks may also require Essential Digital Literacy Skills to be achieved.

Also as from 1st September 2015 there will new GCSE's with ESW content that may be considered as proxies in the future, this will be confirmed at a later date by the Welsh Government.

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

Proposed changes in 2016 include a new set of ESQ qualifications: 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.

Competence qualifications

If applicants already have one of the Level 3 Competence Qualifications (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.

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. 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 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.

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 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 3

Title for this framework at level 3

Business Improvement Techniques (Wales)

Pathways for the framework at level 3:

Pathway 1:   Business Improvement Techniques

Level 3, Pathway 1: Business Improvement Techniques

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) = 152 credits

Competence - minimum on the job training hours = 320 training hours

Off the job training includes a minimum of 286 additional training hours for Essential Skills Wales, ERR and Mentoring.

Pathway with minimum total learning hours = 776 training hours
• Competence = minimum 320 hours/ minimum 94 credits
• Knowledge = minimum 170 hours (based on the smallest technical certificate training hours)
• Knowledge = minimum 40 credits (based on the smallest technical certificate credit)
• Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
• Mentoring 66 weeks x 1 hour/week = 66 hours
• ERR = 40 minimum hours
Year 1 = 517 Hours Year 2 = 259 Hours

Minimum off-the-job training hours = 456 training hours
Knowledge – Level 3 Diploma in Business-Improvement Techniques (QCF) (170 training hours) plus 286 additional training hours for Essential Skills Wales, ERR and Mentoring

Minimum credit value = 152 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)
Business Improvement Co-ordinator, Continuous Improvement Facilitator, Continuous Improvement Champion, Change Implementation Facilitator	Achieve organisational Quality, Cost, Delivery & People objectives to support waste elimination, reduce non value added tasks, drive continuous improvement, solve problems & achieve permanent solutions, produce visual management systems to set out company quality, cost & delivery targets & progress
Business Analyst (Process Improvement), Lean Manufacturing Specialist, Industrial Engineer, Process Co-ordinator	Carrying out statistical & lead time analysis from order to delivery to the customer. Carrying out value stream mapping including producing a current and future state maps, applying failure modes & effects analysis so that potential failures can be eliminated out of the process or product
Cell Leader, Production Leader, Assembly Group Leader Improvement Champion (Quality), Quality Improvement	Leading projects to identify areas of improvement, applying workplace organisation methodologies such as 5s/5c, reducing scrap / re-work, implementing TPM programmes, reviewing & maintaining SOP's. This is a pro-active role to coordinate & lead the activities of a work-group of 5-10 team members
Quality Section Leader, Continuous Improvement Champion (Quality), Quality Improvement Engineer (Lean Manufacturing)	Undertake audits, produce & analyse data to benchmark the quality of goods received, processed & delivered against company or customer KPI's, using the data to identify root causes of quality issues, find solutions & implement continuous improvements. Review & maintain QA documentation
Six Sigma Specialist (new product development and introduction), Six Sigma Quality and Reliability Co-ordinator	Part of a team to define the design based on customer demand, identify & measure characteristics critical to quality including product, production capabilities & identify potential risks. Contribute to product design & involved in the verification process by running production trails

Qualifications

Competence qualifications available to this pathway

C1 – Level 3 NVQ Diploma in Business-Improvement Techniques (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	501/0856/6	EAL	94	320	N/A
C1b	501/0600/4	City & Guilds	94	320	N/A
C1c	501/0584/X	Pearson Education Ltd	94	320	N/A
C1d	501/0927/3	PAA\VQSET	94	320	N/A
C1e	600/2733/2	ETC Awards Ltd	94	320	N/A
C1f	601/6607/1	BIIAB	94	320	N/A

Knowledge qualifications available to this pathway

K1 – EAL Level 3 Diploma in Business-Improvement Techniques (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	600/3559/6	EAL	40	170	X

K2 – BIIAB Level 3 Diploma in Business-Improvement Techniques (QCF)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K2a	601/6603/4	BIIAB	40	170	N/A

Combined qualifications available to this pathway

N/A

Relationship between competence and knowledge qualifications

K1 - K2 provide underpinning knowledge for C1a - C1f

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 carrying out process or quality improvement activities safely and efficiently.

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.

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.

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 <u>above</u> 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 <u>above</u> 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**   ☐

Digital Literacy (ICT)

Please note that there are currently no acceptable proxy qualifications for Digital Literacy (ICT).

For the current **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 Digital Literacy (ICT) achievement <u>above</u> the minimum SASW requirement?   YES   ☐   NO   ☐

If YES, please state the grade/level required for **Digital Literacy (**ICT) and give a brief **REASON** as to why this is required:

```
Enter alternative grade/level requirements and reasons here.
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Progression routes into and from this pathway

Progression routes into the framework

It is likely that there will be a mix of entrants into this pathway. Although some will be school leavers who have completed their GCSE or Welsh Baccalaureate studies and in some cases relevant vocational activity such as a Diploma in Manufacturing or other related activity, Pre-Apprenticeship programme or extended work experience - it is highly likely that older apprentices in the 18 to 24 age category and adults post 25 will also use this pathway, who have worked in a process driven context and are now considering an Apprenticeship. Particular interest would be shown to those applicants who have had previous work experience or employment in the sector.

It is likely that Foundation Apprentices who have completed Pathway 3 (B-IT 2) of the Improving Operational Performance framework will progress onto this framework.

More specifically they may:

- have GCSEs in English, Maths, and Science - grade C or above or
- have a Welsh Baccalaureate or
- have A or AS levels in Science, Technology, Engineering or Mathematics subjects or
- have completed a Foundation Apprenticeship such as the Engineering Manufacture or Improving Operational Performance Apprenticeship or
- be keen and motivated to work in the selected sector and working environment 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 previous work experience or employment in the sector or occupation or
- have completed a 14 to 19 Diploma in a related discipline such as the Engineering or Manufacturing Diploma or
- have completed a Young Apprenticeship in Engineering or other related sector.

This pathway would particularly suitable for those people who are good at problem solving and enjoy organising activities.

Progression routes from the framework

The purpose of this framework is to enable employees to make a contribution to the overall improvement of a business. The components included in the Operations and Quality Improvement will ensure that employees can continuously improve processes and procedures as identifying and eliminating waste, creating an efficient flow of a process and improving

quality leading to greater efficiency and increased profitability.

While significant numbers of Apprentices will seek internal progression within their companies, some will want to progress to a Higher Apprenticeship such as the Higher Apprenticeship in Advanced Manufacturing; others may decide to opt for a Foundation degree 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.

For more information on engineering progression routes we recommend you visit the websites hot-linked below:

http://semta.org.uk/careers/appren ticeships

https://nationalcareersservice.direct.gov.uk/advice/pla nning/jobfamily/Pages/manufactureandengineering.aspx

http://www.apprenticeships.org.uk/

UCAS points for this pathway:

Framework Developer to complete with relevant info

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

There are two methods of achieving ERR as specified 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. 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 Edexcel 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 manufacturing/ engineering in this case).

1c. 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 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 context of the sector relevant to the apprenticeship framework being undertaken (ie manufacturing/ engineering in this case).

Please note: Only Level 2 is required to meet the framework requirements.

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

Qualification details:
BIIAB Level 2 Award in Employment Rights and Responsibilities (QCF)
QCF qualification ref no: 601/4607/2
Credit value: 2 credits
Training hours: 16

Please note: Although it may be possible to complete ERR in a minimum of 15 Training Hours, Semta recommend a minimum of 40 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 engineering/manufacturing 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

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

To claim final certification of the apprenticeship, one of the preceding forms of ERR evidence will be required, together with the ACW Universal Apprentice Certificate Claim form which is available from the Federation for Industry Sector Skills and Standards (FISSS) website: www.acwcerts.co.uk

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

How equality and diversity will be met

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 187,000 people will be required to be recruited and trained between 2010-2016 within Semta's sectors of aerospace, automotive, bioscience, 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 aging 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 there are no overt or covert discriminatory practices in the selection and employment of apprentices this

can be demonstrated by the implementing of 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/

On and off the job training

Summary of on- and off-the-job training

For the Apprenticeship in Operations and Quality Improvement, the hours outlined in the pathways 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 apprentice's 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.

Note
The Operations and Quality Improvement framework primarily addresses the training needs of apprentices working in an environment where it is critical to continually improve the organisations products, processes or services in order to remain competitive. Having discussed the requirement for Essential Skills Wales, it was felt that all three qualifications would be required.

For an apprentice who has already achieved the relevant qualification, they must have been certificated within 5 years from the date of application for the Foundation Apprenticeship/ Apprenticeship Certificate.

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 apprentice's 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 and maximum training hours and credit value for each pathway are summarised in the pathway descriptions.

Evidence requirements for claiming an Apprenticeship Certificate
FISSS (The Federation of Industry Sector Skills & Standards), who were formerly known as The Alliance of Sector Skills Councils, have recently been appointed as the certificating authority for Welsh Apprenticeships. FISSS have developed a new online system called ACW (Apprenticeship Certification Wales) for Welsh Apprenticeship certification which will superseded the paper based system from 2nd September 2013 onwards. This means that all Apprenticeship completion certificates must be claimed via the new ACW online system from this date onwards.

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 Apprenticeship framework varies according to each pathway and level of technical certificate selected - however all include a minimum number of training hours for Essential Skills Wales (Communication and Application of Number), Essential Skills Wales, ERR and mentoring.

The minimum and maximum off-the-job training hours for each pathway are summarised in the pathway descriptions.

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.

It is recommended that a mentor is appointed for each apprentice to review their progress on a regular basis. It is estimated that a mentor will have up to two hours per week contact time with each apprentice. This activity will take place off-the-job but is inclusive within the off-the-job hours quoted in the previous section.

Previous attainment
Where a learner 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 or Apprenticeship Certificate.

Previous experience
Where a learner 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 employers 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 Wales delivery methods may vary, however all methods should start with initial/early assessment of a learner's skills, 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 Wales 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.

Employee Rights and Responsibilities (ERR) will 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, Essential Skills Wales and Employee Rights and Responsibilities 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.

Whilst 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 the principles of lean and quality improvement techniques.

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 continuous improvement.

The benefits 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 the 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 & Application of Number (Essential Skills Wales) or Key skills at the same level as Essential Skills Wales or Essential Skills Qualifications (ESQ)*

Copy of the Awarding Organisation certificate for the ERR qualification or completed countersigned

ERR workbook

Copy of the Awarding Organisation certificate for the knowledge qualification

*Note: Please be aware that from 1st September 2015 the new Essential Skills Qualifications (ESQ) will be available. Any apprentices registered on a SASW Apprenticeship on or after 1st January 2016 must undertake the required mandatory ESQ's in Communication Skills and Application of Number Skills (at the level specified in the framework). Please also note that some frameworks may also require Essential Digital Literacy Skills to be achieved.

Also as from 1st September 2015 there will be new GCSE's with ESQ content that may be considered as proxies in the future, this will be confirmed at a later date by the Welsh Government and Qualifications Wales.

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

Proposed changes in 2016 include a new set of ESQ qualifications: 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.

Wider Key Skills are no longer required for this framework.

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

On-the-job delivery
Assessment of the units in the competency qualification included in this Apprenticeship must be delivered in accordance with the relevant Awarding Organisations delivery and assessment guidance, and carried out in line with the 'Common Requirements for National Vocational Qualifications (NVQ) in the QCF' which can be downloaded from Semta's website.

Additional assessment requirements have been published by Semta. These additional assessment requirements are set down in Semta's B-IT NVQ QCF unit assessment strategy which can also be downloaded from Semta's website at
http://semta.org.uk/pdf/Business-Improvement-Techniques-(B-IT)-NVQ-Level- 2-3 -and-4.pdf

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 on-going 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.

It is also important that:

- progress towards completion of the competence qualification should be planned, reviewed and evaluated jointly between the apprentice and an appointed mentor or manager
- apprentices should receive regular reviews from the mentor and assessor in order to ensure they remain on target to complete the competence qualification in the allocated time
- the apprenticeship is delivered during normal contracted working hours.

Examples of on-the-job guided learning in an engineering/manufacturing or process/quality improvement context might be:

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

Training providers or colleges should also keep detailed records performance reviews, mentoring, assessment of competence, the building of portfolios, keeping diaries/logs, peer review discussions.

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

Although improving own learning and performance is an essential part of an apprenticeship, it is dealt with 'on-the-job' within the NVQ and technical certificate rather than in the abstract. Therefore improving own learning and performance does not form a specific part of the Wider Key Skill requirements for this framework.

Working with others

Although working with others is an essential part of working in the engineering industry, it is dealt with 'on-the-job' within the NVQ and technical certificate rather than in the abstract. Therefore working with others does not form a specific part of the Wider Key Skill requirements for this framework.

Problem solving

Although the ability to problem solve is required in many engineering processes, it is dealt with 'on-the-job' within the NVQ and technical certificate rather than in the abstract. Therefore problem solving does not form a specific part of the Wider Key requirements for this framework.

apprenticeship FRAMEWORK

For more information visit-
www.acwcerts.co.uk/framework_library