apprenticeship
FRAMEWORK

# Laboratory and Science Technicians (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=FR03718

Issue date: 05 February 2016

Published by
Cogent

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Apprenticeships

# 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.

# Laboratory and Science Technicians (Wales)

## Contents

# Framework summary

## Laboratory and Science Technicians

## Foundation Apprenticeship for Laboratory and Science Technicians

### Pathways for this framework at level 2 include:

#### Pathway 1: Laboratory and Associated Technical Activities - (Education Science)

**Competence qualifications available to this pathway:**

C1 - PAA\VQ-SET Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

C2 - Edexcel Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

C3 - MPQC Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

**Knowledge qualifications available to this pathway:**

K1 - Edexcel BTEC Level 2 Diploma in Applied Science (QCF)

K2 - Edexcel BTEC Level 2 Extended Certificate in Engineering (Specialist: Applied Science) (QCF)

K3 - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF)

**Combined qualifications available to this pathway:**

N/A

**This pathway also contains information on:**

- Employee rights and responsibilities
- Essential skills

#### Pathway 2: Laboratory and Associated Technical Activities (Industrial Science)

**Competence qualifications available to this pathway:**

C1 - PAA\VQ-SET Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

C2 - Edexcel Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

C3 - MPQC Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

**Knowledge qualifications available to this pathway:**

K1 - Edexcel BTEC Level 2 Diploma in Applied Science (QCF)

K2 - Edexcel BTEC Level 2 Extended Certificate in Engineering (Specialist: Applied Science) (QCF)

K3 - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF)

**Combined qualifications available to this pathway:**

N/A

**This pathway also contains information on:**

- Employee rights and responsibilities
- Essential skills

#### Pathway 3: Laboratory Science (Compound Analysis)

**Competence qualifications available to this pathway:**

C1 - PAA\VQ-SET Level 2 NVQ Diploma in Laboratory Science (QCF)

C2 - Edexcel Level 2 NVQ Diploma in Laboratory Science (QCF)

**Knowledge qualifications available to this pathway:**

K1 - Edexcel BTEC Level 2 Diploma in Applied Science (QCF)

K2 - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF)

**Combined qualifications available to this pathway:**

N/A

**This pathway also contains information on:**

- Employee rights and responsibilities
- Essential skills

### Pathway 4: Laboratory Science (Clinical Analysis)

**Competence qualifications available to this pathway:**

C1 - PAA\VQ-SET Level 2 NVQ Diploma in Laboratory Science (QCF)

C2 - Edexcel Level 2 NVQ Diploma in Laboratory Science (QCF)

**Knowledge qualifications available to this pathway:**

K1 - Edexcel BTEC Level 2 Diploma in Applied Science (QCF)

K2 - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF)

**Combined qualifications available to this pathway:**

N/A

**This pathway also contains information on:**

- Employee rights and responsibilities
- Essential skills

# Laboratory and Science Technicians

## Apprenticeship for Laboratory and Science Technicians

### Pathways for this framework at level 3 include:

### Pathway 1: Laboratory and Associated Technical Activities - (Education Science)

**Competence qualifications available to this pathway:**

C1 - PAA\VQ-SET Level 3 NVQ Diploma in Laboratory and Associated Technical Activities (QCF)

C2 - Edexcel Level 3 NVQ Diploma in Laboratory and Associated Technical Activities (QCF)

C3 - MPQC Level 3 NVQ Diploma In Laboratory and Associated Technical Activities (QCF)

**Knowledge qualifications available to this pathway:**

K1 - Edexcel BTEC Level 3 Diploma in Applied Science (QCF)

K2 - Edexcel BTEC Level 3 Extended Diploma in Applied Science (QCF)

K3 - Edexcel BTEC Level 3 Subsidiary Diploma in Applied Science (QCF)

K4 - PAA\VQ-SET Level 3 Certificate in Laboratory Technical Skills (QCF)

K5 - Edexcel BTEC Level 4 HNC Diploma in Applied Chemistry (QCF)

K6 - Edexcel BTEC Level 4 HNC Diploma in Applied Biology (QCF)

**Combined qualifications available to this pathway:**

N/A

**This pathway also contains information on:**

- Employee rights and responsibilities
- Essential skills

**Pathway 2: Laboratory and Associated Technical Activities (Industrial Science)**

**Competence qualifications available to this pathway:**

C1 - PAA\VQ-SET Level 3 NVQ Diploma in Laboratory and Associated Technical Activities (QCF)

C2 - Edexcel Level 3 NVQ Diploma in Laboratory and Associated Technical Activities (QCF)

C3 - MPQC Level 3 NVQ Diploma In Laboratory and Associated Technical Activities (QCF)

**Knowledge qualifications available to this pathway:**

K1 - Edexcel BTEC Level 3 Diploma in Applied Science (QCF)

K2 - Edexcel BTEC Level 3 Extended Diploma in Applied Science (QCF)

K3 - Edexcel BTEC Level 3 Subsidiary Diploma in Applied Science (QCF)

K4 - Edexcel BTEC Level 3 Diploma in Manufacturing Engineering (QCF)

K5 - PAA\VQ-SET Level 3 Certificate in Laboratory Technical Skills (QCF)

K6 - Edexcel BTEC Level 4 HNC Diploma in Applied Chemistry (QCF)

K7 - Edexcel BTEC Level 4 HNC Diploma in Applied Biology (QCF)

**Combined qualifications available to this pathway:**

N/A

**This pathway also contains information on:**

- Employee rights and responsibilities
- Essential skills

**Pathway 3: Laboratory Science - Analytical & Process Science**

**Competence qualifications available to this pathway:**

C1 - PAA\VQ-SET Level 3 NVQ Diploma in Laboratory Science (QCF)

C2 - Edexcel Level 3 NVQ Diploma in Laboratory Science (QCF)

**Knowledge qualifications available to this pathway:**

K1 - Edexcel BTEC Level 3 Diploma in Applied Science (QCF)

K2 - Edexcel BTEC Level 3 Extended Diploma in Applied Science (QCF)

K3 - Edexcel BTEC Level 3 Subsidiary Diploma in Applied Science (QCF)

K4 - PAA\VQ-SET Level 3 Certificate in Laboratory Technical Skills (QCF)

K5 - Edexcel BTEC Level 4 HNC Diploma in Applied Chemistry (QCF)

K6 - Edexcel BTEC Level 4 HNC Diploma in Applied Biology (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:

**Cogent**

The Apprenticeship sector for occupations in chemical manufacturing, nuclear science, oil and gas extraction (also includes process technology, bioscience, polymer and sign making).

| | |
|---|---|
| Issue number: 3 | **This framework includes:** |
| Framework ID: FR03718 | Level 2<br>Level 3 |
| Date this framework is to be reviewed by: 31/01/2018 | This framework is for use in: **Wales** |

## Short description

Laboratory and science technicians cover a broad range of occupational roles from those who support scientists and engineers in research and development work to those who provide quality assurance or analytical science services. They can also be found in schools, colleges and universities supporting teachers of science and technical learning.

This framework is based on a previous framework for Laboratory Technicians jointly issued by Cogent and Semta. It is designed for laboratory and science technicians who carry out routine laboratory and science based operations and those involved in non-routine, more varied work activities such as planning, organising and leading technician support functions to assist scientists, educationalists and technologists in their work.

# Contact information

## Proposer of this framework

Cogent has worked with employers and Further Education Colleges in Wales to review this Apprenticeship Framework. This Framework was found fit for purpose.

## Developer of this framework


| | |
|---|---|
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## Issuing Authority's contact details

| | |
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| Issued by: | Cogent |
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# Revising a framework

## Contact details


| | |
|---|---|
| Who is making this revision: | Ian Lockhart |
| Your organisation: | Cogent Sector Skills Council |
| Your email address: | ian.lockhart@cogentskills.com |


## Why this framework is being revised

**January 2016:**

This Framework has been reviewed and apart from some minor administration, this Framework was found fit for purpose.

The removal of one knowledge qualification from the foundation apprenticeship pathway.
The removal of three knowledge qualification from the apprenticeship pathway.

## Summary of changes made to this framework

**January 2016:**

The removal of one knowledge qualification from the foundation apprenticeship pathway.
The removal of three knowledge qualification from the apprenticeship pathway.

## Qualifications removed

**Foundation Apprenticeship Pathway:**
- 500/7453/2 Pearson BTEC Level 2 Extended Certificate in Applied Science (QCF)

**Apprenticeship Pathway:**
- 500/8186/X Pearson BTEC Level 3 Diploma in Engineering (Specialist Applied Science) (QCF)
- 500/7854/9 Pearson BTEC Level 3 Subsidiary Diploma in Dental Technology (QCF)
- 500/7795/8 Pearson BTEC Level 3 Extended Diploma in Dental Technology (QCF)

## Qualifications added

None

## Qualifications that have been extended

None

# Purpose of this framework

## Summary of the purpose of the framework

The contribution that good laboratory and science technicians could make to science companies operating in the United Kingdom is being hampered by the scarcity of people with the necessary practical and theoretical skills to be effective.  Over the years employers have developed an increasing reliance on university graduates to fill these technician roles; this has been recognised as being neither cost effective nor sustainable.

Cogent has scoped, designed and developed new suites of National Occupational Standards and related qualifications for which there is a strong emerging market from employers.

This framework builds on Cogent and Semta's previous joint framework for laboratory technicians and has been written in response to significant interest by employers in the use of non-graduate technicians in these support roles. The framework is designed for laboratory and science technicians who carry out both routine and one-off laboratory testing and perform a variety of technical support functions to help scientists, technologists and others with their work. It is also for technicians who help teachers/lecturers in the delivery of science education.

The specific nature of each laboratory and science technician job role will vary according to the needs of the employer, but apprentices could work in the following areas: research and development, scientific analysis and testing or education and industry. Technicians are employed in a wide range of scientific fields that impact almost every aspect of our lives. They could be involved in helping to diagnose disease by supporting medical specialists in a hospital or health clinic environment or checking products in the food, drink or pharmaceutical industries. They are frequently called upon to set up equipment and experiments that support teachers and lecturers who teach biology, chemistry, physics and other scientific subjects.

The framework is designed to meet the needs of a broad range of employers and industries where laboratory and science technicians' roles are needed. Some key facts about these industries are given below:

Semta and Cogent research for the Pharmaceutical ( R&D) (SIC Code 24.4), Manufacture of Medical & Surgical equipment & orthopaedic appliances (SIC Code 33.10) and Science & Engineering R&D (SIC Code 73.10), shows there are:

- Approximately 191,000 employees and 6,500 employers across four nations (England 87%, Scotland 7%, Wales 4% & Northern Ireland 2%).

The following characteristics are anticipated (2010-2016):

- Increase of 15,000 people employed in the sector (1.3% average growth rates per annum)
- Net requirement for 50,000 people to cover employment growth and retirements within the sector
- Estimated net requirement of 9,300 associated professionals (technicians)
- Cogent research on the future of skills in the Life Science and Pharmaceuticals sectors (December 2009) found that the most critical and hard-to-fill occupations are those of a scientific and technical variety
- The industry absorbs 460 scientific graduates each year – mainly chemical and biological sciences, this reducing supply needs to be targeted at high level roles
- 45% of graduates are in occupations for which they are over-qualified, Semta research suggests many of these are working in technician roles

The HEaTED project found that there will be a significant demand for new laboratory and science technicians. These technician support roles are vital to schools, FE and HE teaching and learning in the UK. The demand for these new technicians is likely to number in the thousands over the next five to ten years.

Other sectors that are likely to benefit from this framework include:

- Chemicals
- Petro-chemicals
- Public and private health care
- Animal and marine science
- Nuclear
- Pharmaceuticals
- Waste disposal
- Mining, quarrying and extractives
- Building and construction support services
- Ecological/environmental science
- Metallurgy science
- Food science and hygiene
- Agriculture science

The framework provides employers and apprentices the opportunity to gain the skills and experience that are needed for a job as a laboratory technician or science technician role. It also enables/contributes to career progression including access to additional Further or Higher Education programmes/qualifications. For employers, the framework will provide a cost-effective process for increasing and sustaining the overall numbers of laboratory technicians.

## Aims and objectives of this framework (Wales)

The aim of this framework is to attract, retain and develop apprentices who wish to become laboratory technicians at Foundation Level 2 and Apprentice Level 3, more specifically:

- to contribute towards meeting the recruitment and retention issues faced by the sectors employers
- to provide a range of Laboratory and Science Technician pathways and job functions suitable for employers' requirements
- increase the technical capability of laboratory and science technicians in general
- encourage the participation of non-graduates in laboratory and science technician job roles
- increase retention among laboratory technicians and associated groups
- improve productivity and profitability (GVA per employee)
- increase the overall level of apprenticeship participation in the science sector
- help maintain diversity within the workforce

# Entry conditions for this framework

Science sector employers wish to attract applicants who have an interest in working in a Science environment and would be interested in applicants that:

- are keen and motivated to work in a science environment
- are willing to undertake a course of extended training in a work environment on-the-job and off-the-job
- have had previous work experience or employment in the sector
- have a Welsh Baccalaureate with or without a science core option
- have GCSEs in English, Mathematics, and Science grades (A to E)
- have completed a Pathways to Apprenticeship programme

As a guide, the Laboratory and Science Technician Foundation Apprenticeship is suitable for applicants who have five GCSEs grade D or E or above including Maths, English and a Science.

The Laboratory and Science Technician Level 3 Apprenticeship is suitable for applicants who have five GCSEs grade C or above including Maths, English, and a Science. This is not a hard and fast rule but may vary according to the pathway chosen and the suitability of individual applicants.

Applicants wishing to undertake a BTEC Level 4 HNC Diploma underpinning knowledge qualification should already have achieved a Technical Certificate at Level 3, A Levels or equivalent in the relevant subject area and be age 18+ (as specified by the qualifications entry on RITS).

The Science sector does not impose restrictions to entry, such as minimum level of qualifications and welcomes applicants from a range of diverse backgrounds and anticipates that applicants will have a wide range of experience, achievements and qualifications.

The selection process on behalf of employers may include initial assessment activity where applicants may be asked if they have qualifications or experience that can be accredited against the requirements of the apprenticeship. Applicants may also be required to take tests in basic numeracy, literacy, communication skills and spatial awareness. There may also be an interview to ensure potential apprentices have selected the right occupational sector to meet their needs and expectations and those of their employer.

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. The Welsh Baccalaureate with its Core programme of personal learning and development studies along with options such as, Vocational Qualifications and Principal Learning could provide significant opportunities for accreditation of Prior Learning against the components of this framework. The same processes can be applied to GCSEs. Training

providers/Colleges should be able to advise entrants on the potential reduction in programme duration that could result from accrediting previous qualifications and experience.

**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.

**Accreditation of Prior Learning**

Applicants already working in the sector will be able to have their prior experience recognised by the awarding organisation and this will count towards the competence, knowledge and Essential Skills Wales qualifications in this framework.

**Knowledge qualifications**

If applicants already have one of the Level 2 or Level 3 knowledge qualifications before they started their Apprenticeship (see knowledge qualifications page in this framework), they can count this and do not have to redo the qualification, providing that they have achieved this qualification within (5 years) of applying for the apprenticeship certificate. For example, they may have already achieved the knowledge element as part of the Welsh Baccalaureate. The hours they spent gaining this qualification will also count towards the minimum hours required for this framework.

**Competence qualifications**

If applicants already have the Level 2 or Level 3 competence qualification for the Apprenticeship they do not have to repeat this qualification. However, this qualification must have been achieved within 5 years of applying for the apprenticeship certificate and they will still have to demonstrate competence in the workplace.

**Essential Skills Wales/Key Skills**

Some key points regarding the Essential Skill Wales (ESW) requirements of SASW frameworks. Please note that these are the minimum requirements:

Apprentices registering on a SASW Apprenticeship on or after 1st Sept 2010 must undertake the required mandatory ESW in Communication and Application of Number (at the level specified in their framework).

Please note that some frameworks may also require ESW in Information and Communication Technology to be achieved.

However, learners who have previously achieved a Key Skill qualification in either Wales or England at any time prior to commencing their Apprenticeship, are exempt from having to undertake the equivalent ESW qualification.
ACW Guidance Notes V2 (June 2014)

# Level 2

## Title for this framework at level 2

# Foundation Apprenticeship for Laboratory and Science Technicians

## Pathways for this framework at level 2

| | |
|---|---|
| Pathway 1: | Laboratory and Associated Technical Activities - (Education Science) |
| Pathway 2: | Laboratory and Associated Technical Activities (Industrial Science) |
| Pathway 3: | Laboratory Science (Compound Analysis) |
| Pathway 4: | Laboratory Science (Clinical Analysis) |

# Level 2, Pathway 1: Laboratory and Associated Technical Activities - (Education Science)

## 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) = 66 credits

**Pathway with minimum total learning hours = 621 training hours**
- Competence = minimum 214 hours/ minimum 31 credits
- Knowledge = minimum 115 hours (based on the smallest technical certificate training hours)
- Knowledge = minimum 17 credits (based on the smallest technical certificate credit)
- Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
- Mentoring 72 weeks x 1 hour/week = 72 hours
- ERR = 40 minimum hours

Year 1 = 414 Hours Year 2 = 207 Hours

**Minimum off-the-job training hours = 407 training hours**
Knowledge - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF) (115 training hours) plus 292 additional training hours for Essential Skills Wales, ERR and Mentoring

**Minimum credit value** = 66 credits

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**Pathway with maximum total learning hours = 866 training hours**
- Competence = 214 hours/ 31 credits
- Knowledge = maximum 360 hours (based on the largest technical certificate training hours)
- Knowledge = maximum 60 credits (based on the largest technical certificate credit)
- Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
- Mentoring 72 weeks x 1 hour/week = 72 hours
- ERR = 40 minimum hours

Year 1 = 577 Hours Year 2 = 289 Hours

**Maximum off-the-job training hours = 652 training hours**
Knowledge - Edexcel BTEC Level 2 Diploma in Applied Science (QCF) (360 training hours) plus 292 additional training hours for Essential Skills Wales, ERR and Mentoring

**Maximum credit value** = 109 credits

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

There are no additional requirements to that stated in the general entry requirements

| Job title(s) | Job role(s) |
| --- | --- |
| Laboratory Technician Education Science (General) | Prepare resources and set up scientific equipment for School / College / University experimentation |
| Laboratory Technician Education Science (Maintenance) | Maintain scientific equipment and resources used for experimentation |

# Qualifications

## Competence qualifications available to this pathway

C1 - PAA\VQ-SET Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C1a | 501/1868/7 | PAA\VQ-SET (Education Science Pathway) | 31 | 214 | N/A |

C2 - Edexcel Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C2a | 600/1664/4 | Edexcel (Education Science Pathway) | 31 | 214 | N/A |

C3 - MPQC Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C3a | 600/3000/8 | MPQC (Education Science Pathway) | 31 | 214 | N/A |

## Knowledge qualifications available to this pathway

| K1 - Edexcel BTEC Level 2 Diploma in Applied Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K1a | 500/6671/7 | Edexcel | 60 | 360 | N/A |

| K2 - Edexcel BTEC Level 2 Extended Certificate in Engineering (Specialist: Applied Science) (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K2a | 500/8250/4 | Edexcel | 30 | 180 | N/A |

| K3 - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K3a | 600/1546/9 | PAA\VQ-SET | 17 | 115 | N/A |

## Combined qualifications available to this pathway

N/A

## Relationship between competence and knowledge qualifications

**K1a - K3a provide underpinning knowledge for C1a - C3a**

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications deliver essential knowledge which supports the fundamental scientific principles to equip apprentices with the basic understanding required to operate effectively and efficiently in the industry.

In this pathway the units selected from the knowledge-based qualifications should ideally be delivered in an educational workplace context such as an education laboratory.

# Transferable skills (Wales)

## Essential skills (Wales)

| | Minimum level | Credit value |
|---|---|---|
| Communication | Level 1 | 6 |
| Application of numbers | Level 1 | 6 |
| IT | Level 1 | 6 |

# Progression routes into and from this pathway

Progression into the pathway has been described within the entry criteria but the majority of entrants are likely to be school leavers who have completed their GCSE/Baccalaureate studies and relevant vocational activity such as a work experience. Others may have worked in the science sector for a period before considering an apprenticeship.

Progression from the pathway is harder to predict as this is the first time that an apprenticeship programme has been considered as a mainstream means of training laboratory technicians. It is likely that successful apprentices will take up positions in education establishments such Schools, Colleges and Universities as laboratory or science technicians working to support senior teachers and lecturers in setting up and running educational experiments and carrying out research. Others will be involved in maintaining experimental equipment to ensure that it is serviceable and fit for purpose.

In some cases successful foundation apprentices may be offered progression to a Level 3 Apprenticeship specialising in education science or indeed some other area of activity such as Industrial Science or Analytical and Process Science.

# Employee rights and responsibilities

**Delivery and assessment of Employee Rights and Responsibilities**

The nine national outcomes for Employee Rights and Responsibilities (ERR) are as follows:

1. 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 duties of employers.

2. Procedures and documentation which recognises and protects their relationship with their employer, including health and safety and equality and diversity training as part of the apprenticeship.

3. The range of sources and information and advice available to them on their employment rights and responsibilities, including Access to Work and Additional Learning Support.

4. The role played by their occupation in 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 the main roles and responsibilities.

7. 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. Can recognise and form a view on issues of public concern that affect their organisation and industry.

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

**Method 1 - Qualifications**

**1a.** Emta Awards Limited (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

Guided learning hours: 41

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

Qualification details:

Edecxel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)
QCF qualification ref no: 501/1793/2
Credit value: 4 credits
Guided learning 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 education science in this case).

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 science 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

2b. Cogent has produced an Apprentice ERR workbook that is available from:
www.cogentskills.com

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 following forms of evidence will be required:**

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

or

A qualification certificate for Edexcel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF) **which must include achievement of Unit 2**

or

A completed and countersigned declaration from the Semta ERR workbook

or

A completed and countersigned declaration from the Cogent ERR workbook

**Please Note**

Any of these workbooks will be acceptable for apprenticeship certification via Apprenticeship Certification Wales (ACW).

For more information on Apprenticeship Certification Wales please visit [www.acwcerts.co.uk](http://www.acwcerts.co.uk)

# Level 2, Pathway 2: Laboratory and Associated Technical Activities (Industrial Science)

## 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) = 67 credits

**Pathway with minimum total learning hours = 652 training hours**
• Competence = minimum 245 hours/ minimum 32 credits
• Knowledge = minimum 115 hours (based on the smallest technical certificate training hours)
• Knowledge = minimum 17 credits (based on the smallest technical certificate credit)
• Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
• Mentoring 72 weeks x 1 hour/week = 72 hours
• ERR = 40 minimum hours
Year 1 = 435 Hours Year 2 = 217 Hours

**Minimum off-the-job training hours = 407 training hours**
Knowledge - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF) (115 training hours) plus 292 additional training hours for Essential Skills Wales, ERR and Mentoring

**Minimum credit value** = 67 credits

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**Pathway with maximum total learning hours = 897 training hours**
• Competence = 245 hours/ 32 credits
• Knowledge = maximum 360 hours (based on the largest technical certificate training hours)
• Knowledge = maximum 60 credits (based on the largest technical certificate credit)
• Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
• Mentoring 72 weeks x 1 hour/week = 72 hours
• ERR = 40 minimum hours
Year 1 = 598 Hours Year 2 = 299 Hours

**Maximum off-the-job training hours = 652 training hours**
Knowledge - Edexcel BTEC Level 2 Diploma in Applied Science (QCF) (360 training hours) plus 292 additional training hours for Essential Skills Wales, ERR and Mentoring

**Maximum credit value** = 110 credits

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

There are no additional requirements to that stated in the general entry requirements

| Job title(s) | Job role(s) |
|---|---|
| Laboratory Technician (Standards) | Maintain, calibrate and verify equipment functionality for test purposes |
| Laboratory (Maintenance) | Maintain instruments and medical devices |
| Laboratory Test Technician (Quality) | Quality testing of manufactured products |
| Laboratory Analysis Techncian | Analyse samples after manufacture |
| Laboratory Techncian (Process) | Analysis of samples during manufacture |
| Laboratory Technician (Metrology) | Ensure test equipment and instrumentation is appropriately calibrated to ensure accurate measurement |
| Laboratory Technician (Health Physics) | Monitoring of ionising radiation levels by real time measurement and by anlysing dosimeter equipment |
| Laboratory Technician (Process) | Control and testing of petrochemical products |

# Qualifications

## Competence qualifications available to this pathway

C1 - PAA\VQ-SET Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C1a | 501/1868/7 | PAA\VQ-SET (Industrial Science Pathway) | 32 | 245 | N/A |

C2 - Edexcel Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C2a | 600/1664/4 | Edexcel (Industrial Science Pathway) | 32 | 245 | N/A |

C3 - MPQC Level 2 NVQ Certificate in Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C3a | 600/3000/8 | MPQC (Industrial Science Pathway) | 32 | 245 | N/A |

## Knowledge qualifications available to this pathway

| K1 - Edexcel BTEC Level 2 Diploma in Applied Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K1a | 500/6671/7 | Edexcel | 60 | 360 | N/A |

| K2 - Edexcel BTEC Level 2 Extended Certificate in Engineering (Specialist: Applied Science) (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K2a | 500/8250/4 | Edexcel | 30 | 180 | N/A |

| K3 - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K3a | 600/1546/9 | PAA\VQ-SET | 17 | 115 | N/A |

## Combined qualifications available to this pathway

N/A

## Relationship between competence and knowledge qualifications

**K1a - K3a provides underpinning knowledge for C1a - C3a**

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications deliver essential knowledge which supports the fundamental scientific principles to equip apprentices with the basic understanding required to operate effectively and efficiently in the industry.

In this pathway the units selected from the knowledge-based qualifications should be delivered in a workplace context, such as metallurgy or processing laboratory.

# Transferable skills (Wales)

## Essential skills (Wales)

| | Minimum level | Credit value |
|---|---|---|
| Communication | Level 1 | 6 |
| Application of numbers | Level 1 | 6 |
| IT | Level 1 | 6 |

# Progression routes into and from this pathway

Progression into the pathway has been described within the entry criteria but the majority of entrants are likely to be school leavers who have completed their GCSE/Baccalaureate studies and relevant vocational activity such as a work experience. Others may have worked in the science sector for a period before considering an apprenticeship.

Progression from the pathway is harder to predict as this is the first time that an apprenticeship programme has been considered as a mainstream means of training laboratory technicians. It is likely that successful apprentices will take up laboratory technician positions in industrial, petrochemical and nuclear companies carrying out a wide variety of technician job roles.

In some cases successful foundation apprentices may be offered progression to a Level 3 Apprenticeship specialising in Industrial Science or indeed some other area of activity such as Education Science or Analytical and Process Science.

# Employee rights and responsibilities

The nine national outcomes for Employee Rights and Responsibilities (ERR) are as follows:

1. 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 duties of employers.

2. Procedures and documentation which recognises and protects their relationship with their employer, including health and safety and equality and diversity training as part of the apprenticeship.

3. The range of sources and information and advice available to them on their employment rights and responsibilities, including Access to Work and Additional Learning Support.

4. The role played by their occupation in their organisation and industry.

5. Has an informed view of the types of career pathways that are open to them.

6. The types of representative bodies and understands their relevance to their industry and organisation and the main roles and responsibilities.

7. 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. Can recognise and form a view on issues of public concern that affect their organisation and industry.

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

**Method 1**

**1a.** Emta Awards Limited (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
Guided learning hours: 41

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

Qualification details:

Edecxel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)
QCF qualification ref no: 501/1793/2
Credit value: 4 credits
Guided learning 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 industrial science in this case).

This qualification 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 qualification will have demonstrated that they have the underpinning knowledge relevant for the science environment which satisfies the Specification for Apprenticeship Standards for Wales.

**Method 2**

**2a**. Semta has produced an Apprentice ERR workbook that is available from: customercare@eal.org.uk

**2b**. Cogent has produced an Apprentice ERR workbook that is available from: www.cogentskills.com

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 following forms of evidence will be required:**

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

or

A qualification certificate for Edexcel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF) **which must include achievement of Unit 2**

or

A completed and countersigned declaration from the Semta ERR workbook

or

A completed and countersigned declaration from the Cogent ERR workbook

**Please Note**

Any of these workbooks will be acceptable for apprenticeship certification via Apprenticeship Certification Wales (ACW).

For more information on Apprenticeship Certification Wales please visit www.acwcerts.co.uk

# Level 2, Pathway 3: Laboratory Science (Compound Analysis)

## 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) = 85 credits

**Pathway with minimum total learning hours = 675 training hours**
- Competence = minimum 268 hours/ minimum 50 credits
- Knowledge = minimum 115 hours (based on the smallest technical certificate training hours)
- Knowledge = minimum 17 credits (based on the smallest technical certificate credit)
- Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
- Mentoring 72 weeks x 1 hour/week = 72 hours
- ERR = 40 minimum hours

Year 1 = 450 Hours Year 2 = 225 Hours

**Minimum off-the-job training hours = 407 training hours**
Knowledge - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF) (115 training hours) plus 292 additional training hours for Essential Skills Wales, ERR and Mentoring

**Minimum credit value** = 85 credits

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**Pathway with maximum total learning hours = 920 training hours**
- Competence = 268 hours/ 50 credits
- Knowledge = maximum 360 hours (based on the largest technical certificate training hours)
- Knowledge = maximum 60 credits (based on the largest technical certificate credit)
- Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
- Mentoring 72 weeks x 1 hour/week = 72 hours
- ERR = 40 minimum hours

Year 1 = 613 Hours Year 2 = 307 Hours

**Maximum off-the-job training hours = 652 training hours**
Knowledge - Edexcel BTEC Level 2 Diploma in Applied Science (QCF) (360 training hours) plus 292 additional training hours for Essential Skills Wales, ERR and Mentoring

**Maximum credit value** = 128 credits

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

There are no additional requirements to that stated in the general entry requirements

| Job title(s) | Job role(s) |
|---|---|
| Laboratory Technician (Process Control and Testing)) | Control and testing of GMP chemical compounds and products |
| Laboratory Analysis Technician | Analysis of samples after GMP manufacture |
| Laboratory Test Technician (Quality) | Quality testing of GMP manufacture |
| Laboratory Technician (Process Analysis) | Analysis of biotechnology / pharmaceutical samples from GMB Manufacture to ensure quality control |
| Laboratory Manufacturing Technician | Preparation of GMP manufacturing batch stock |
| Laboratory Analysis Technician (Biological / Chemical Analysis) | Biological / chemical analysis of samples to determine content |

# Qualifications

## Competence qualifications available to this pathway

| C1 - PAA\VQ-SET Level 2 NVQ Diploma in Laboratory Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| C1a | 501/1207/7 | PAA\VQ-SET (Compound Analysis Pathway) | 50 | 268 | N/A |

| C2 - Edexcel Level 2 NVQ Diploma in Laboratory Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| C2a | 600/1730/2 | Edexcel (Compound Analysis Pathway) | 50 | 268 | N/A |

## Knowledge qualifications available to this pathway

| K1 - Edexcel BTEC Level 2 Diploma in Applied Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K1a | 500/6671/7 | Edexcel | 60 | 360 | N/A |

## Knowledge qualifications available to this pathway (cont.)

| K2 - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K2a | 600/1546/9 | PAA\VQ-SET | 17 | 115 | N/A |

## Combined qualifications available to this pathway

N/A

## Relationship between competence and knowledge qualifications

**K1a - K2a provides underpinning knowledge for C1a - C2a**

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications deliver essential knowledge which supports the fundamental scientific principles to equip apprentices with the basic understanding required to operate effectively and efficiently in the industry.

In this pathway the units selected in the knowledge-based element should be delivered in a workplace analytical or process laboratory context.

# Transferable skills (Wales)

## Essential skills (Wales)

| | Minimum level | Credit value |
|---|---|---|
| Communication | Level 1 | 6 |
| Application of numbers | Level 1 | 6 |
| IT | Level 1 | 6 |

# Progression routes into and from this pathway

Progression into the pathway has been described within the entry criteria but the majority of entrants are likely to be school leavers who have completed their GCSE/Baccalaureate studies and relevant vocational activity such as a work experience. Others may have worked in the science sector for a period before considering an apprenticeship.

Progression from the pathway is harder to predict as this is the first time that an apprenticeship programme has been considered as a mainstream means of training laboratory technicians. It is likely that successful apprentices will take up laboratory technician positions in bio-science, pharmaceutical and bio-technology roles where GMP regulatory requirements apply.

In some cases successful foundation apprentices may be offered progression to a Level 3 Apprenticeship specialising in compound analysis or indeed some other area of activity such as Education Science or Industrial and Process Science.

# Employee rights and responsibilities

The nine national outcomes for Employee Rights and Responsibilities (ERR) are as follows:

1. 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 duties of employers.

2. Procedures and documentation which recognises and protects their relationship with their employer, including health and safety and equality and diversity training as part of the apprenticeship.

3. The range of sources and information and advice available to them on their employment rights and responsibilities, including Access to Work and Additional Learning Support.

4. The role played by their occupation in their organisation and industry.

5. Has an informed view of the types of career pathways that are open to them.

6. The types of representative bodies and understands their relevance to their industry and organisation and the main roles and responsibilities.

7. 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. Can recognise and form a view on issues of public concern that affect their organisation and industry.

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

**Method 1**

**1a.** Emta Awards Limited (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
Guided learning hours: 41

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

Qualification details:

Edecxel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)
QCF qualification ref no: 501/1793/2
Credit value: 4 credits
Guided learning 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 compound analysis in this case).

This qualification 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 qualification will have demonstrated that they have the underpinning knowledge relevant for the science environment which satisfies the Specification for Apprenticeship Standards for Wales.

**Method 2**

**2a**. Semta has produced an Apprentice ERR workbook that is available from: customercare@eal.org.uk

**2b**. Cogent has produced an Apprentice ERR workbook that is available from: www.cogentskills.com

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 following forms of evidence will be required:**

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

or

A qualification certificate for Edexcel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF) **which must include achievement of Unit 2**

or

A completed and countersigned declaration from the Semta ERR workbook

or

A completed and countersigned declaration from the Cogent ERR workbook

**Please Note**

Any of these workbooks will be acceptable for apprenticeship certification via Apprenticeship Certification Wales (ACW).

For more information on Apprenticeship Certification Wales please visit www.acwcerts.co.uk

# Level 2, Pathway 4: Laboratory Science (Clinical Analysis)

## 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) = 72 credits

**Pathway with minimum total learning hours = 621 training hours**
- Competence = minimum 214 hours/ minimum 37 credits
- Knowledge = minimum 115 hours (based on the smallest technical certificate training hours)
- Knowledge = minimum 17 credits (based on the smallest technical certificate credit)
- Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
- Mentoring 72 weeks x 1 hour/week = 72 hours
- ERR = 40 minimum hours

Year 1 = 414 Hours Year 2 = 207 Hours

**Minimum off-the-job training hours = 407 training hours**
Knowledge - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF) (115 training hours) plus 292 additional training hours for Essential Skills Wales, ERR and Mentoring

**Minimum credit value** = 72 credits

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**Pathway with maximum total learning hours = 866 training hours**
- Competence = 214 hours/ 37 credits
- Knowledge = maximum 360 hours (based on the largest technical certificate training hours)
- Knowledge = maximum 60 credits (based on the largest technical certificate credit)
- Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
- Mentoring 72 weeks x 1 hour/week = 72 hours
- ERR = 40 minimum hours

Year 1 = 577 Hours Year 2 = 289 Hours

**Maximum off-the-job training hours = 652 training hours**
Knowledge - Edexcel BTEC Level 2 Diploma in Applied Science (QCF) (360 training hours) plus 292 additional training hours for Essential Skills Wales, ERR and Mentoring

**Maximum credit value** = 115 credits

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

There are no additional requirements to that stated in the general entry requirements

| Job title(s) | Job role(s) |
| --- | --- |
| Laboratory Technician (Human and Animal) | Therapeutic and diagnostic GLP / GCP testing |
| Medical Laboratory Assistant | Collect, store, process and prepare patient specimens |

# Qualifications

## Competence qualifications available to this pathway

| C1 - PAA\VQ-SET Level 2 NVQ Diploma in Laboratory Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| C1a | 501/1207/7 | PAA\VQ-SET (Clinical Analysis Pathway) | 37 | 214 | N/A |

| C2 - Edexcel Level 2 NVQ Diploma in Laboratory Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| C2a | 600/1730/2 | Edexcel (Clinical Analysis Pathway) | 37 | 214 | N/A |

## Knowledge qualifications available to this pathway

| K1 - Edexcel BTEC Level 2 Diploma in Applied Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K1a | 500/6671/7 | Edexcel | 60 | 360 | N/A |

## Knowledge qualifications available to this pathway (cont.)

| K2 - PAA\VQ-SET Level 2 Certificate in Laboratory Technical Skills (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K2a | 600/1546/9 | PAA\VQ-SET | 17 | 115 | N/A |

## Combined qualifications available to this pathway

N/A

## Relationship between competence and knowledge qualifications

**K1a - K2a provides underpinning knowledge for C1a - C2a**

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications deliver essential knowledge which supports the fundamental scientific principles to equip apprentices with the basic understanding required to operate effectively and efficiently in the industry.

In this pathway the units selected in the knowledge-based qualifications should be delivered in a workplace context such as a clinical laboratory (human or animal) pathology or histology analytical laboratory.

# Transferable skills (Wales)

## Essential skills (Wales)

| | Minimum level | Credit value |
|---|---|---|
| Communication | Level 1 | 6 |
| Application of numbers | Level 1 | 6 |
| IT | Level 1 | 6 |

# Progression routes into and from this pathway

Progression into the pathway has been described within the entry criteria but the majority of entrants are likely to be school leavers who have completed their GCSE/Baccalaureate studies and relevant vocational activity such as a work experience. Others may have worked in the science sector for a period before considering an apprenticeship.

Progression from the pathway is harder to predict as this is the first time that an apprenticeship programme has been considered as a mainstream means of training laboratory technicians. It is likely that successful apprentices will take up laboratory technician positions in research and development, hospitals and healthcare (human and animal) carrying out a wide variety of job roles.

In some cases successful foundation apprentices may be offered progression to a level 3 Apprenticeship specialising in Clinical Analysis or indeed some other area of activity such as Education Science or Compound and Process Science.

# Employee rights and responsibilities

The nine national outcomes for Employee Rights and Responsibilities (ERR) are as follows:

1. 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 duties of employers.

2. Procedures and documentation which recognises and protects their relationship with their employer, including health and safety and equality and diversity training as part of the apprenticeship.

3. The range of sources and information and advice available to them on their employment rights and responsibilities, including Access to Work and Additional Learning Support.

4. The role played by their occupation in their organisation and industry.

5. Has an informed view of the types of career pathways that are open to them.

6. The types of representative bodies and understands their relevance to their industry and organisation and the main roles and responsibilities.

7. 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. Can recognise and form a view on issues of public concern that affect their organisation and industry.

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

**Method 1**

**1a.** Emta Awards Limited (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
Guided learning hours: 41

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

Qualification details:

Edecxel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)
QCF qualification ref no: 501/1793/2
Credit value: 4 credits
Guided learning 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 clinical analysis in this case).

This qualification 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 qualification will have demonstrated that they have the underpinning knowledge relevant for the science environment which satisfies the Specification for Apprenticeship Standards for Wales.

**Method 2**

**2a.** Semta has produced an Apprentice ERR workbook that is available from:
customercare@eal.org.uk

**2b.** Cogent has produced an Apprentice ERR workbook that is available from:

www.cogentskills.com

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 following forms of evidence will be required:**

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

or

A qualification certificate for Edexcel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF) **which must include achievement of Unit 2**

or

A completed and countersigned declaration from the Semta ERR workbook

or

A completed and countersigned declaration from the Cogent ERR workbook

**Please Note**

Any of these workbooks will be acceptable for apprenticeship certification via Apprenticeship Certification Wales (ACW).

For more information on Apprenticeship Certification Wales please visit www.acwcerts.co.uk

# Level 3

Title for this framework at level 3

# Apprenticeship for Laboratory and Science Technicians

## Pathways for this framework at level 3

| | |
|---|---|
| Pathway 1: | Laboratory and Associated Technical Activities - (Education Science) |
| Pathway 2: | Laboratory and Associated Technical Activities (Industrial Science) |
| Pathway 3: | Laboratory Science - Analytical & Process Science |

# Level 3, Pathway 1: Laboratory and Associated Technical Activities - (Education Science)

## Description of this pathway

Pathway duration approximately 24 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) = 91 credits

**Pathway with minimum total learning hours = 796 training hours**
- Competence = minimum 300 hours/ minimum 48 credits
- Knowledge = minimum 180 hours (based on the smallest technical certificate training hours)
- Knowledge = minimum 25 credits (based on the smallest technical certificate credit)
- Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
- Mentoring 96 weeks x 1 hour/week = 96 hours
- ERR = 40 minimum hours

Year 1 = 398 Hours Year 2 = 398 Hours

**Minimum off-the-job training hours = 496 training hours**
Knowledge - PAA\VQ-SET Level 3 Certificate in Laboratory Technical Skills (QCF) (180 training hours) plus 316 additional training hours for Essential Skills Wales, ERR and Mentoring

**Minimum credit value** = 91 credits

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**Pathway with maximum total learning hours = 1696 training hours**
- Competence = 300 hours/ 48 credits
- Knowledge = maximum 1080 hours (based on the largest technical certificate training hours)
- Knowledge = maximum 180 credits (based on the largest technical certificate credit)
- Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
- Mentoring 96 weeks x 1 hour/week = 96 hours
- ERR = 40 minimum hours

Year 1 = 848 Hours Year 2 = 848 Hours

**Maximum off-the-job training hours = 1396 training hours**
Knowledge - Edexcel BTEC Level 3 Extended Diploma in Applied Science (QCF) (1080 training hours) plus 316 additional training hours for Essential Skills Wales, ERR and Mentoring

**Maximum credit value** = 246 credits

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

There are no additional requirements to that stated in the general entry requirements

| Job title(s) | Job role(s) |
|---|---|
| Laboratory Technician Education Science (General) | Work with teachers, lecturers and university staff to develop apparatus, equipment and resources for school / college / university research and experimentation |
| Laboratory Technician Education Science (Maintenance) | Developing and advising maintenance requirements for apparatus, resources and equipment to be used for experimental research and new designs with their associated maintenance |

# Qualifications

## Competence qualifications available to this pathway

C1 - PAA\VQ-SET Level 3 NVQ Diploma in Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C1a | 501/1869/9 | PAA\VQ-SET (Education Science Pathway) | 48 | 300 | |

C2 - Edexcel Level 3 NVQ Diploma in Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C2a | 600/1731/4 | Edexcel (Education Science Pathway) | 48 | 300 | |

C3 - MPQC Level 3 NVQ Diploma In Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C3a | 600/2993/6 | MPQC (Education Science Pathway) | 48 | 300 | |

## Knowledge qualifications available to this pathway

| K1 - Edexcel BTEC Level 3 Diploma in Applied Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K1a | 500/6673/0 | Edexcel | 120 | 720 | |

| K2 - Edexcel BTEC Level 3 Extended Diploma in Applied Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K2a | 500/6720/5 | Edexcel | 180 | 1080 | |

| K3 - Edexcel BTEC Level 3 Subsidiary Diploma in Applied Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K3a | 500/6725/4 | Edexcel | 60 | 360 | |

| K4 - PAA\VQ-SET Level 3 Certificate in Laboratory Technical Skills (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K4a | 600/1545/7 | PAA\VQ-SET | 25 | 180 | |

## Knowledge qualifications available to this pathway (cont.)

| K5 - Edexcel BTEC Level 4 HNC Diploma in Applied Chemistry (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K5a | 500/8244/9 | Edexcel | 120 | 480 | |

| K6 - Edexcel BTEC Level 4 HNC Diploma in Applied Biology (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K6a | 500/8248/6 | Edexcel | 120 | 480 | |

## Combined qualifications available to this pathway

N/A

## Relationship between competence and knowledge qualifications

**K1a - K6a provides underpinning knowledge for C1a - C3a**

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications deliver essential knowledge which supports the fundamental scientific and mathematical principles to equip apprentices with the understanding required to operate effectively and efficiently within the science industry at a technician level.

In this pathway the units selected from the knowledge-based element should be delivered in a educational workplace context such as an educational laboratory

# Transferable skills (Wales)

## Essential skills (Wales)

| | Minimum level | Credit value |
|---|---|---|
| Communication | Level 2 | 6 |
| Application of numbers | Level 2 | 6 |
| IT | Level 2 | 6 |

# Progression routes into and from this pathway

Progression into the pathway has been described within the entry criteria but the majority of entrants are likely to be school leavers who have completed their GCSE/Baccalaureate studies and relevant vocational activity such as a work experience. Others may have worked in the science sector for a period before considering an apprenticeship. Some may have already completed a Foundation Apprenticeship for Laboratory and Science Technicians (Education Science) or one of the three other pathways.

**Note:** Applicants wishing to undertake a BTEC Level 4 HNC Diploma underpinning knowledge qualification should already have achieved a Technical Certificate at Level 3, A Levels or equivalent in the relevant subject area and be age 18+ (as specified by the qualifications entry on RITS).

Progression from the pathway is harder to predict as this is the first time that an apprenticeship programme has been considered as a mainstream means of training laboratory technicians. It is likely that successful apprentices will take up laboratory technician positions in Schools, Colleges and Universities. In most cases these will be of a supervisory nature carrying out routine and non routine activities.

Opportunities to undertake Further and Higher education are likely especially apprentices who complete the BTEC Level 3 Diploma in Applied Science, apprentices may have the opportunity to progress onto level 4/5 science related qualifications, which could provide access to a wide range of science related university courses. "Many universities are treating the level 3 applied science course as they would 3 science A levels". (*Source Edexcel*)

### UCAS points for this pathway:

*(no information)*

# Employee rights and responsibilities

The nine national outcomes for Employee Rights and Responsibilities (ERR) are as follows:

1. 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 duties of employers.

2. Procedures and documentation which recognises and protects their relationship with their employer, including health and safety and equality and diversity training as part of the apprenticeship.

3. The range of sources and information and advice available to them on their employmen rights and responsibilities, including Access to Work and Additional Learning Support.

4. The role played by their occupation in their organisation and industry.

5. Has an informed view of the types of career pathways that are open to them.

6. The types of representative bodies and understands their relevance to their industry and organisation and the main roles and responsibilities.

7. 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. Can recognise and form a view on issues of public concern that affect their organisation and industry.

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

**Method 1**

**1a.** Emta Awards Limited (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
Guided learning hours: 41

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

Qualification details:

Edecxel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)
QCF qualification ref no: 501/1793/2
Credit value: 4 credits
Guided learning 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 education science in this case).

This qualification 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 qualification will have demonstrated that they have the underpinning knowledge relevant for the science environment which satisfies the Specification for Apprenticeship Standards for Wales.

**Method 2**

**2a.** Semta has produced an Apprentice ERR workbook that is available from: customercare@eal.org.uk

**2b.** Cogent has produced an Apprentice ERR workbook that is available from:

www.cogentskills.com

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 following forms of evidence will be required:**

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

or

A qualification certificate for Edexcel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF) **which must include achievement of Unit 2**

or

A completed and countersigned declaration from the Semta ERR workbook

or

A completed and countersigned declaration from the Cogent ERR workbook

**Please Note**

Any of these workbooks will be acceptable for apprenticeship certification via Apprenticeship Certification Wales (ACW).

For more information on Apprenticeship Certification Wales please visit www.acwcerts.co.uk

# Level 3, Pathway 2: Laboratory and Associated Technical Activities (Industrial Science)

## Description of this pathway

Pathway duration approximately 24 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) = 103 credits

**Pathway with minimum total learning hours = 814 training hours**
- Competence = minimum 318 hours/ minimum 60 credits
- Knowledge = minimum 180 hours (based on the smallest technical certificate training hours)
- Knowledge = minimum 25 credits (based on the smallest technical certificate credit)
- Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
- Mentoring 96 weeks x 1 hour/week = 96 hours
- ERR = 40 minimum hours

Year 1 = 407 Hours Year 2 = 407 Hours

**Minimum off-the-job training hours = 496 training hours**
Knowledge - PAA\VQ-SET Level 3 Certificate in Laboratory Technical Skills (QCF) (180 training hours) plus 316 additional training hours for Essential Skills Wales, ERR and Mentoring

**Minimum credit value** = 103 credits

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**Pathway with maximum total learning hours = 1714 training hours**
- Competence = 318 hours/ 60 credits
- Knowledge = maximum 1080 hours (based on the largest technical certificate training hours)
- Knowledge = maximum 180 credits (based on the largest technical certificate credit)
- Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
- Mentoring 96 weeks x 1 hour/week = 96 hours
- ERR = 40 minimum hours

Year 1 = 857 Hours Year 2 = 857 Hours

**Maximum off-the-job training hours = 1369 training hours**
Knowledge - Edexcel BTEC Level 3 Extended Diploma in Applied Science (QCF) (1080 training hours) plus 316 additional training hours for Essential Skills Wales, ERR and Mentoring

**Maximum credit value** = 258 credits

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

There are no additional requirements to that stated in the general entry requirements

| Job title(s) | Job role(s) |
|---|---|
| Laboratory Technician (Health physics) | Develop appropriate procedures for radiological protection and monitoring |
| Laboratory Analysis Technician (Environmental Science) | Devising and carrying out appropriate sample testing of environmental contaminants |
| Laboratory Technician (Process) | Control and testing of petro-chemical products |
| Laboratory Technician (Standards) | Maintain, calibrate and verify equipment functionality for test purposes |
| Laboratory Technician (Maintenance) | Development of maintenance protocols for instruments and medical devices |
| Laboratory Researcher / Technician | Development of human and animal therapeutic and diagnostic instruments and technicial devices |

# Qualifications

## Competence qualifications available to this pathway

C1 - PAA\VQ-SET Level 3 NVQ Diploma in Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C1a | 501/1869/9 | PAA\VQ-SET (Industrial Science Pathway) | 60 | 318 | |

C2 - Edexcel Level 3 NVQ Diploma in Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C2a | 600/1731/4 | Edexcel (Industrial Science Pathway) | 60 | 318 | |

C3 - MPQC Level 3 NVQ Diploma In Laboratory and Associated Technical Activities (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| C3a | 600/2993/6 | MPQC (Industrial Science Pathway) | 60 | 318 | |

## Knowledge qualifications available to this pathway

| K1 - Edexcel BTEC Level 3 Diploma in Applied Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K1a | 500/6673/0 | Edexcel | 120 | 720 | |

| K2 - Edexcel BTEC Level 3 Extended Diploma in Applied Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K2a | 500/6720/5 | Edexcel | 180 | 1080 | |

| K3 - Edexcel BTEC Level 3 Subsidiary Diploma in Applied Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K3a | 500/6725/4 | Edexcel | 60 | 360 | |

| K4 - Edexcel BTEC Level 3 Diploma in Manufacturing Engineering (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K4a | 500/7319/9 | Edexcel | 120 | 720 | |

## Knowledge qualifications available to this pathway (cont.)

### K5 - PAA\VQ-SET Level 3 Certificate in Laboratory Technical Skills (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| K5a | 600/1545/7 | PAA\VQ-SET | 25 | 180 | |

### K6 - Edexcel BTEC Level 4 HNC Diploma in Applied Chemistry (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| K6a | 500/8244/9 | Edexcel | 120 | 480 | |

### K7 - Edexcel BTEC Level 4 HNC Diploma in Applied Biology (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| K7a | 500/8248/6 | Edexcel | 120 | 480 | |

## Combined qualifications available to this pathway

N/A

## Relationship between competence and knowledge qualifications

**K1a - K7a provides underpinning knowledge for C1a - C3a**

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications deliver essential knowledge which supports the fundamental scientific and mathematic principles to equip apprentices with the understanding required to operate effectively and efficiently within the science industry at a technician level.

In this pathway the units selected from the knowledge-based qualifications should ideally be delivered in an educational workplace context, such as an industrial laboratory.

# Transferable skills (Wales)

## Essential skills (Wales)

| | Minimum level | Credit value |
|---|---|---|
| Communication | Level 2 | 6 |
| Application of numbers | Level 2 | 6 |
| IT | Level 2 | 6 |

# Progression routes into and from this pathway

Progression into the pathway has been described within the entry criteria but the majority of entrants are likely to be school leavers who have completed their GCSE/Baccalaureate studies and relevant vocational activity such as a work experience. Others may have worked in the science sector for a period before considering an apprenticeship. Some may have already completed a Foundation Apprenticeship for Laboratory and Science Technicians (Industrial Science) or one of the three other pathways.

**Note:** Applicants wishing to undertake a BTEC Level 4 HNC Diploma underpinning knowledge qualification should already have achieved a Technical Certificate at Level 3, A Levels or equivalent in the relevant subject area and be age 18+ (as specified by the qualifications entry on RITS).

Progression from the pathway is harder to predict as this is the first time that an apprenticeship programme has been considered as a mainstream means of training laboratory technicians. It is likely that successful apprentices will take up laboratory technician positions in industrial, pharmaceutical, petrochemical and nuclear companies carrying out a wide variety of technician job roles. In most cases these will be of a supervisory nature carrying out routine and non routine activities.

Opportunities to undertake Further and Higher education are likely especially apprentices who complete the BTEC Level 3 Diploma in Applied Science, apprentices may have the opportunity to progress onto level 4/5 science related qualifications, which could provide access to a wide range of science related university courses. "Many universities are treating the level 3 applied science course as they would 3 science A levels". (*Source Edexcel*)

### UCAS points for this pathway:

*(no information)*

# Employee rights and responsibilities

The nine national outcomes for Employee Rights and Responsibilities (ERR) are as follows:

1. 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 duties of employers.

2. Procedures and documentation which recognises and protects their relationship with their employer, including health and safety and equality and diversity training as part of the apprenticeship.

3. The range of sources and information and advice available to them on their employment rights and responsibilities, including Access to Work and Additional Learning Support.

4. The role played by their occupation in their organisation and industry.

5. Has an informed view of the types of career pathways that are open to them.

6. The types of representative bodies and understands their relevance to their industry and organisation and the main roles and responsibilities.

7. 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. Can recognise and form a view on issues of public concern that affect their organisation and industry.

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

**Method 1**

**1a.** Emta Awards Limited (EAL) have produced a stand-alone qualification that covers all 9 outcomes of ERR requirements. The qualification is detailed below:

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
Guided learning hours: 41

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

Qualification details:

Edecxel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)
QCF qualification ref no: 501/1793/2
Credit value: 4 credits
Guided learning 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 industrial science in this case).

This qualification 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 qualification will have demonstrated that they have the underpinning knowledge relevant for the science environment which satisfies the Specification for Apprenticeship Standards for Wales.

**Method 2**

**2a.** Semta has produced an Apprentice ERR workbook that is available from: customercare@eal.org.uk

**2b.** Cogent has produced an Apprentice ERR workbook that is available from:

www.cogentskills.com

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 following forms of evidence will be required:**

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

or

A qualification certificate for Edexcel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF) **which must include achievement of Unit 2**

or

A completed and countersigned declaration from the Semta ERR workbook

or

A completed and countersigned declaration from the Cogent ERR workbook

**Please Note**

Any of these workbooks will be acceptable for apprenticeship certification via Apprenticeship Certification Wales (ACW).

For more information on Apprenticeship Certification Wales please visit www.acwcerts.co.uk

# Level 3, Pathway 3: Laboratory Science - Analytical & Process Science

## Description of this pathway

Pathway duration approximately 24 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) = 114 credits

**Pathway with minimum total learning hours = 812 training hours**
• Competence = minimum 316 hours/ minimum 71 credits
• Knowledge = minimum 180 hours (based on the smallest technical certificate training hours)
• Knowledge = minimum 25 credits (based on the smallest technical certificate credit)
• Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
• Mentoring 96 weeks x 1 hour/week = 96 hours
• ERR = 40 minimum hours
Year 1 = 406 Hours Year 2 = 406 Hours

**Minimum off-the-job training hours = 496 training hours**
Knowledge - PAA\VQ-SET Level 3 Certificate in Laboratory Technical Skills (QCF) (180 training hours) plus 316 additional training hours for Essential Skills Wales, ERR and Mentoring

**Minimum credit value** = 114 credits

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**Pathway with maximum total learning hours = 1712 training hours**
• Competence = 316 hours/ 71 credits
• Knowledge = maximum 1080 hours (based on the largest technical certificate training hours)
• Knowledge = maximum 180 credits (based on the largest technical certificate credit)
• Essential Skills Wales (notional value 60 hours x 3) = 180 hours /18 credits
• Mentoring 96 weeks x 1 hour/week = 96 hours
• ERR = 40 minimum hours
Year 1 = 856 Hours Year 2 = 856 Hours

**Maximum off-the-job training hours = 1369 training hours**
Knowledge - Edexcel BTEC Level 3 Extended Diploma in Applied Science (QCF) (1080 training hours) plus 316 additional training hours for Essential Skills Wales, ERR and Mentoring

**Maximum credit value** = 269 credits

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

There are no additional requirements to that stated in the general entry requirements

| Job title(s) | Job role(s) |
|---|---|
| Laboratory Technician (Process) | Development of batch product and analysis of samples during manufacture to ensure quality control and control and testing of chemical products |
| Laboratory Manufacturing Technician | Development of manufacturing protocols to ensure consistent manufacture quality |
| Fermentation Laboratory Technician | Development of biotechnology protocols to ensure consistent manufacture quality |
| Healthcare Laboratory Technicians (Haematology) | Examination of blood cells and blood clotting mechanisms |
| Clinical Laboratory Technicians (Microbiology) | Analysis and indentification of microorganisms |

# Qualifications

## Competence qualifications available to this pathway

| C1 - PAA\VQ-SET Level 3 NVQ Diploma in Laboratory Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| C1a | 501/1293/4 | PAA\VQ-SET | 71 | 316 | |

| C2 - Edexcel Level 3 NVQ Diploma in Laboratory Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| C2a | 600/1732/6 | Edexcel | 71 | 316 | |

## Knowledge qualifications available to this pathway

| K1 - Edexcel BTEC Level 3 Diploma in Applied Science (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K1a | 500/6673/0 | Edexcel | 120 | 720 | |

## Knowledge qualifications available to this pathway (cont.)

### K2 - Edexcel BTEC Level 3 Extended Diploma in Applied Science (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| K2a | 500/6720/5 | Edexcel | 180 | 1080 | |

### K3 - Edexcel BTEC Level 3 Subsidiary Diploma in Applied Science (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| K3a | 500/6725/4 | Edexcel | 60 | 360 | |

### K4 - PAA\VQ-SET Level 3 Certificate in Laboratory Technical Skills (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| K4a | 600/1545/7 | PAA\VQ-SET | 25 | 180 | |

### K5 - Edexcel BTEC Level 4 HNC Diploma in Applied Chemistry (QCF)

| No. | Ref no. | Awarding organisation | Credit value | Guided learning hours | UCAS points value |
|---|---|---|---|---|---|
| K5a | 500/8244/9 | Edexcel | 120 | 480 | |

## Knowledge qualifications available to this pathway (cont.)

| K6 - Edexcel BTEC Level 4 HNC Diploma in Applied Biology (QCF) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Ref no.** | **Awarding organisation** | **Credit value** | **Guided learning hours** | **UCAS points value** |
| K6a | 500/8248/6 | Edexcel | 120 | 480 | |

## Combined qualifications available to this pathway

N/A

## Relationship between competence and knowledge qualifications

**K1a - K6a provides underpinning knowledge for C1a - C2a**

The designated technical certificates underpin the knowledge elements of the competence qualification in this pathway. The knowledge qualifications deliver essential knowledge which supports the fundamental scientific and mathematic principles to equip apprentices with the understanding required to operate effectively and efficiently within the science industry at a technician level.

In this pathway the units selected in the knowledge-based should ideally be delivered in a workplace analytical and process laboratory context, such as a clinical or compound processing laboratory.

# Transferable skills (Wales)

## Essential skills (Wales)

| | Minimum level | Credit value |
|---|---|---|
| Communication | Level 2 | 6 |
| Application of numbers | Level 2 | 6 |
| IT | Level 2 | 6 |

# Progression routes into and from this pathway

Progression into the pathway has been described within the entry criteria but the majority of entrants are likely to be school leavers who have completed their GCSE/Baccalaureate studies and relevant vocational activity such as a work experience. Others may have worked in the science sector for a period before considering an apprenticeship. Some may have already completed a Foundation Apprenticeship for Laboratory and Science Technicians (Clinical Analysis) or one of the three other pathways.

**Note**: Applicants wishing to undertake a BTEC Level 4 HNC Diploma underpinning knowledge qualification should already have achieved a Technical Certificate at Level 3, A Levels or equivalent in the relevant subject area and be age 18+ (as specified by the qualifications entry on RITS).

Progression from the pathway is harder to predict as this is the first time that an apprenticeship programme has been considered as a mainstream means of training laboratory technicians. It is likely that successful apprentices will take up laboratory technician positions in in Bio-science, bio-technology, medical or pharmaceutical companies carrying out a wide variety of technician job roles in Analytical and Process Science. In most cases these will be of a supervisory nature carrying out rountine and non routine activities.

Opportunities to undertake Further and Higher education are likely especially apprentices who complete the BTEC Level 3 Diploma in Applied Science, apprentices may have the opportunity to progress onto level 4/5 science related qualifications, which could provide access to a wide range of science related university courses. "Many universities are treating the level 3 applied science course as they would 3 science A levels". (*Source Edexcel*)

### UCAS points for this pathway:

*(no information)*

# Employee rights and responsibilities

The nine national outcomes for Employee Rights and Responsibilities (ERR) are as follows:

1. 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 duties of employers.

2. Procedures and documentation which recognises and protects their relationship with their employer, including health and safety and equality and diversity training as part of the apprenticeship.

3. The range of sources and information and advice available to them on their employment rights and responsibilities, including Access to Work and Additional Learning Support.

4. The role played by their occupation in their organisation and industry.

5. Has an informed view of the types of career pathways that are open to them.

6. The types of representative bodies and understands their relevance to their industry and organisation and the main roles and responsibilities.

7. 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. Can recognise and form a view on issues of public concern that affect their organisation and industry.

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

**Method 1**

**1a.** Emta Awards Limited (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
Guided learning hours: 41

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

Qualification details:

Edecxel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF)
QCF qualification ref no: 501/1793/2
Credit value: 4 credits
Guided learning 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 analytical process science in this case).

This qualification 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 qualification will have demonstrated that they have the underpinning knowledge relevant for the science environment which satisfies the Specification for Apprenticeship Standards for Wales.

**Method 2**

**2a.** Semta has produced an Apprentice ERR workbook that is available from: customercare@eal.org.uk

**2b**. Cogent has produced an Apprentice ERR workbook that is available from:

www.cogentskills.com

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 following forms of evidence will be required:**

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

or

A qualification certificate for Edexcel BTEC Level 2 Award in WorkSkills for Effective Learning and Employment (QCF) **which must include achievement of Unit 2**

or

A completed and countersigned declaration from the Semta ERR workbook

or

A completed and countersigned declaration from the Cogent ERR workbook

**Please Note**

Any of these workbooks will be acceptable for apprenticeship certification via Apprenticeship Certification Wales (ACW).

For more information on Apprenticeship Certification Wales please visit www.acwcerts.co.uk

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

# How equality and diversity will be met

The Laboratory and Science Technicians Apprenticeship aims to promote diversity, opportunity and inclusion by offering high-quality, learning opportunities.

The delivery of the Apprenticeship Framework must be in environments free from prejudice and discrimination where all learners can contribute fully and freely and feel valued.

There must be no overt or covert discriminatory practices in selection and recruitment of apprentices to the programme, which is available to all people, regardless of gender, ethnic origin, religion/belief, sexual orientation or disability who meet the stated selection criteria.

**Barriers:**
In the industries and services where there are micro or small to medium enterprises, such as in Biotechnology where 99% of all employers are made up such enterprises, some of these employers cannot cover the range of services that the large employer can cover. There is no defined entry route below graduate into the Science industry. Careers advice regarding entry into this particular industry is often poor. The well-established practice of recruiting graduates into technician roles means that there is low awareness amongst employers of the potential benefits of developing technicians and science professionals though an apprenticeship route, which limits the diversity of the technician intake. The role of science technician may be perceived to be less valued than that of the graduate scientist and therefore is seen as a less attractive career option, which limits the diversity of the cohort attracted to the science technician profession.

**Actions:**
Cogent plan to introduce a series of industry specific case studies and Careers Pathways on the Cogent Careers web site (www.cogentskills.com) aimed at encouraging people from all backgrounds to become Laboratory and Science Technicians. These case studies will also demonstrate the benefits to employers of using the Laboratory and Science Technicians Apprenticeship Framework as a means to improving the diversity of the laboratory, scientific and technical workforce.

# On and off the job training (Wales)

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

**Foundation Apprenticeship and Apprenticeship**

For the Foundation Apprenticeship and Apprenticeship, the hours outlined in the sections that follow 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 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, including one or more Wider Key Skills or other competency-based qualifications/units relevant to the workplace.

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 or Apprentice Certificate or have been continuously employed in the industry for a minimum duration of 3 years.

Any off-the-job training undertaken before the apprentice started may count towards the off-the-job training required for the apprenticeship if it was undertaken in relation to an accredited qualification contained in the framework for which an apprenticeship certificate is applied for.

Both on and off-the-job training hours need to be planned, reviewed and jointly evaluated between the apprentice, training instructor, tutor or lecturer and workplace supervisor and where relevant the apprentices'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.**

## 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 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:**

- be planned, reviewed and evaluated jointly between the apprentice and a tutor, teacher, mentor or manager
- allow the apprentice to have access to a tutor, teacher, mentor or manager as and when required
- be delivered during contracted working hours
- 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 and induction

The Knowledge qualification, Essential Skills Wales and Employment Responsibilities and Rights will be formally delivered by the training provider/college staff in accordance with the awarding organisation's delivery and assessment guidance.

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 one hour 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.

**Evidence of Off-the-job hours**

Off-the-job training must be formally recorded, either in a diary, workbook, portfolio or be verified by attendance records. This evidence needs to be checked and signed by the assessor. The range of evidence requirements are as follows:

- Copy of the Awarding Organisation certificates for Communication & Application of number & IT (Essential Skills Wales)
- 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

**Previous experience**

Where an applicant 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 CQFW 'Recognition of Prior Learning' (RPL) 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, the off-the-job learning must have been acquired within 5 years of application for the Apprenticeship Certificate or have been continuously employed in the relevant job role in the industry for 5 years duration.

## On-the-job training

On-the-job training training is defined as skills, knowledge and competence gained within normal working duties. For this framework the training hours for 'on-the-job' training is as follows:

**Foundation Apprenticeship**

**Level 2 Eduction Science Pathway -** Minimum on-the-job training hours is 214 and is evidenced by completion of the Level 2 NVQ Certificate in Laboratory and Associated Technical activities (QCF) (Education Science)

**Level 2 Industrial Science Pathway -** Minimum on-the-job training hours is 245 and is evidenced by completion of the Level 2 NVQ Certificate in Laboratory and Associated Technical activities (QCF) (Industrial Science)

**Level 2 Compound Analysis Pathway -** Minimum on-the-job training hours is 268 and is evidenced by completion of the Level 2 NVQ Diploma in Laboratory Science (QCF) (Compound Analysis)

**Level 2 Compound Analysis Pathway -** Minimum on-the-job training hours is 214 and is evidenced by completion of the Level 2 NVQ Diploma in Laboratory Science (QCF) (Clinical Analysis)

**Apprenticeship**

**Level 3 Education Science Pathway -** Minimum on-the-job training hours is 300 and is evidenced by completion of the Level 3 NVQ Diploma in Laboratory and Associated Technical Activities (QCF) (Education Science)

**Level 3 Industrial Science Pathway -** Minimum on-the-job training hours is 318 and is evidenced by completion of the Level 3 NVQ Diploma in Laboratory and Associated Technical Activities (QCF) (Industrial Science)

**Level 3 Analytical & Process Science Pathway -** Minimum on-the-job training hours is 316 and is evidenced by completion of the Level 3 NVQ Diploma in Laboratory Science (QCF)

## How this requirement will be met

In all competence qualification pathways detailed above the apprentice will receive on-the-job training via delivery of the competence based element (NVQ Certificate or Diploma). Apprentices will generate a work-based portfolio to record the evidence that they have undertaken the appropriate competences. This will be overseen by a personal mentor who will monitor progress and offer guidance. The  apprentices will then be formally assessed regularly by a qualified Awarding Organisation assessor who will record the apprentice's progress towards completion of the competence qualification .

The NVQ Certificate or Diploma should be delivered in accordance with the Awarding Organisations delivery and assessment guidance, which includes the additional requirements as set down in Cogent's unit assessment strategy. This document is available on request from Cogent. This process is regulated and quality assured by DfES and Ofqual.

**Evidences of On-the-job hours:**

A copy of the certificate for the NVQ competence qualification as detailed above within the pathways will be required for final Appprenticeship certification

# Wider key skills assessment and recognition (Wales)

## Improving own learning and performance

The wider key skill of "Improving own learning and performance", whilst not assessed as part of this framework, is embedded within the learning undertaken in the mandatory units of the competence qualification.

## Working with others

The wider key skill of "Working with Others", whilst not assessed as part of this framework, is embedded within the learning undertaken in the mandatory units of the competence qualification.

## Problem solving

The wider key skill of "Problem Solving", whilst not assessed as part of this framework, is embedded within the learning undertaken in the mandatory units of the competence qualification.

# Additional employer requirements

There are no additional employer requirements.

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www.afo.sscalliance.org