

apprenticeship FRAMEWORK

Building Services Engineering Technology and Project Management (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?

Please use this link to see if this is the latest issued version of this framework:

afo.sscalliance.org/frameworkslibrary/index.cfm?id=FR03694

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CHANGES TO REQUIREMENTS FOR APPRENTICESHIP STARTS FROM 14TH 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 2016. Apprenticeship starts before this date must continue to meet the 2013 SASW requirements for Essential Skills and Employer Rights and Responsibilities.

Alternatives for Essential Skill qualifications

Foundation apprenticeships (Level 2): Where Essential Skills qualifications are specified in a foundation apprenticeship framework (Level 2), the apprenticeship framework must specify as a Welsh certificate requirement, the acceptance of one of the following recognised proxy qualifications.

For Communication:

- a. GCSE or iGCSE qualification in English language or literature to at least grade G (Level 1 equivalent); or
- b. O Level qualification in English language or literature to at least grade E; or
- c. A/AS Level qualification in English language or literature to at least grade E; or
- d. SCQF Level 4 – Communication Core Skills (Oral communication and written communication); or
- e. SQA National 4 English; or
- f. Functional Skills or Key Skills literacy qualifications in English provided the proxy qualification(s) attained are at Level 1 or above.

For Application of Number:

- a. GCSE or iGCSE qualification in Mathematics to at least grade G (Level 1 equivalent); or
- b. O Level qualification in Mathematics to at least grade E; or
- c. A/AS Level qualification in Mathematics to at least grade E; or
- d. SCQF Level 4 – Numeracy Core Skill (Graphical Information and using number); or
- e. SQA National 4 Mathematics ; or
- f. Functional Skills or Key Skills numeracy qualifications in Mathematics provided the proxy qualification(s) attained are at Level 1 or above.

Apprenticeships (Level 3): Where Essential Skills qualifications are specified in an apprenticeship framework (Level 3), the apprenticeship framework must specify as a Welsh certificate requirement, the acceptance of one of the following recognised proxy qualifications.

For Communication:

- a. GCSE or iGCSE qualification in English language or literature to at least grade C (Level 2 equivalent); or
- b. O Level Qualification in English language or literature to at least grade C; or
- c. A/AS Level qualification in English or literature to at least grade E; or
- d. SCQF Level 5 – Communication Core Skills (Oral communication and written communication); or
- e. SQA National 5 English; or
- f. Functional Skills or Key Skills literacy qualifications in English provided the proxy qualification(s) attained is at Level 2 or above.

For Application of Number:

- a. GCSE or iGCSE qualification in Mathematics to at least grade C (Level 2 equivalent); or
- b. O Level Qualification in Mathematics to at least grade C; or
- c. A/AS Level qualification in Mathematics to at least grade E; or
- d. SCQF Level 5 – Numeracy Core Skill (Graphical information and using number); or
- e. SQA National 5 Mathematics; or
- f. Functional Skills or Key Skills numeracy qualifications in Mathematics provided the proxy qualification(s) attained are at Level 2 or above.

Higher Apprenticeships (Levels 4-7): Essential Skills requirements are as for an apprenticeship frameworks at Level 3.

CHANGES TO REQUIREMENTS FOR APPRENTICESHIP STARTS FROM 14TH OCTOBER 2016

Employer Rights and Responsibilities (ERR)

The final modification to SASW is to Employer Rights and Responsibilities (ERR) which is no longer compulsory in frameworks. Please refer to the Employer Rights and Responsibilities section within the framework document to confirm specific requirements.

Additional Information

It should be noted that SASW has also been modified to reflect existing improvements to Essential Skills Wales Qualifications. These improvements to ESW qualifications were signalled by the revised names:

- Essential Skills Wales Communication is now Essential Communication Skills (still 6 credits in size)
- Essential Skills Wales Application of Number Skills is now Essential Application of Number Skills (still 6 credits in size)
- Essential Skills Wales Information Communication Technology Skills is now Essential Digital Literacy Skills (still 6 credits in size)

Whilst there have been some amendments to the content of ESW qualifications, the most significant change has been to the assessment methodology for these qualifications.

From 1 January 2016, all new starts have had to follow the revised Essential Skill qualifications.

The updated version of SASW, and guidance documents, can be accessed here:

<http://gov.wales/topics/educationandskills/skillsandtraining/apprenticeships/providers/?lang=en&dgd>

Over the coming months, the Essential Skills section within AFO will be amended to reflect the SASW modifications and all current frameworks will be updated and reissued to incorporate these changes. In the meantime, if you are in any doubt as to the requirements of any framework then please contact the relevant Issuing Authority.

Building Services Engineering Technology and Project Management (Wales)

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Framework summary

Building Services Engineering Technology and Project Management

Apprenticeships (Level 3) in Building Services Engineering Technology and Project Management

Pathways for this framework at level 3 include:

Pathway 1: Technician

Competence qualifications available to this pathway:

C1 - Level 3 NVQ Certificate in Building Services Engineering Technology & Project Management

Knowledge qualifications available to this pathway:

K1 - Level 3 Diploma in Construction and the Built Environment (Building Services Engineering)

Combined qualifications available to this pathway:

N/A

This pathway also contains information on:

- Employee rights and responsibilities
- Essential skills

Pathway 2: Design Technician

Competence qualifications available to this pathway:

C1 - Level 3 Diploma in Building Services Engineering for Technicians (QCF)

Knowledge qualifications available to this pathway:

K1 - Level 3 Diploma in Construction and the Built Environment (QCF)

Combined qualifications available to this pathway:

N/A

This pathway also contains information on:

- Employee rights and responsibilities
- Essential skills

Framework information

Information on the Publishing Authority for this framework:

SummitSkills

The Apprenticeship sector for occupations in electrical and electronic servicing, plumbing, heating and building services (summarised as electrotechnical; plumbing, heating and ventilating; refrigeration and air conditioning).

Issue number: 7	This framework includes:
Framework ID: FR03694	Level 3
Date this framework is to be reviewed by: 01/04/2020	This framework is for use in: Wales

Short description

Apprenticeships for occupations in Building Services Engineering Technology & Project Management are designed to meet the industrys' competence requirements. Depending on the pathway chosen you will either plan and monitor or design (manually or with CAD - Computer Aided Design) installations and refurbishments of work potentially involving environmental technologies, lighting, heating, ventilation and building control systems. You may work on one site or be involved at multiple sites from new buildings to historic restorations.

This Apprenticeship framework document contains two occupation pathways at Apprenticeship Level 3:

These frameworks can be completed in 42 months

Job roles:

- Building Services Engineering Technician
- Building Services Engineering Design Technician

Contact information

Proposer of this framework

SummitSkills the Sector Skills Council for the Building Services Engineering Sector has engaged with employers, manufacturers, trade associations and training providers through consultations with the Technician Consortium Group to ensure that this framework document is fit-for-purpose.

Developer of this framework

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Issuing Authority's contact details

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Revising a framework

Contact details

Who is making this revision: Tony Beecher
Your organisation: SummitSkills
Your email address: tony.beecher@summitskills.org.uk

Why this framework is being revised

As this framework is over 4 years old a review has taken place of any changes needed to this document and this includes new contact details for the developers and issuing authority to make sure the framework meets or exceeds the requirements of apprenticeships across the UK.

Summary of changes made to this framework

Contact details have been amended as those listed have left SummitSkills, changes made to ERR evidence requirements and additional progression opportunities added

Qualifications removed

N/A

Qualifications added

N/A

Qualifications that have been extended

N/A

Purpose of this framework

Summary of the purpose of the framework

These frameworks are designed to provide new entrants and those seeking progression in their career with the opportunity to develop competencies that are needed to carry out job roles and responsibilities associated with Building Services Engineering Technology & Project Management, including relevant:

- Procedures and Practices for monitoring and implementing Health & Safety associated with Building Services Engineering Projects
- Application of Design Principles of Building Services Engineering Projects
- Contribution to Estimating & Tendering processes for Building Services Engineering Projects
- Contribution to the goal of Sustainable Buildings Management
- Monitoring the Commissioning and Testing of Building Services Engineering Projects
- Application of Contract Conditions for Building Services Engineering Projects
- Planning work, methods resources and systems to meet work requirements
- Environmental Technologies
- Technological requirements and changes
- Statutory and Non-Statutory Regulations & Requirements
- Working practices in accordance with project management procedures

They will also contribute towards meeting the skills priorities for Wales, highlighted in the following extract from 'The National Strategic Skills Audit for Wales; June 2011'

<http://www.ukces.org.uk/publications/nssa-wales-vol-1>

"The Audit highlights the growing importance of technicians, the importance of replacement demands with regard to intermediate jobs in more traditional areas (skilled trades, for example); and the persistence of skills shortages at this level, perhaps seeing only temporary moderation due to the recession. Moreover, skilled trades are expected to be a key part of the skills mix within emerging sectors with high productivity levels, including elements of advanced manufacturing."

Your employer may have a variety of contracts from new buildings to refurbishment of historic premises for every sector of industry such as defence, health, finance, education, research etc.

You will be dealing with issues such as the environment, sustainability and acoustics and will generally work in either a mechanical or electrical discipline.

The role will require not only technical skills but also the skills of customer service and communication.

Successful completion of these Level 3 frameworks equips an apprentice with the ability to identify and use relevant understanding, methods and skills to complete tasks and address problems that, while well defined, have a measure of complexity. They include taking responsibility for initiating and completing tasks and procedures as well as exercising autonomy and judgement within parameters. They also reflect awareness of different perspectives or approaches within an area of study or work.

The following job roles will be covered in the framework:

- Building Services Engineering Technician
- Building Services Engineering Design Technician

Aims and objectives of this framework (Wales)

The aim of this framework is to ensure that the Apprenticeship (Level 3) programmes deliver:

- The Skills and Knowledge required by the industry to achieve competence
- Job related skills that will be used in the working environment
- New entrants to replace those retiring or leaving the sector
- Transferable Skills such as problem solving, communication, team working, literacy, numeracy and IT skills which are a priority for the sector
- Career progression

Employers have endorsed this programme as it delivers qualified competent employees and improves productivity and retention.

Where Recognition of Prior Learning (RPL) is applied in relation to competence, knowledge or Essential Skills, the Apprenticeship programme must be tailored to allow the Apprentice to undertake new learning, including learning at a higher level and developing new skills.

Further career information can be found at www.summitskills.org.uk/careers/23

Entry conditions for this framework

Although there are generally no nationally laid-down minimum entry or previous experience requirements to undertake the Apprenticeship (Level 3) frameworks in Building Services Engineering & Project Management, the following selection criteria may be used as guidance.

- Have an aptitude for technical subjects and/or are practically minded
- Have an interest in technology
- Can demonstrate an ability to solve practical and theoretical problems
- Have a portfolio of evidence from work experience, non-accredited courses, volunteering, have previously worked or are working in the sector
- Can demonstrate that they have the potential to achieve the qualifications which are part of this Apprenticeship (Level 3) programme

Other selection criteria may include:

- Ability to communicate effectively with a range of people
- Being numerate and literate as a significant amount of paperwork will be involved
- Good colour vision to recognise colour coded wires and components
- Willingness to learn to drive if you don't already have a driving licence as much of the work will require you to drive to customers premises (Insurance requirements may differ per company)
- Ability to work at heights or in confined spaces
- Willingness to work outside and carry out manual handling tasks as some materials and equipment are heavy
- Willingness to work unsociable hours
- Willingness to undergo a Criminal Records Bureau (CRB)/DBS Disclosure Barring Service check when required
- Willingness to work safely and respectfully in support of safeguarding policies

Examples of formal qualifications that could indicate that an applicant has the potential to progress into the Apprenticeships (Level 3) in Building Services Engineering Technology and Project Management are:

- Welsh Baccalaureate Intermediate Diploma
- Completion of a 'Pathway to Apprenticeship' in Engineering
- Successful completion of an Foundation Level 2 framework in the Building Services Engineering Sector
- GCSE grade A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Level 2 GNVQs in relevant vocational/technical subjects
- A Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational

qualifications alone. The ultimate responsibility for selection will rest with the individual employer.

Level 3

Title for this framework at level 3

Apprenticeships (Level 3) in Building Services Engineering Technology and Project Management

Pathways for this framework at level 3

- Pathway 1: Technician
- Pathway 2: Design Technician

Level 3, Pathway 1: Technician

Description of this pathway

Technician - Designing, administering and overseeing Building Services Engineering projects - total credits for this framework are 172-177 depending on unit options chosen

- 154 - 159 credits for combined (Knowledge 120 credits & Competence 34-39 credits) qualification
- 18 credits for Essential Skills Wales in Communication, Application of Number & IT

Where Recognition of Prior Learning (RPL) is applied in relation to competence, knowledge or Essential Skills, the Apprenticeship programme must be tailored to allow the Apprentice to undertake new learning, including learning at a higher level and developing new skills.

In order to demonstrate the industry recognised level of competence reflected by this Apprenticeship (Level 3) frameworks it is expected the minimum duration for their completion will be **no less than 42 months**.

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

No additional requirements for this pathway

Job title(s)	Job role(s)
Building Services Engineering Technician	Supporting the design and monitoring of Building Services Engineering projects

Qualifications

Competence qualifications available to this pathway

C1 - Level 3 NVQ Certificate in Building Services Engineering Technology & Project Management					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	600/4309/X	EAL	34-39	190-224	N/A

Knowledge qualifications available to this pathway

K1 - Level 3 Diploma in Construction and the Built Environment (Building Services Engineering)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	500/7137/3	Edexcel	120	720	N/A

Combined qualifications available to this pathway

N/A

Relationship between competence and knowledge qualifications

This framework requires the completion of the knowledge qualification K1a identified in the knowledge section K1 above as well as the competence qualification C1a identified in the competence qualifications section C1 above,

Competence qualification Title - ***Level 3 NVQ Certificate in Building Services Engineering Technology & Project Management (QCF)*** which has four ***Mandatory*** units and the candidate must choose 3 pairs of units from the 6 pair options:

Mandatory Knowledge Units

- Understand how to monitor and implement health and safety during building services engineering projects A/503/0861 ***Unit Credit Value 4***
- Understand how to monitor and implement building services engineering projects in the work location H/503/0823 ***Unit Credit Value 5***

Mandatory Knowledge Element Total = 9 credits

Mandatory Competence Units

- Monitor and implement building services engineering projects in the work location F/503/0814 ***Unit Credit Value 4***
- Monitor and implement health and safety during building services engineering projects T/503/0812 ***Unit Credit Value 4***

Mandatory Competence Element Total = 8 credits

Optional Units - Select 3 pairs (Each pair is a performance unit coupled with the relevant knowledge unit)

Pair Group One (PG1) - 8 credits

- Understand how to apply design principles to building services engineering projects M/503/0825 ***Unit Credit Value 4 - Knowledge***
- Apply design principles to building services engineering projects J/503/0815 ***Unit Credit Value 4 - Competence***

Pair Group Two (PG2) - 7 credits

- Understand how to contribute to estimating and tendering processes for building services engineering projects T/503/0826 **Unit Credit Value 4 - Knowledge**
- Contribute to estimating and tendering processes for building services engineering projects L/503/0816 **Unit Credit Value 3 - Competence**

Pair Group Three (PG3) - 7 credits

- Understand how to monitor commissioning and testing for building services engineering projects F/503/0828 **Unit Credit Value 4 - Knowledge**
- Monitor commissioning and testing procedures for building services engineering projects Y/503/0818 **Unit Credit Value 3 - Competence**

Pair Group Four (PG4) - 6 credits

- Understand how to apply contract conditions for building services engineering projects H/503/0854 **Unit Credit Value 3 - Knowledge**
- Apply contract conditions for building services engineering projects D/503/0819 **Unit Credit Value 3 - Competence**

Pair Group Five (PG5) - 4 credits

- Understand how to provide technical and functional information to relevant people K/503/0855 **Unit Credit Value 2 - Knowledge**
- Provide technical and functional information to relevant people R/503/0820 **Unit Credit Value 2 - Competence**

Pair Group Six (PG6) -7 credits

- Understand how to contribute to planning work methods, resources and systems to meet building services engineering project work requirements M/503/0856 **Unit Credit Value 4 - Knowledge**
- Contribute to planning work methods, resources and systems to meet building services engineering project work requirements Y/503/0821 **Unit Credit Value 3 - Competence**

Optional Knowledge Element Total, subject to pair choices = 9-12 credits

Optional Competence Element Total, subject to pair choices = 8-10 credits

Total Knowledge Elements in Qualification subject to pair choices = 18-21 credits

Total Competence Elements in Qualification subject to pair choices = 16-18 credits

Knowledge qualification Title - **Level 3 Diploma in Construction and the Built Environment (Building Services Engineering)** which has several routes but 12 of the following units (6 Mandatory and 6 Optional Totaling 120 credits & 720 GLH) must be completed to fulfil the requirements of this framework:

Six Mandatory Units

- Mathematics in Construction and the Built Environment J/600/0451 **Unit Credit Value 10**
- Health, Safety and Welfare in Construction and the Built Environment L/600/0211 **Unit Credit Value 10**
- Sustainable Construction R/600/0212 **Unit Credit Value 10**
- Science and Materials in Construction and the Built Environment T/600/0221 **Unit Credit Value 10**
- Building Services Control Systems J/600/0319 **Unit Credit Value 10**
- Building Services Science T/600/0297 **Unit Credit Value 10**

Plus 6 Optional Units from the 12 listed below which enables flexibility in the framework for an individual to select units compatible with their job role/responsibilities.

- Project in Construction and the Built Environment M/600/0444 **Unit Credit Value 10**
- Information and Communication Technology for Construction and the Built Environment K/600/0443 **Unit Credit Value 10**
- Tendering and Estimating in Construction F/600/0397 **Unit Credit Value 10**
- Measurement Techniques in Construction Y/600/0356 **Unit Credit Value 10**
- Electrical Installation Design in Building Services Engineering F/600/0416 **Unit Credit Value 10**
- Ventilation and Air Conditioning Design in Building Services Engineering H/600/0375 **Unit Credit Value 10**
- Low Temperature Hot Water Heating in Building Services Engineering M/600/0380 **Unit Credit Value 10**
- Refrigeration Technology in Building Services Engineering T/600/0459 **Unit Credit Value 10**
- Plumbing Technology in Building Services Engineering Y/600/0437 **Unit Credit Value 10**
- Electrical Principles in Building Services Engineering A/600/0415 **Unit Credit Value 10**
- Commissioning Electrical Installations in Building Services Engineering R/600/0405 **Unit Credit Value 10**
- Electrical Installation Standards and Components in Building Services Engineering H/600/0408 **Unit Credit Value 10**

Knowledge Qualification Total = 120 credits (6 Mandatory Units - 60 credits + 6 Optional Units - 60 credits)

For further qualification details refer to: www.register.ofqual.gov.uk/Qualification and search for qualification or unit number.

Transferable skills (Wales)

Essential skills (Wales)

	Minimum level	Credit value
Communication	2	6
Application of numbers	2	6
IT	2	6

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Successful completion of a Foundation Level 2 framework in the Building Services Engineering Sector
- Completion of a 'Pathway to Apprenticeship' in Engineering
- Work or work experience
- Academic qualification(s) such as three GCSEs grades A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Essential Skills or Wider Key Skills at Level 2
- A Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer.

On successful completion of the Apprenticeship (Level 3) in Building Services Engineering Technology and Project Management, an apprentice will have the skills, knowledge and qualifications to:

- Register on an appropriate Certification Scheme
- Progress onto relevant Level 4/5 qualifications e.g. Level 4 Building Services Engineering Technology & Project Management, Higher National Certificate in Construction and the Built Environment or Foundation Degree in Building Services Engineering
- Progress onto the Level 6 Apprenticeships in Building Services Engineering Technology & Project Management
- Take a relevant Trade Test to demonstrate competence to work in other UK countries
- Progress in their career with further training into job roles such as Technician, System

Designer, Estimator, Project/Contracts Manager, Site/Workshop Supervisor/Manager,
Chartered Engineer, Sales Engineer or Commercial Manager

- Gain recognition with a professional body ie. the Engineering Councils UK Standards for Professional Engineering Competence <http://www.engc.org.uk/>

Further career guidance can be found at: <http://www.summitskills.org.uk/building-services-apprenticeships-careers>

UCAS points for this pathway: N/A

Employee rights and responsibilities

The Employee Rights and Responsibilities (ERR) elements identified below can be achieved through an induction programme, in combination with the EAL (600/4309/X) Level 3 NVQ Certificate in Building Services Engineering Technology & Project Management (QCF) qualification into which they are integrated and signposted. The ERR elements will be evidenced by issuing a qualification achievement certificate plus the declaration consent form when claiming for the apprenticeship certificate.

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health and Safety, together with the responsibilities and duties of employers;
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health and Safety, and Equality and Diversity training must be an integral part of the apprentice's learning programme;
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme;
4. understands the role played by their occupation within their organisation and industry;
5. has an informed view of the types of career pathways that are open to them;
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities;
7. knows where and how to get information and advice on their industry, occupation, training and career;
8. can describe and work within their organisation's principles and codes of practice;
9. recognises and can form a view on issues of public concern that affect their organisation and industry

Level 3, Pathway 2: Design Technician

Description of this pathway

Design Technician - Designing, estimating and scheduling work to a specification in a variety of premises. The role may involve work on new buildings or refurbishment of lighting, heating, ventilation and control systems- 241 credits total.

- 223 credits for combined (Knowledge 120 credits & Competence 103 credits) qualification
- 18 credits for Essential Skills Wales in Communication, Application of Number & IT

Where Recognition of Prior Learning (RPL) is applied in relation to competence, knowledge or Essential Skills, the Apprenticeship programme must be tailored to allow the Apprentice to undertake new learning, including learning at a higher level and developing new skills.

In order to demonstrate the industry recognised level of competence reflected by this Apprenticeship (Level 3) framework it is expected the minimum duration for its completion will be **no less than 42 months**.

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

No further information

Job title(s)	Job role(s)
Building Services Engineering Design Technician	Carries out design work including production of manual and CAD (Computer Aided Design) drawings, provides estimates, schedules and data to meet a specification. The role may involve work on new buildings or refurbishment of lighting, heating, ventilation and control systems in a variety of premises.

Qualifications

Competence qualifications available to this pathway

C1 - Level 3 Diploma in Building Services Engineering for Technicians (QCF)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	600/7813/3	Pearson Education Ltd (Edexcel)	103	334	N/A

Knowledge qualifications available to this pathway

K1 - Level 3 Diploma in Construction and the Built Environment (QCF)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	500/7137/3	Pearson Education Ltd (Edexcel)	120	720	N/A

Combined qualifications available to this pathway

N/A

Relationship between competence and knowledge qualifications

This framework requires the completion of the competence qualification C1a identified in the competence qualifications section C1 above, as well as the knowledge qualification K1a identified in the knowledge section K1 above,

Competence Qualification Title - Level 3 Diploma in Building Services Engineering Technicians (QCF) which has the following units:

Competence units

- Techniques and Procedures for Building Services Engineering Tasks A/504/6056 **Credit Value 16**
- Developing Building Services Engineering Solutions F/504/6057 **Credit Value 17**
- Management and Leadership in Building Services Engineering L/504/6059 **Credit Value 10**
- Working Independently in Building Services Engineering F/504/6060 **Credit Value 12**
- Commercial Activities in Building Services Engineering J/504/6061 **Credit Value 8**
- Health, Safety and Welfare for Building Services Engineers L/504/6062 **Credit Value 16**
- Sustainable Development in Building Services Engineering Y/504/6064 **Credit Value 8**
- Interpersonal Skills and Communication in Building Services Engineering D/504/6065 **Credit Value 12**
- Professional Values for Building Services Engineers H/504/6066 **Credit Value 4**

Competence Element = 103 credits

Total Qualification = 103 credits

Knowledge qualification Title - Level 3 Diploma in Construction and the Built Environment (Building Services Engineering) which has several routes but 12 of the following units (6 Mandatory and 6 Optional Totaling 120 credits & 720 GLH) must be completed to fulfil the requirements of this framework:

Six Mandatory Units

- Mathematics in Construction and the Built Environment J/600/0451 **Credit Value 10**
- Health, Safety and Welfare in Construction and the Built Environment L/600/0211 **Credit Value 10**
- Sustainable Construction R/600/0212 **Credit Value 10**
- Science and Materials in Construction and the Built Environment T/600/0221 **Credit Value**

10

- Building Services Control Systems J/600/0319 **Credit Value 10**
- Building Services Science T/600/0297 **Credit Value 10**

Plus 6 Optional Units from the 13 listed below which enables flexibility in the framework for an individual to select units compatible with their job role/responsibilities.

- Project in Construction and the Built Environment M/600/0444 **Credit Value 10**
- Information and Communication Technology for Construction and the Built Environment K/600/0443 **Credit Value 10**
- Tendering and Estimating in Construction F/600/0397 **Credit Value 10**
- Measurement Techniques in Construction Y/600/0356 **Credit Value 10**
- Electrical Installation Design in Building Services Engineering F/600/0416 **Credit Value 10**
- Ventilation and Air Conditioning Design in Building Services Engineering H/600/0375 **Credit Value 10**
- Low Temperature Hot Water Heating in Building Services Engineering M/600/0380 **Credit Value 10**
- Refrigeration Technology in Building Services Engineering T/600/0459 **Credit Value 10**
- Plumbing Technology in Building Services Engineering Y/600/0437 **Credit Value 10**
- Electrical Principles in Building Services Engineering A/600/0415 **Credit Value 10**
- Commissioning Electrical Installations in Building Services Engineering R/600/0405 **Credit Value 10**
- Electrical Installation Standards and Components in Building Services Engineering H/600/0408 **Credit Value 10**
- Fluids - Static and Dynamic in Building Services Engineering L/600/0371 **Credit Value 10**

Knowledge Qualification total = 120 credits (6 Mandatory Units - 60 credits + 6 Optional Units - 60 credits)

For further qualification details refer to: www.register.ofqual.gov.uk/Qualification and search by relevant qualification or unit number.

Transferable skills (Wales)

Essential skills (Wales)

	Minimum level	Credit value
Communication	2	6
Application of numbers	2	6
IT	2	6

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Successful completion of a Foundation Level 2 framework in the Building Services Engineering Sector
- Completion of a Welsh Government 'Pathway to Apprenticeship' in Engineering
- Successful completion of a Welsh Baccalaureate Intermediate Diploma
- Work or work experience
- Training and/or experience which could include a portfolio showing what they have done
- Academic qualification(s) such as three GCSEs grades A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Essential Skills or Wider KeySkills at Level 2
- Level 2 GNVQs in relevant vocational/technical subjects
- Completion of a Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer.

Progression routes out of this pathway

On successful completion of the Apprenticeship (Level 3) framework in Building Services Engineering Technology and Project Management, an apprentice will have the skills, knowledge and qualifications to:

- Register on an appropriate Certification Scheme
- Progress onto relevant Level 4/5 qualifications e.g. Level 4 Building Services Engineering Technology & Project Management, Higher National Certificate in Construction and the

Built Environment or Foundation Degree in Building Services Engineering

- Progress onto the Level 6 Apprenticeships in Building Services Engineering Technology & Project Management
- Take a relevant Trade Test to demonstrate competence to work in other UK countries
- Progress in their career with further training into job roles such as Technician, System Designer, Estimator, Project/Contracts Manager, Site/Workshop Supervisor/Manager, Chartered Engineer, Sales Engineer or Commercial Manager
- Gain recognition with a professional body ie. the Engineering Councils UK Standards for Professional Engineering Competence <http://www.engc.org.uk/>

Further career guidance can be found at: <http://www.summitskills.org.uk/building-services-apprenticeships-careers>

UCAS points for this pathway:

(no information)

Employee rights and responsibilities

The Employee Rights and Responsibilities (ERR) elements identified below can be achieved through an induction programme, in combination with the Pearson (600/7813/3) Level 3 Diploma in Building Services Engineering for Technicians (QCF) qualification into which they are integrated and signposted. The ERR elements will be evidenced by the issuing of a qualification achievement certificate plus the declaration consent form when claiming for the apprenticeship certificate.

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health and Safety, together with the responsibilities and duties of employers
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health and Safety, and Equality and Diversity training must be an integral part of the apprentice's learning programme
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme
4. understands the role played by their occupation within their organisation and industry
5. has an informed view of the types of career pathways that are open to them;
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities
7. knows where and how to get information and advice on their industry, occupation, training and career
8. can describe and work within their organisation's principles and codes of practice
9. recognises and can form a view on issues of public concern that affect their organisation and industry

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

How equality and diversity will be met

The nature of the work means that the Building Services Engineering Technology and Project Management Sector is not a traditional career choice for women, but women do qualify and work successfully in the industry and this is encouraged. We are continuing to work with the UK Resource Centre for Women in Science, Engineering and Technology and the Platform 51 (formerly YWCA) to promote the opportunities for women working within the building services engineering sector.

SummitSkills will have overall responsibility for the development and review of the framework and for monitoring equality of opportunity, primarily by the analysis of the National Apprenticeship Service data.

There should be open recruitment of apprentices who meet the selection criteria, regardless of gender, ethnic origin, religion/belief, sexual orientation or disability .

All partners involved in the delivery of the apprenticeship and employers must be committed to a policy of equal opportunities and must have a formal equal opportunities policy and procedure in place. Employers/providers must be able to demonstrate that there are no overt or covert discriminatory practices in selection and employment. All promotional, selection and training activities must comply with relevant legislation such as the Equality Act 2010.

<http://www.equalityhumanrights.com/advice-and-guidance/new-equality-act-guidance/>

Providers will monitor equality of opportunity practice and procedures within their own organisation and take positive action when necessary. It is also recommended that employers/providers conduct an exit interview if the apprentice leaves the programme before completion.

On and off the job training (Wales)

Summary of on- and off-the-job training

Overview of Technician pathway

Knowledge Qualification Total - 720 hrs

Competence Qualification Total - 190-224 hrs (depending on pairs chosen)

Essential Skills (ES) - 135 hrs (notional value of 45hrs per ES x 3, which can be offset if previously completed)

Mentoring - 322 hrs (based on 46 wks x 2 hrs per full year over 42 months)

Minimum recommended total Training Hours for this framework is 1367-1401 hrs

Overview of Design Technician pathway

Knowledge Qualification Total - 720 hrs

Competence Qualification Total - 334 hrs

Essential Skills (ES) - 135 hrs (notional value of 45hrs per ES x 3, which can be offset if previously completed)

Mentoring - 322 hrs (based on 46 wks x 2 hrs per full year over 42 months)

Minimum recommended total Training Hours for this framework is 1511 hrs

In addition to these hours we would encourage further practice take place in the work place.

Apprenticeships should normally require employment of at least 30 hrs per week as part of their Apprenticeship Agreement.

All training hours must be delivered during contracted working hours under an Apprenticeship Agreement or during a period less than 5 years before the date of application for an Apprenticeship certificate.

Training Hours:

- must be planned, reviewed and evaluated jointly between the apprentice and tutor, teacher, mentor or manager
- must allow access as and when required by the apprentice either to a tutor, teacher,

mentor or manager

- must be delivered through one or more of the following methods: individual and group teaching, e-learning, distance learning, coaching, mentoring; feedback and assessment; collaborative/networked learning with peers; guided study

The framework delivery:

- must be planned to make full and effective use of the duration, including the opportunity for apprentices to embed and extend their learning through repeated workplace practice
- some of the Training Hours may be offset through Recognition of Prior Learning (RPL) of suitable qualifications and demonstrable experience gained within 5 years of apprenticeship certificate application
- a completed Training Hours checklist signed by the assessor and apprentice must be provided as evidence that on and off the job hour requirements have been met and is available on SummitSkills website at:

<http://www.summitskills.org.uk/Apprenticeships/Certification-and-Registration/219>

Off-the-job training

Technician pathway

Minimum recommended total off-the-job Training Hours is 1045 hrs over 42 months (depending on pairs chosen, up to an additional 34 training hours will be required on top of the figures below)

- Yr 1 - 298 hrs
- Yr 2 - 298 hrs
- Yr 3 - 298 hrs
- Yr 4 - 151 hrs (based on 6 months)

Design Technician pathway

Minimum total off-the-job Training hours is 1189 hrs over 42 months

- Yr 1 - 340 hrs
- Yr 2 - 340 hrs
- Yr 3 - 340 hrs
- Yr 4 - 169 hrs (based on 6 months)

How this requirement will be met

Training Hours will be achieved through clear and specific outcomes which contribute directly to the successful completion of the framework, and these may include accredited and non-accredited elements of the framework.

Training Hours will be delivered through one or more of the following methods: individual and group teaching; e-learning; distance learning; feedback and assessment; guided study.

All Training Hour delivery will take place during contracted working hours and while working under an Apprenticeship Agreement. Off the job training hours will be away from the immediate pressures of the workplace eg day release, block release, web based learning, mentoring etc This will be recorded and evidenced by training provider attendance statistics, assessment reports and apprentice diary/portfolio.

Recognition of prior learning (RPL) can be made if achieved within the previous 5 years. As examples of previous experience will vary it will be the responsibility of the Awarding Bodies to agree adjustments to the learning programmes with Training Providers and Employers. Summitskills reserves the right to audit centres regarding RPL and recommend further training if it is felt the adjustments are not suitable.

For learners who have followed a WAG funded apprenticeship programme a simple declaration from the Training Provider is suitable confirmation of the depth and quality of the training hour delivery. The Training Provider would then keep evidence such as individual learning plans, progress reviews, attendance statistics and assessment reports which could be inspected should the need arise.

On-the-job training

Technician pathway

Minimum recommended total on-the-job Training Hours is 322 hrs over 42 months

- Yr 1 - 92
- Yr 2 - 92
- Yr 3 - 92
- Yr 4 - 46 (based on 6 months)

Design Technician pathway

Minimum total on-the-job Training Hours is 322 hrs over 42 months

- Yr 1 - 92 hrs
- Yr 2 - 92 hrs
- Yr 3 - 92 hrs
- Yr 4 - 46 hrs (based on 6 months)

These are the minimum number of Training Hours that should be allocated for the apprentice to gather evidence in accordance with the requirements of the competence qualification and mentoring.

How this requirement will be met

Training Hours will be achieved through clear and specific outcomes which contribute directly to the successful achievement of the framework and these may include accredited and non-accredited elements of the framework.

Training hours will be achieved through clear and specific outcomes which contribute directly to the successful completion of the framework, and these may include accredited and non-accredited elements of the framework.

Training hours will be delivered through one or more of the following methods: individual and group teaching; e-learning; distance learning; coaching; mentoring; feedback and assessment; collaborative/networked learning with peers.

All Training hours delivery will take place during contracted working hours and while working under an Apprenticeship Agreement.

On the job Training Hours must be recorded eg in a diary/portfolio checked by an assessor, logs of peer review discussions, performance reviews etc

This will be evidenced by apprentices portfolio, employer dialogue, qualification assessment records and reports.

Recognition of prior learning (RPL) can be made if achieved within the previous 5 years. As examples of previous experience will vary it will be the responsibility of the Awarding Bodies to agree adjustments to the learning programmes with Training Providers and Employers. Summitskills reserves the right to audit centres regarding RPL and recommend further training if it is felt the adjustments are not suitable.

For learners who have followed a WAG funded apprenticeship programme a simple declaration from the Training Provider is suitable confirmation of the depth and quality of the training hour delivery. The Training Provider would then keep evidence such as individual learning plans, progress reviews, attendance statistics and assessment reports which could be inspected should the need arise.

Wider key skills assessment and recognition (Wales)

Improving own learning and performance

There is no requirement for apprentices to provide evidence they have achieved the Wider Key Skill of **Improving own learning and performance**. However, it should be noted that the content, delivery and assessment of the combined qualifications within the Apprenticeship (Level 3) frameworks will provide an opportunity for the apprentice to demonstrate they have the ability, to improve their own learning and performance in the work place and training environment.

Working with others

There is no requirement for apprentices to provide evidence they have achieved the Wider Key Skill of **Working with others**. However, it should be noted that the content, delivery and assessment of the combined qualifications within the Foundation (Level 2) and Apprenticeship (Level 3) frameworks will provide an opportunity for the apprentice to demonstrate they have the ability, to work with others in the work place and training environment.

Problem solving

There is no requirement for apprentices to provide evidence they have achieved the Wider Key Skill of **Problem Solving**. However, it should be noted that the content, delivery and assessment of the combined qualifications within the Foundation (Level 2) and Apprenticeship (Level 3) frameworks will provide an opportunity for the apprentice to demonstrate they have the ability, to solve theoretical and practical problems in the work place and training environment.

Additional employer requirements

Although not a requirement for issuing an “Apprenticeship Completion Certificate”, employers in the building services engineering sector **encourage** organisations that are delivering a learning and assessment programme for this Advanced Level Apprenticeship Framework to integrate the ***Level 3 Award in the Fundamental Principles and Requirements of Environmental Technology Systems (BPEC 600/6377/4, City & Guilds 600/4282/5, EAL 600/0665/1, LCL 600/5715/4 or ProQual 600/6253/8; credit value 2, GLH 15)*** into their delivery models.

Matching qualifications from other Awarding Organisations may intermittently become available on the OFQUAL Register and this framework document will be updated bi-annually to reflect suitable qualifications at that time.

It should be noted that the delivery of this qualification may **not** attract funding

apprenticeship
FRAMEWORKS ONLINE

For more information visit
www.afo.sscalliance.org