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Llywodraeth Cymru
Welsh Government

0711 Welsh Apprenticeship Pathway

in

Electrotechnical Installation

The content of this Pathway has been agreed by the expert Steering Group facilitated by BSE Skills. This is the only Electrotechnical Installation Apprenticeship Pathway in the Building Services Engineering sector approved for use in Wales that is eligible for Welsh Government funding.

More Information can be obtained from:

FEAD DfES • Ty Afon
Bedwas Rd • Bedwas
Cf838WT

DfES-ApprenticeshipUnit@gov.wales
Gwefan • website: www.llyw.cymru
www.gov.wales

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LEARNING PROGRAMME CONTENT

The Learning Programme provision shall comprise of three mandatory elements:

- Qualifications
- Essential Skills
- On/off the job training

The total minimum credit value required for the Level 3 Pathway (Electrotechnical Installation) is 121 credits.

ENTRY REQUIREMENTS

This Apprenticeship is suitable for learners who:

- are aged 16+ currently working in the trade area
- have passed all relevant sector specific entry assessment (where appropriate)
- have achieved one or more of the following (or recognised equivalent):
 - Foundation in Construction and the Built Environment qualification at Level 2
 - Welsh Baccalaureate National Diploma
 - GCSE grade A-C in each of the following:- a communication subject, maths and either a science or technical-based subject (e.g. Design & Technology, Electronics etc)
 - GCSE grade A-C in WJEC GCSE Built Environment
 - Level 2 'Access to Building Services Engineering' qualification and/or equivalent qualifications*

APPRENTICESHIP PATHWAY LEARNING PROGRAMME(S)

Level 3: Electrotechnical Installation

Qualifications

Participants must achieve the following *knowledge* and the *combined* qualification(s) below.

Level 2 - Core in Construction and Building Services Engineering					
Awarding Body	Qualification No.	Credit Value	Total Qualification Time	Competence / Knowledge / Combined	Qualification Assessment Language(s)
City & Guilds	C00/4414/0	41	410	Knowledge	English-Welsh

Please note that any learner who has already achieved either the Foundation in Construction and the Built Environment qualification at Level 2 or Progression in Building Services Engineering qualification at Level 2 or achieved a Level 2 or 3 Certificate or Diploma in the trade in which the apprenticeship is to be undertaken will not be required to undertake/achieve the Core.

Level 3 – Electrotechnical Installation					
Awarding Body	Qualification No.	Credit Value	Total Qualification Time	Competence / Knowledge / Combined	Qualification Assessment Language(s)
EAL	C00/4278/8	121	1211	Combined	English or Welsh

Essential Skills Wales (ESW)

Essential Skills Wales qualifications assessment languages are English-Welsh.

Level 3: Electrotechnical Installation	Level	Minimum Credit Value
Communication	2	6
Application of Number	2	6
Digital Literacy	2	6

Note that evidence for Essential Skills can/should be gathered holistically and from other activities so as not to remove learning time from the main trade areas.

On/Off the Job Training (guidance only)

Pathway	Minimum On the Job Training Hours	Minimum Off the Job Training Hours
Level 3: Electrotechnical Installation	6660	1332

These hours may be different for experienced/older workers depending on their industry experience. The hours cover learning and development undertaken in a range of settings, including in the workplace when under the direction of a relevant trainer, e.g. workplace mentor. Centres and employers should work closely together in determining what proportion of the training will take place within centres and in workplace settings.

OTHER ADDITIONAL REQUIREMENTS

AM2S

All Apprentices will be required to satisfy the requirement of the recognised industry end-assessment referred to as AM2S. The purpose of the AM2S assessment is to ensure all electricians achieve a consistent standard that has been agreed by employers across the UK as meeting their expectations for a qualified person. The assessment is designed to prove that the Apprentice has gained and retained all the relevant knowledge and skills during the period of the Apprenticeship.

The Apprentice will be required to perform a series of common tasks and procedures that a fully qualified electrician might face including electrical

installation, inspection & testing and fault-finding. The practical work must comply with the current British Standard (BS7671:2018) and meet with the requirements of Health & Safety legislation and industry best practice.

The AM2S test is set and administered by National Electrotechnical Services (NET). For further information see <https://www.netservices.org.uk/am2/>

Wiring Regulations

Achievement of the Level 3 Electrotechnical Installation qualification satisfies the requirement for Apprentices to prove a recognised level of knowledge of the current wiring regulations as per BS7671.

Additional Requirement Detail (Minimum Credit & Hours)

AM2S

- For Guidance:
 - Safe Isolation and Risk Assessment: 45 mins
 - Composite Installation: 10hrs
 - Inspection, testing and Certification: 3.5hrs
 - Safe isolation of circuits: 0.5hrs
 - Fault Diagnosis and rectification: 2hrs
 - Assessment of applied Knowledge: 1hr

Source: <https://www.netservices.org.uk/am2s/>

JOB ROLES

This Pathway specifies the standards and criteria for the Level 3 Apprenticeship in Electrotechnical Installation. Successful achievement of all the components of this Pathway will lead to the award of a Level 3 qualification and recognition as a qualified Electrician within the sector.

This Pathway has a single pathway:

- Electrotechnical Installation

Electricians install, maintain and repair electrical systems in industrial, commercial and domestic environments. Electricians might work in both indoor and outdoor settings. Electrical equipment and systems may include switchboards, motors, cables, fuses, thermal relays, fault current protection switches, heating, lighting, air conditioning and metering equipment as well as crime and fire alarm systems and renewable energy technologies. They are able to work on their own proficiently and work without immediate supervision in the most efficient and economical manner. They may contribute to the design of electrical

systems. They are able to set out jobs from drawings and specifications and requisition the necessary installation materials.

Electrical safety is an important area of Electricians' work. On completion of their work the electrical systems must be safe to use. They must adhere to safe working practices without endangering themselves or others.

Installation Electricians work on the installation, testing, commissioning and maintenance of low voltage (less than 1000v) electrical and electronic devices and appliances.

The modern electrician is at the forefront of technology (design, development, testing, installation, maintenance) associated with low carbon targets, energy conservation and renewable supply. A good example of this would be the installation and maintenance of Electric Vehicle charging points.

This Apprenticeship is designed to provide individuals with the opportunity to develop the skills and knowledge that are needed to carry out the installation and/or maintenance of electrotechnical systems in commercial, industrial and residential buildings including all relevant:

- Technological requirements and changes
- Statutory and Non- Statutory Regulations & Requirements
- Working practices in accordance with Health and Safety requirements
- Inspection, testing and commissioning procedures

On completion of the requirements in this Pathway the Apprentice should, as a minimum, have the core skills and core knowledge required to carry out the following in a safe and competent manner:

- Apply health and safety and environmental legislation in the building services engineering sector
- Establish and maintain relationships in the building services engineering sector
- Coordinate a work site in the building services engineering sector
- Install enclosures for electrical cables, conductors and wiring systems
- Install and connect electrical cables, conductors, wiring systems and equipment
- Inspect and test electrical systems and equipment
- Commission electrical systems and equipment
- Identify and rectify faults in electrical systems and equipment

In addition, the Apprentice should also be able to:

- Apply professional judgement and support
- Challenge unsafe behaviours/activities
- Demonstrate innovation through the identification of areas for improvement and suggestion and/or development of innovative solutions
- Identify and manage risks to self and others
- Keep work area clean and tidy
- Manage own time effectively
- Think logically and in accordance with the demands of the situation using clear and valid reasoning when making decisions to undertake the work instructions
- Work effectively individually and in a team
- Work in accordance with quality requirements
- Work productively
- Work safely and ensure the safety of others
- Work within own level of competence and know when to seek advice from others

Throughout the Apprenticeship process the Apprentice should, as a minimum, develop and display the behaviours that show them to be consistently:

1. Assertive
2. Confident
3. Dressed appropriately
4. Empathetic
5. Fair
6. Honest
7. Proactive
8. Productive
9. Punctual
10. Reliable
11. Respectful (in terms of equality, diversity and inclusion)

PROGRESSION

The aim of this Pathway is to ensure that the successful learners gain:

- The Skills and Knowledge required by the industry to achieve competence
- Job related skills that will be used in the working environment
- Knowledge and skills aligned to working practices, relevant statutory and non-statutory regulations
- Transferable and Core Skills
- The basis for career progression

When apprentices have completed this Pathway, they have a number of progression options to them including:

- Vocational: develop self in the role and seek promotion
- Academic: use the qualifications gained as the basis for further study and entry to Further or Higher Education as appropriate
- Combination of Vocational and Academic: undertake part time study while still working. This may be as part of a structured Higher Level Apprenticeship (HLA) if this is relevant/available.

More specifically, on successful completion of this Apprenticeship in Electrotechnical Installation an apprentice will be furnished with the skills and knowledge, and have the qualifications to:

- Apply for the Electrical Installation Gold card via ECS at <https://www.ecscard.org.uk/>
- Progress to relevant Level 4/5 qualifications e.g. Building Services Engineering Technology & Project Management or Foundation Degree in Engineering
- Progress onto a relevant Higher Level Apprenticeship
- Progress in their career with further training into such job roles as Technician, Designer, Estimator, Project Manager, Site/Workshop Supervisor/ Manager, Chartered Engineer, Sales Engineer or Commercial Manager.

Further career guidance can be found at:

- <https://www.electricalcareers.co.uk/>
- <https://www.netservices.org.uk/>
- <https://www.eqa.co.uk/>

- <https://www.the-esp.org.uk/>

It is anticipated that successful candidates will progress within the Electrotechnical industry in qualified positions such as employed or self-employed, supervisors, managers.

Continuous learning will be expected of the qualified candidates in order to maintain awareness of the regulations impacting on the industry and technological changes/advances.

EQUALITY & DIVERSITY

It is important that apprenticeship Pathways are inclusive and can demonstrate an active approach to identifying and removing barriers to entry and progression. Pathways should advance equality of opportunity between persons who share protected characteristics and those persons who do not as identified in the Equality Act 2010.

The protected characteristics identified in the Equality Act are age, disability, gender re-assignment, race, religion or belief, sex, sexual orientation, pregnancy and maternity. Marriage and civil partnership is also included although only in respect of the requirement to eliminate discrimination in employment.

Training providers and employers MUST also comply with the other duty under the Equality Act 2010 to ensure that applicants are not discriminated against in terms of entry to the industry based upon those nine protected characteristics.

The Electrotechnical Industry has not, historically, been a traditional career choice for women. However, women do qualify and work successfully in the industry and this is encouraged.

The sectoral bodies work at local, regional and national levels to identify and address issues around equality and diversity. This work is supported by local/national government, non-governmental bodies/agencies and relevant Unions.

It is a requirement that apprentice recruitment is open and fair to all who meet the selection criteria, regardless of gender, ethnic origin, religion/belief, sexual orientation or disability.

All partners involved in the delivery of the apprenticeship and employers must be committed to a policy of equal opportunities and must have a formal equal opportunities policy and procedure in place.

Employers/providers must be able to demonstrate that there are no overt or covert discriminatory practices in selection and employment. All promotional, selection and training activities must comply with relevant legislation such as the Equality Act 2010.

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

EMPLOYMENT RESPONSIBILITIES AND RIGHTS (ERR)

Employment Responsibilities and Rights (ERR) is no longer compulsory. But it is recommended that all apprentices (especially the 16 years -18 year group) receive a company induction programme.

RESPONSIBILITIES

It is the responsibility of the Training Provider and Employer to ensure that the requirements of this pathway are delivered in accordance with the Welsh Government Apprenticeships Guidance.

Further information may be obtained from:

Welsh Government

DfES-ApprenticeshipUnit@gov.wales