The Sheffield College

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Network Engineer

Apprenticeship Level 4

'Network Engineer' is a term that covers a range of key roles such as designing, installing, maintaining and supporting communication networks within an organisation or between organisations.

As networks continue to grow and become more complex, this role is becoming more crucial and the skills required are evolving. Whether you need someone for network management in your own organisation or to support your clients, it is vital that you have engineers you can rely on with a good level of technical understanding, ability to learn new technologies quickly and the communication skills to liaise with staff effectively to troubleshoot problems and offer guidance

Recruiting an apprentice can be a smart, cost-effective way of training someone up, making sure they meet your standards and understand your operation. This new apprenticeship has been designed by industry-professionals so it is relevant to your requirements, and by working with the College you gain support for recruiting and training your apprentice.

Key Areas of Study

Your trainee will cover essential knowledge, skills and behaviours on their programme. The full menu of options for what will be covered is outlined below.

Quick Information:

New Apprenticeship Standard designed by employers for employers

Sector: Relevant to all employment sectors

Who is it for? New recruits and existing staff

Start date: From Sept 2018

Level: Level 4

Duration: Typically 24 months

How does it work? Delivered in the workplace with one day a week in College and training facilitator/mentor visits every 6/8 weeks

Content: Menu of learning aims that will be tailored to meet your specific business needs

Assessment: Portfolio, business project, employer reference and structured interview during and at the end of the programme

Qualification: Network Engineer Apprenticeship

Additional Qualifications: This apprenticeship is recognised for entry onto the register of IT technicians confirming SFIA Level 3 professional competence

Technical Competencies (Work based learning)

- Can design simple networks from a well-defined specification and apply appropriate security products and processes
- Can install and configure network components, including switches, routers and firewalls
- Can optimise the performance of network systems and services
- Can monitor, test and adjust network systems and performance to meet accepted standards using diagnostic tools, analysers and other equipment
- Can apply diagnostic tools and techniques to identify the causes of network performance issues
- Can apply structured approaches to troubleshooting network issues and repair faults in hardware, software products and the network
- Can undertake system upgrades to network hardware, software and operating systems
- Can integrate network related software into an existing network environment
- Can interpret written requirements and technical specifications for network activities and maintain accurate records of network maintenance activities
- Can log and respond to network service calls and provide technical network support to end users as required
- Can document work done in accordance with agreed procedures
- Can operate within the parameters of service level agreements, standards and/or agreed response times
- Can operate effectively in the business environment and responds to business issues related to network engineering

Technical Knowledge and Understanding (Part college and part work based)

- Understands and applies the principles of networking, protocols and associated technologies (specifically this should include the latest published versions of OSI layer model, IP, TCP/IP, routing and switching, WANs, LANs)
- Understands and applies the applied maths required to be a network engineer (e.g. algorithms, data, binary, probability and statistics)
- Understands the causes and consequences of system failure including load balance and storage protocols and responds appropriately
- Understands the architecture of a typical business IT system, including hardware, OS, server, virtualisation, middleware and applications
- Understands and responds to security threats, firewalls and vulnerabilities

Underpinning Skills, Attitudes and Behaviours

- Logical and creative thinking skills
- Analytical and problem solving skills
- Ability to work independently and to take responsibility
- Can use own initiative
- A thorough and organised approach
- Ability to work with a range of internal and external people
- Ability to communicate effectively in a variety of situations
- Maintain productive, professional and secure working environment

Qualifications

Ofqual-regulated knowledge modules

Apprentices must be successful at all of the Ofqual-regulated knowledge modules listed below. In addition, they must achieve at least one internationally recognised vendor or professional qualification (subject to availability). This then exempts one of the Ofqual-regulated knowledge modules.

Knowledge Modules
Module 1 - Network Principles 1. Understand network infrastructure 1.1 Role of networks 1.2 Different types of physical and wireless network 1.3 Key network components 2. Understand network protocol suites 2.1 Conceptual models 2.2 Layers associated with hubs, switches and routers. 3. Understand the concepts of IP addressing and routing 3.1 IP addressing schemes 3.2 Routing concepts and protocols Vendor qualifications for this module could include: CCNA 1 + 2, Network +, Juniper JNCIA - Junus
Module 2 - Network Systems and Architecture 1. Understand concepts effecting sever selection 1.1 Server hardware 1.2 Factors that affect server configuration 1.3 OS virtualisation 1.4 Configure a virtual machine 2. Understand the roles of servers 2.1 Roles and types of server 2.2 Install and configuration of network services 2.3 Middleware and application services 2.4 Server workload balancing 3. Understand network storage 3.1 Types of network storage 3.2 Key storage protocols 3.3 Network storage devices configuration 4. Understand maintenance and troubleshooting of servers 4.1 Typical causes of system failure 4.2 Consequences of system failure 4.3 Preventative and reactive measure to cope with system failure Vendor qualifications for this module could include: MCP Server Virtualisation – Windows Server Hyper V, MCP MS Exchange Server, MCP Server 2012, MCP Windows Administrator, Server +, Juniper JNCIS - Ent

Module 3 - Network Security

1. Understand security threats and countermeasures
   - 1.1 IT Security concepts
   - 1.2 IT Security vulnerabilities and threats
   - 1.3 Risk management methods
   - 1.4 IT security countermeasures
2. Understand how to configure network security
   - 2.1 Security for network services
   - 2.2 Vulnerability and threat assessment
   - 2.3 Information Security Incidents

Vendor qualifications for this module could include: Security +, CCNA Security, MTA Cloud and Mobility, Juniper JNCIS – Sec

Training, Tutoring and Assessment

The whole programme takes a minimum of 2 years to complete, at which point your trainee can start their final assessment. The pace at which your trainee progresses will be driven by you and the trainee. We will work closely with you to plan and deliver appropriate support and training. Your trainee will mainly learn on the job with your support and coaching, but one-to-one tutoring is a key part of the new apprenticeship standards, not just assessment, with more time on tutoring as part of the 20% off-the-job training.

You will be expected to supervise and support your apprentice to meet the levels of competence and applied knowledge outlined above.

We will carry out joint reviews with you at regular intervals, at least every eight weeks, to discuss progress. You can use your normal performance management processes to monitor the progress of the apprentice, provide feedback and guide development. Your apprentice will be expected to keep a portfolio to track their learning and development throughout the apprenticeship.

Technical knowledge and understanding is assessed on programme through a combination of Ofqual-regulated Knowledge Modules (see above) and specified vendor or professional qualifications if required. These must be passed before the end point assessment can be taken.

End Point Assessment

In conjunction with the College, you will be asked to formally sign-off that your trainee has met the minimum requirements for knowledge, skills and behaviours within the apprenticeship standard and confirm they are ready to move on to the end assessment, which will be measured as follows:

- Portfolio: Produced towards the end of the apprenticeship, the portfolio will contain evidence from real work projects that have been completed during the apprenticeship on the application of knowledge, competencies and behaviours detailed in the standard.

- Project: The apprentice will undertake a business-related project over a one-week period away from the day to day workplace.
- Employer Reference: This is your account of how the apprentice has performed in the workplace and how they have applied their knowledge, competencies and behaviours.
- Structured Interview: Exploring what has been produced in the portfolio and the project. The interview provides an opportunity for further evidence to be gathered and explored in more detail against any of the knowledge, competencies or behaviours.

For more information on the assessment for Network Engineer Apprenticeship please see the full assessment plan and occupational brief as part of the Apprenticeship Standard documentation. We will arrange the End Point Assessment.

Apprentice Entry Requirements

As the employer, you will set the selection criteria, but this is likely to include A Levels, a Level 3 apprenticeship or other relevant qualifications and experience and/or aptitude tests with a focus on functional maths

More information

To find out more about the opportunities and financing of apprenticeships and to discuss your particular requirements, please email employer@sheffcol.ac.uk or call **0114 260 2600** to speak to one of our friendly employer advisors.

Why choose The Sheffield College?

As one of the region's largest providers of apprenticeships, The Sheffield College is more than just your local provider; we deliver the dedicated support you need to source, train and get the best out of your apprentice.

We appreciate how difficult and time consuming it can be to recruit staff. That's why, when you recruit an apprentice with us, our dedicated apprenticeship recruitment service, Job Connect, will advertise the vacancy, engage your candidates and even pre-screen them to make the process as easy as possible for you.

We help you get the best deal by finding the right funding and we handle the paperwork to make the process of arranging an apprenticeship training programme as smooth as possible. Our employer partnership team, apprenticeship tutors and assessment staff are experts, and we invest time and money in training and upskilling them regularly so their knowledge is up-to-date and industry standard.

At The Sheffield College we go above and beyond; we know that every business is different and we help to develop apprentices who will meet the needs of your business.

Get In Touch

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