

# L4 APPRENTICESHIP

## NETWORK ENGINEER

### Overview

The primary role of a network engineer is to design, install, maintain and support communication networks within an organisation or between organisations. Network engineers need to maintain high levels of operation of communication networks in order to provide maximum performance and availability for their users, such as staff, clients, customers and suppliers. They will understand network configuration, cloud, network administration and monitoring tools, and be able to give technical advice and guidance.

### Entry requirements\*

Assessed on an individual basis on application/interview

### Who is the course for?

Typical Job Roles: Network Technician, Network Engineer, Systems Engineer, Network Administrator

### Occupation Duties:

- Install, configure, and test appropriate network components or devices securely to well-defined specifications whether physical or virtual
- Acquire and analyse network performance data to monitor network activity
- Optimise and maintain the performance of network systems or services in line with well-defined specification whether physical or virtual
- Investigate and problem solve to address technical performance issues in networks to return the network to successful operation and escalate as necessary
- Undertake upgrades to a network including physical or virtual systems
- Interpret written requirements and technical specifications in relation to delivery of network systems and services
- Maintain accurate logical records in line within organisational policy when carrying out network tasks
- Use operational data to manage weekly work schedule in an efficient and cost effective way
- Consider the impact and risks when implementing network changes in line with work activities and escalating as required by organisational policies
- Communicate technical network requirements effectively and professionally with a range of stakeholders ensuring stakeholder relationships are maintained
- Practice continuous self-learning to keep up to date with technological developments to enhance relevant skills and take responsibility for own professional development
- Incorporate considerations of the requirements of the wider digital context in which they operate to ensure that network engineering activities are carried out effectively
- Ensure all network engineering activity complies with organisational policies, technical standards, Health and Safety legislation, data security requirements, professional ethics, privacy and confidentiality
- Deliver and manage a high-quality service under pressure

### KEY INFORMATION

**Typical Duration:**  
30 months +3 months EPA

**Taught Days:**  
One day every week during term time only

**Delivery Location:**  
Truro

**Funding value:**  
£17,000

(£850 employer contribution if required)

## Knowledge,

- The causes and consequences of network and IT infrastructure failures
- The architecture of typical IT systems, including hardware, OS, server, virtualisation, voice, cloud and applications
- The techniques for systems performance and optimisation
- Diagnostic techniques and tools to interrogate and gather information regarding systems performance
- Organizational procedures to deal with recording information effectively and in line with protocols
- Service Level Agreements (SLAs) and their application to delivering network engineering activities in line with contractual obligations and customer service
- Their role in Business Continuity and Disaster Recovery
- The purposes and uses of ports and protocols
- Devices, applications, protocols and services at their appropriate OSI and, or, TCP or IP layers
- The concepts and characteristics of routing and switching
- The characteristics of network topologies, types and technologies
- Wireless technologies and configurations
- Cloud concepts and their purposes
- Functions of network services
- The different types of network maintenance
- How current legislation relates to or impacts occupation
- Troubleshooting methodologies for network and IT infrastructure
- How to integrate a server into a network
- The types of security threats to networks and IT infrastructure assets
- How to use tools to automate network tasks
- Approaches to change management

## Skills,

- Apply the appropriate tools and techniques when securely operating and testing networks
- Install and configure the elements required to maintain and manage a secure network
- Implement techniques to monitor and record systems performance in line with defined specifications
- Maintain security and performance of the system against known and standard threats
- Apply the appropriate tools and techniques to identify systems performance issues
- Apply the appropriate tools and techniques to gather information to troubleshoot issues and isolate, repair or escalate faults
- Communicate outcomes of tasks and record in line with organisational procedures and SLAs including adherence to customer service standards
- Upgrade, apply and test components to systems configurations ensuring that the system meets the organisation's requirements and minimises downtime. This should include backup processes
- Record task details whether face-to-face, remote or in writing in line with organisational requirements
- Interpret information received from a manager, customer or technical specialist and accurately implement the defined requirements
- Monitor, identify and implement required maintenance procedures
- Implement techniques to optimise systems performance in line with defined specifications
- Organise and prioritise clients or stakeholders' requests in line with SLAs and organization processes
- Explain their job role within the business context to stakeholders to enable a clear understanding on both sides of what their remit is and convey technical constraints in appropriate language considering accessibility and diversity implications
- Operate securely and apply the appropriate process, policies and legislation within their business responsibilities
- Communicate with a range of stakeholders taking into consideration the organisations cultural awareness and technical ability

- Apply the appropriate level of responsibility when planning and prioritising work tasks
- Apply the relevant numerical skills (Binary, dotted decimal notation) required to meet the defined specifications
- Ensure compliance of network engineering outputs with change management processes
- Select the appropriate tools and comply with organisation policies and processes when upgrading systems

## Behaviours,

- Work independently and demonstrate initiative being resourceful when faced with a problem and taking responsibility for solving problems within their own remit
- Work securely within the business
- Work within the goals, vision and values of the organisation
- Take a wider view of the strategic objectives of the tasks or projects they are working on including the implications for accessibility by users and diversity
- Works to meet or exceed customers' requirements and expectations
- Identifies issues quickly, investigates and solves complex problems and applies appropriate solutions. Ensures the true root cause of any problem is found and a solution is identified which prevents recurrence
- Committed to continued professional development in order to ensure growth in professional skill and knowledge
- Work effectively under pressure showing resilience

## Gateway:

Apprentice carries out work as defined by their employer, selects evidence from their portfolio from work carried out toward the end of their apprenticeship, and passes the tests for underpinning knowledge and understanding.

Employer creates opportunities for the apprentice to carry out work and produce outcomes; confirms that apprentice is ready for end point assessment.

Training Provider maps and assesses work against the Standard, helps apprentice select evidence for their summative portfolio, confirms readiness for end point assessment.

## End point assessment:

### EPA methods

- Summative Portfolio
- A synoptic project
- An employee reference
- A structured interview with assessor

## Contact information

For further information, please call our Business Relations Team on 01872 305500 or email [apprenticeships@truro-penwith.ac.uk](mailto:apprenticeships@truro-penwith.ac.uk)



\* A guide to GCSE grading and Functional Skills

Department for Education

**GCSE Grading**

New Grading Structure	Old Grading Structure
9	A*
8	A
7	A
6	B
5	B
4 Standard Pass →	C
3	D
2	E
1	F
	G
U	U

Functional Skills are equivalent to GCSE's, the table below shows the comparison

Entry Level 1	GCSE below G or Level 1
Level 1	GCSE D-G or level 1-3
Level 2	GCSE A* - C or level 4-9