

Pathway No: FR05085
Issue No: 1 **Issue Date:** 01/09/2023
Review by Date: 31/08/2027
Last Updated: 01/09/2023
Issuing Authority: Welsh Government



Llywodraeth Cymru
Welsh Government

Welsh Apprenticeship Pathway

Digital Infrastructure Engineer

The content of this Pathway has been agreed by ODAG Consultants Ltd. This is the only Apprenticeship Pathway for Digital Infrastructure Engineer 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

Contents

[Learning Programme Content](#)

[Entry Requirements](#)

[Apprenticeship Pathway Learning Programme\(s\)](#)

- [Level 3 – Digital Infrastructure Engineer](#)
- [Level 4 – Digital Infrastructure Engineer](#)

[Other Additional Requirements](#)

[Job Roles](#)

[Progression](#)

[Equality & Diversity](#)

[Employment Responsibilities and Rights](#)

[Responsibilities](#)

[Annex 1 - Level 3: Digital Infrastructure Engineer Qualification Units](#)

[Annex 2 - Level 4: Digital Infrastructure Engineer Qualification Units](#)

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 Digital Infrastructure Engineer is 69 credits.

The total minimum credit value required for the Level 4 Digital Infrastructure Engineer is 86 credits.

ENTRY REQUIREMENTS

There are no specific entry requirements for this framework.

It is, however, recommended that to enter onto the Level 3 Apprenticeship the candidate has English and Maths GCSE's grade C or above (or equivalent qualifications) and for the Level 4 Apprenticeship, most employers will require good (A*-C) GCSE passes in English and Maths as a minimum for entry into a digital infrastructure engineering job role. However, these recommendations are not essential.

Applicants may have prior experience or qualifications in digital technologies but this is not mandatory as training providers and employers will deliver programmes of training based on approved up to date qualifications tailored to meet individual needs, recognising prior qualifications and experience.

APPRENTICESHIP PATHWAY LEARNING PROGRAMME(S)

Level 3: Digital Infrastructure Engineer

Qualifications

Participants must achieve the following combined qualifications below.

Agored Cymru Level 3 Diploma in Digital Infrastructure Engineer					
Awarding Body	Qualification No.	Credit Value	Total Qualification Time	Competence / Knowledge / Combined	Qualification Assessment Language(s)
Agored Cymru	C00/4809/8	69	690 hours	Combined	English-Welsh

Essential Skills Wales (ESW)

Essential Skills Wales qualifications assessment languages are English-Welsh

Level 3: Digital Infrastructure Engineer	Level	Minimum Credit Value
Communication	2	6
Application of Number	2	6

On/Off the Job Training

Pathway	Minimum On the Job Training Hours	Minimum Off the Job Training Hours
Level 3: Digital Infrastructure Engineer	115	278

On/Off the Job Qualification details (Minimum Credit & Hours)

Combined qualification - 69 credits, 330 hours GLH

On/Off the Job Essential Skills details (Minimum Credit & Hours)

- 6 credits / 60 GLH Level 2 Essential Skills Wales Communication
- 6 credits / 60 GLH Level 2 Essential Skills Wales Application of Number

Level 4: Digital Infrastructure Engineer

Qualifications

Participants must achieve the following combined qualifications below.

Agored Cymru Level 4 Diploma in Digital Infrastructure Engineer					
Awarding Body	Qualification No.	Credit Value	Total Qualification Time	Competence / Knowledge / Combined	Qualification Assessment Language(s)
Agored Cymru	C00/4809/9	86	860 hours	Combined	English-Welsh

Essential Skills Wales (ESW)

Essential Skills Wales qualifications assessment languages are English-Welsh

Level 4: Digital Infrastructure Engineer	Level	Minimum Credit Value
Communication	3	6
Application of Number	3	6

On/Off the Job Training

Pathway	Minimum On the Job Training Hours	Minimum Off the Job Training Hours
Level 4: Digital Infrastructure Engineer	185	417

On/Off the Job Qualification details (Minimum Credit & Hours)

Combined qualification - 86 credits, 376 hours GLH

On/Off the Job Essential Skills details (Minimum Credit & Hours)

- 6 credits / 60 GLH Level 3 Essential Skills Wales Communication
- 6 credits / 60 GLH Level 3 Essential Skills Wales Application of Number

OTHER ADDITIONAL REQUIREMENTS

N/A

JOB ROLES

As organisations in Wales undertake digital transformation the network infrastructure skills required to support these are of growing importance across many sectors. Organisations rely on their network infrastructure to maintain business services and support employees in their operations. Digital infrastructure provides reliable internet connections and access to internal software, data and storage solutions.

There is an increasing need to address the digital skills gap for Digital Infrastructure Engineers in Wales and attract new entrants into these roles. These Digital Infrastructure Engineer apprenticeships provide a route to develop on-premises, wi-fi and hybrid network environments through on-the-job vocational learning to measurably improve organisational infrastructure capabilities.

These apprenticeships support Mission 5 of the 2021 Digital Strategy for Wales regarding digital connectivity. This requires that 'Services are supported by fast and reliable infrastructure'. They align with the specific outcomes:

- explore opportunities to drive innovation through a focus on internet of things technologies including through wireless network technologies and 5G
- support the connectivity needs of the public sector and public service delivery in Wales through a collaboration and aggregation of demand to drive best value

According to Careers Wales Approximately 7750 people are employed as Infrastructure and Network Engineers in Wales (2022). The expected future demand for Digital Infrastructure Engineer and related jobs is medium compared to other jobs in Wales.

Level 3: Digital Infrastructure Engineer

The Level 3 Digital Infrastructure Engineer Apprenticeship has been designed with employers in Wales to equip employees with the primary digital infrastructure skills that they need to be able to perform their role. This Apprenticeship programme is designed to provide a robust vocational route to fulfilling junior Digital Infrastructure Engineer skills needs that are integral for employees to take full advantage of opportunities in the workplace.

Junior Digital Infrastructure Engineer roles covered by this framework could be within:

- Specialist infrastructure support vendors and services providers to clients.

- Digital infrastructure functions of private and public sector organisations requiring infrastructure and related services to be designed, implemented and maintained.

Job title(s)	Job role(s)
Junior Digital Infrastructure Engineer	A junior digital infrastructure engineer supports the delivery of network services, associated applications and data services. This includes the implementation and day-to-day operation of network services and the delivery of projects and maintenance.

Level 4: Digital Infrastructure Engineer

The Level 4 Digital Infrastructure Engineer Apprenticeship has been designed with employers in Wales to equip employees with the primary digital infrastructure skills that they need to be able to perform their role. This Apprenticeship programme is designed to provide a robust vocational route to fulfilling Digital Infrastructure Engineer skills needs that are integral for employees to take full advantage of opportunities in the workplace.

Digital Infrastructure Engineer roles covered by this framework could be within:

- Specialist infrastructure support vendors and services providers to clients.
- Digital infrastructure functions of private and public sector organisations requiring infrastructure and related services to be designed, implemented and maintained.

Job title(s)	Job role(s)
Digital Infrastructure Engineer	A Digital Infrastructure Engineer builds and operates the infrastructure that underpins enterprise network services using a wide range of industry standard technologies, including networks, operating systems and directory management.

PROGRESSION

Progression routes into the Level 3 Apprenticeship:

This can be from a variety of routes including directly from school or college with the suggested level of academic qualifications including:

- GCSE, Welsh Baccalaureate Qualification Intermediate
- GCE AS and A Level, Welsh Baccalaureate Qualification Advanced
- General or vocational qualifications related to the digital industries

Or as career development in an appropriate role with suitable qualifications or recognition of prior learning and experience.

Progression from the Level 3 Apprenticeship:

The Level 3 Digital Infrastructure Engineer apprenticeship offers successful apprentices the opportunity to further progress in their studies to the level 4 Digital Infrastructure Engineer apprenticeship and commence related degree level programmes. They can also progress within their job role and pursue their learning by undertaking additional vendor qualifications in network and infrastructure engineering tools and techniques.

Progression routes into the Level 4 Apprenticeship:

This can be from a variety of routes including directly from school or college with the suggested level of academic qualifications including:

- GCSE, Welsh Baccalaureate Qualification Intermediate
- GCE AS and A Level, Welsh Baccalaureate Qualification Advanced
- General or vocational qualifications related to the digital industries

Or as career development in an appropriate role with suitable qualifications or recognition of prior learning and experience.

Progression from the Level 4 Apprenticeship:

The Level 4 Digital Infrastructure Engineer apprenticeship offers successful apprentices the opportunity to further progress in their studies and specialise. They can progress into related degree level programmes. They can also progress within their job role and pursue their learning by undertaking additional vendor qualifications in network and infrastructure engineering tools and techniques.

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.

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.

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

Annex 1 - Level 3: Digital Infrastructure Engineer Qualification Units

Agored Cymru Level 3 Diploma in Digital Infrastructure Engineer

This combined qualification contains 53 credits from mandatory units together with a minimum of 16 credits from optional units.

Mandatory and optional units

Unit Title	Level	Credits
Mandatory units: Minimum credits required: 53		
Networking Principles	Three	10
Digital Network Environments	Three	6
Health and Safety in an IT Context	Three	6
Principles of Information Governance and Assurance	Three	15
Professional Practice in an IT Context	Three	6
Working with IT Hardware and Equipment	Three	10

Optional units: Minimum credits required: 16		
Investigating and Defining Customer Requirements for ICT Systems	Four	15
Testing IT & Telecoms Systems	Four	15
Testing the Security of Information Systems	Four	15
IT & Telecom System Security 2	Three	8
IT System Operation 2	Four	14
Principles of Information Security Testing	Four	10
Testing the Security of Information Systems	Three	12
Principles of Information Security Testing	Three	12
IT System Operation	Three	12
Remote Support for IT Products and Services	Three	9
IT System Management	Three	12
Investigating and Defining Customer Requirements for IT Systems	Three	12
Improving Existing Software	Three	6
IT Fault Diagnosis	Three	10

Testing IT Systems	Three	12
IT Technical Advice and Guidance	Three	7
IT System Management	Four	15
IT Fault Diagnosis	Four	12
IT System Security	Four	12
IT Technical Advice and Guidance	Four	12
Remote Support for IT Products and Services	Four	12
Improving Existing Software	Four	10
Integrated Development and Operations (DevOps)	Three	11
Integrated Development and Operations (DevOps)	Four	15
Computer Coding	Three	20

Annex 2 - Level 4: Digital Infrastructure Engineer Qualification Units

Agored Cymru Level 4 Diploma in Digital Infrastructure Engineer

This combined qualification contains 65 credits from mandatory units together with a minimum of 21 credits from optional units.

Mandatory and optional units

Unit Title	Level	Credits
Mandatory units: Minimum credits required: 65		
Professional Practice in an IT Context	Four	11
Health and Safety in an IT Context	Three	6
Working with IT Hardware and Equipment	Four	14
Principles of Information Governance and Assurance	Four	18
Network Environments	Four	8
Network Principles	Four	8

Optional units: Minimum credits required: 21		
Principles of Data Management Infrastructure	Four	18
Data Management Infrastructure	Four	18
Investigating and Defining Customer Requirements for ICT Systems	Four	15
Testing IT & Telecoms Systems	Four	15
Testing the Security of Information Systems	Four	15
IT & Telecom System Security 2	Three	8
IT System Operation 2	Four	14
Networking Principles	Three	10
Principles of Information Security Testing	Four	10
Testing the Security of Information Systems	Three	12
Principles of Information Security Testing	Three	12
IT System Operation	Three	12
Remote Support for IT Products and Services	Three	9
IT System Management	Three	12
Investigating and Defining Customer Requirements for IT Systems	Three	12

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

IT Fault Diagnosis	Three	10
Testing IT Systems	Three	12
IT Technical Advice and Guidance	Three	7
IT System Management	Four	15
IT Fault Diagnosis	Four	12
IT System Security	Four	12
IT Technical Advice and Guidance	Four	12
Remote Support for IT Products and Services	Four	12
Integrated Development and Operations (DevOps)	Three	11
Integrated Development and Operations (DevOps)	Four	15
Computer Coding	Three	20