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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](http://www.llyw.cymru)  
[www.gov.wales](http://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 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.

<b>Agored Cymru Level 3 Diploma in Digital Infrastructure Engineer</b>					
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	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 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](mailto: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
<b>Mandatory units: Minimum credits required: 53</b>		
<a href="#">Networking Principles</a>	Three	10
<a href="#">Digital Network Environments</a>	Three	6
<a href="#">Health and Safety in an IT Context</a>	Three	6
<a href="#">Principles of Information Governance and Assurance</a>	Three	15
<a href="#">Professional Practice in an IT Context</a>	Three	6
<a href="#">Working with IT Hardware and Equipment</a>	Three	10

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

<a href="#">Testing IT Systems</a>	Three	12
<a href="#">IT Technical Advice and Guidance</a>	Three	7
<a href="#">IT System Management</a>	Four	15
<a href="#">IT Fault Diagnosis</a>	Four	12
<a href="#">IT System Security</a>	Four	12
<a href="#">IT Technical Advice and Guidance</a>	Four	12
<a href="#">Remote Support for IT Products and Services</a>	Four	12
<a href="#">Improving Existing Software</a>	Four	10
<a href="#">Integrated Development and Operations (DevOps)</a>	Three	11
<a href="#">Integrated Development and Operations (DevOps)</a>	Four	15
<a href="#">Computer Coding</a>	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
<b>Mandatory units: Minimum credits required: 65</b>		
<a href="#">Professional Practice in an IT Context</a>	Four	11
<a href="#">Health and Safety in an IT Context</a>	Three	6
<a href="#">Working with IT Hardware and Equipment</a>	Four	14
<a href="#">Principles of Information Governance and Assurance</a>	Four	18
<a href="#">Network Environments</a>	Four	8
<a href="#">Network Principles</a>	Four	8

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

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[www.gov.wales](http://www.gov.wales)

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