ICT ASSOCIATE APPRENTICESHIP

Programme Syllabus

Computer Networking Associate Apprenticeship
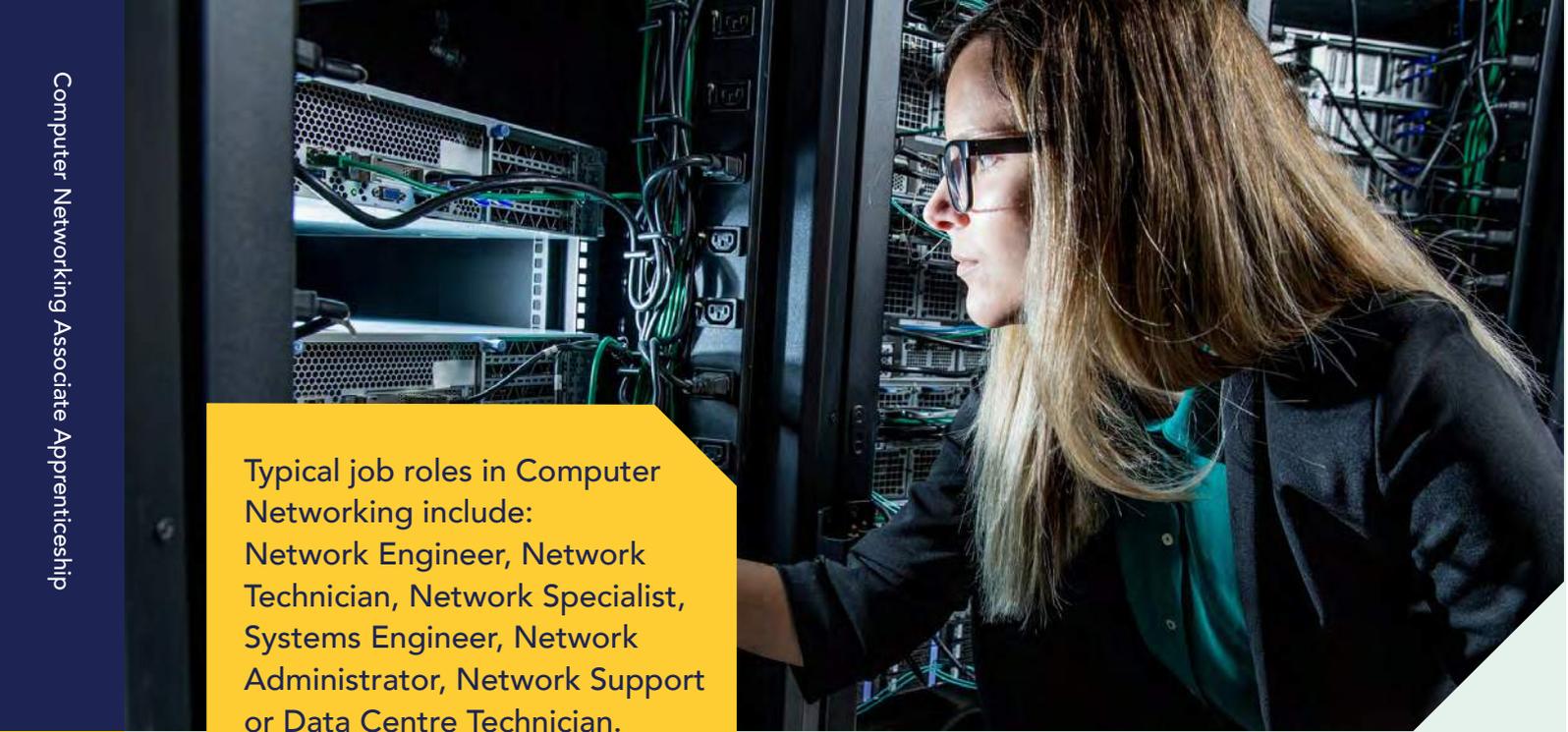
Typical job roles in Computer Networking include:
Network Engineer, Network Technician, Network Specialist, Systems Engineer, Network Administrator, Network Support or Data Centre Technician.

1. Introduction

Apprenticeships are an exciting and proven way for employers to develop talent for their company and industry. Apprenticeships are designed by industry-led groups to support growth and competitiveness. Apprentices earn while they learn, and build valuable work-ready skills in a chosen occupation.

Apprenticeships open up exciting and rewarding careers, with learning grounded in the practical experience of undertaking an employment opportunity. Helping more people discover and develop their talents through training is at the heart of the national apprenticeship system. Assisting people to find opportunities through the acquisition of tech skills is at the heart of Fastrack into Information Technology's mission and we warmly welcome you to take part in this journey with our support and encouragement.

1.1 Programme Design

The Computer Networking Associate Apprenticeship is a two-year programme designed for those who have recently completed second-level education or mature learners who are seeking to retrain. It is a dual-education programme involving both college-based and workplace learning. This college-based learning is state-funded and apprentices receive a salary from their employer while on the programme. The programme provides apprentices with the theoretical and practical skills required to secure and retain employment in creating, managing and modifying wide and local computer networks. In early 2023, FIT concluded the first formal large-scale review of this programme, culminating in a modified programme targeted toward meeting contemporary business needs.

In summary, the revised programme includes updated content in customer support training, extended periods for apprentices to build basic computer networking skills, and the opportunity to practice on various network topologies. In addition, the revised programme refocuses basic health and safety considerations towards a deeper appreciation for safe work systems while significantly enhancing the apprentices' understanding of contemporary/agile project management approaches and methodologies such as Lean and SCRUM, etc. The programme will expose apprentices to popular virtualisation solutions and contemporary practice, also offering the opportunity to complete CompTIA certification, as noted in *Section 6*.

1.2 Stakeholders and Roles

A computer networking associate/specialist designs, installs, maintains and supports communication networks within and between organisations. Network specialists maintain high levels of network availability in order to provide maximum performance for their users (colleagues, clients, customers, suppliers etc.). They understand network topologies, cloud services, network administration and monitoring tools. They are able to give technical advice and guidance. Typical job titles for people with this skillset include: Network Engineer, Network Technician, Network Specialist, Systems Engineer, Network Administrator, Network Support or Data Centre Technician.

1.3 Governance

FIT is an industry-led not-for-profit organisation that develops and provides innovative education and training programmes. As Coordinating Provider, FIT is responsible for the operation and quality assurance of the programme. FIT works closely with its training delivery partners (ETBs), employers, and regulators (Quality and Qualifications Ireland, SOLAS, National Apprenticeship Office) to ensure that the ICT Apprenticeships meet the needs of all stakeholders.
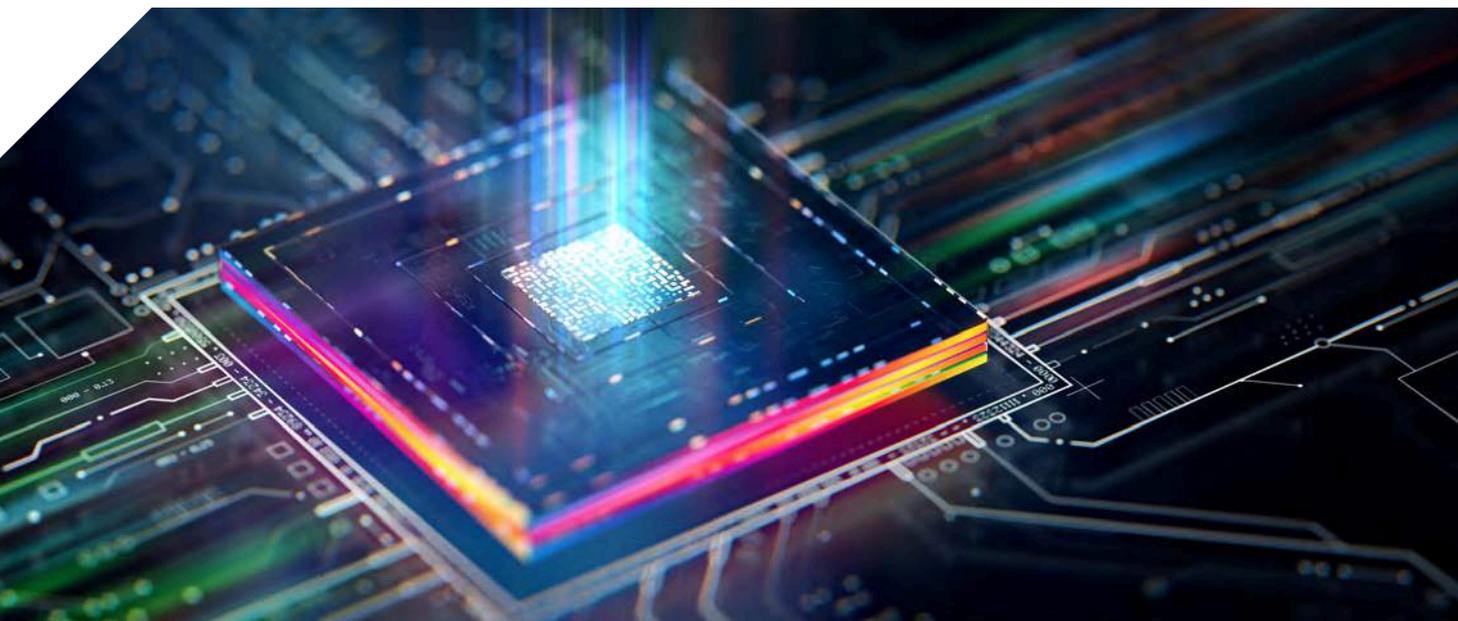
2. Award Title, Level and QQI Certification

Successful completion of all modules on this programme leads to apprentice attainment of a Quality and Qualifications Ireland-accredited **Advanced Certificate in Computer Networking**, which is placed at Level Six on the National Framework of Qualifications.

National Framework of Qualifications

QQI
Quality and Qualifications Ireland
Dearbhú Cáilíochta agus Cáilíochtaí Éireann

2.1 Modular Components

Based on the allocation of 200 FET Credits, this programme is split into fourteen modules, NE-TA-001–NE-TA-014. Modules NE-TA-001–NE-TA-012 are completed by apprentices in off-the-job training mode under the guidance and direction of an off-the-job tutor. Self-directed learning hours relating to these modules are comprised of learning formation activities conducted in the workplace throughout the two-year programme. Modules NE-TA-013 and NE-TA-014 relate to on-the-job activity, specifically the demonstration and application of learning in the workplace.

Module		Course Type	FET Credits	Directed	Self-Directed
	Programme Induction	N/A	0	31.5	0
NE-TA-001	Networking Fundamentals I	Off-the-Job	15	94.5	55.5
NE-TA-002	Customer Support Provision for the ICT Professional	Off-the-Job	05	31.5	18.5
NE-TA-003	Configuring and Testing of ICT Systems	Off-the-Job	10	63	37
NE-TA-004	Cloud Technology Implementation & Maintenance	Off-the-Job	15	94.5	55.5
NE-TA-005	Data & Cyber Security	Off-the-Job	5	31.5	18.5
NE-TA-006	Safe Systems of Work	Off-the-Job	5	31.5	18.5
NE-TA-007	Virtualsiation Management	Off-the-Job	15	94.5	55.5
NE-TA-008	Project Management & Agile Systems of Work	Off-the-Job	10	63	37
NE-TA-009	ICT System Security Policies	Off-the-Job	10	63	37
NE-TA-010	Networking Fundamentals II	Off-the-Job	20	126	74
NE-TA-011	Intermediate IT Support	Off-the-Job	10	63	37
NE-TA-012	Intermediate Network Management	Off-the-Job	15	94.5	55.5
NE-TA-013	Applied Learning in the Workplace Year 1	On-the-Job	25	525	0
NE-TA-014	Applied Learning in the Workplace Year 2	On-the-Job	40	1672	0

3. Programme Access and Entry Requirements

FIT recruits candidates who express an interest in joining the programme by completing an online application form available on www.fit.ie. In the first instance, the application is subject to screening regarding the defined criteria noted. Successful candidates will also be registered with SOLAS as the regulatory authority for the registration of apprentices in Ireland.

All candidates will be required to meet the specific entry requirements. Once the screening process has been finalised/completed, FIT will organise interviews between candidates and prospective host employers who will provide the mentored work placement opportunity to the candidate. The employer will select the applicant(s) to whom they will offer a role in their organisation as a full time employee for the duration of the programme. This decision is exclusively made by the employer and FIT has no role in influencing that decision-making process.

Since 2018, FIT has instigated several supports for candidates who may have additional support needs and who notify FIT of a disability at the candidate application stage. These supports range from assistance navigating the candidate application process to ongoing support during participation in the programme.

3.1 Specific Entry Requirements

Minimum candidate entry requirements are as follows:

- Must be 18 years or older,
- Will be required to complete an initial aptitude test,
- Must have achieved a passing grade (or O6/H7) in 5 or more subjects to include Maths and English (Ordinary Level) in the Irish Leaving Certificate,
- Must be eligible to participate in Further Education and Training programmes,
- Must be entitled to study and work in Ireland.

Equivalence may be decided through the Recognition of Prior Learning procedure for those who may not hold a suitable Leaving Certificate. In addition, those who have completed a FIT recognised Pre-Tech Apprenticeship programme will be able to furnish evidence of the same along with a copy of their Junior Certificate parchment/certificate.

Key candidate skills and attributes are as follows:

- Must be numerate and literate,
- Have good learning skills,
- Be interested in technology and customer service,
- Have the ability to absorb product knowledge,
- Be motivated and analytical,
- Possess good communication skills, pleasant personality, be determined to succeed,
- Have excellent interpersonal skills,
- Be able to work as a team member, be adaptable and flexible.

4. Programme Aims and Objectives

The Computer Networking Associate Apprenticeship programme aims to enable participants to secure and retain employment in a computer networking role. Onboarded apprentices will be able to combine technical, communications, project management and personal development skills to meet the employer's requirements and should be able to act autonomously or as part of a team as the occasion demands.

4.1 Specific Programme Objectives

The expected outcome is that the apprentice will be able to:

- Install, configure, troubleshoot and maintain a network operating system.

- Understand the principles and components involved in computer networking.

- To design, implement and support new and existing computer network installations.

- Manage and secure internet servers.

- Understand virtual environments as an option to more traditional computing.

- Implement and manage virtualisation environments (desktop and server).

- Use the principles of project management to set up new projects.

- Mitigate for risks and develop skills in using management tools to monitor and review projects.

- Understand the importance of effective communication: written, verbal and non-verbal, in a business environment.

- Understand why effective communication is critical for businesses and will be able to use different types of communication methods suitable for specific purposes.

- Understand the systems development life cycle. Using a project approach, apprentices will explore the stages in detail, gathering and analysing customer requirements, designing an IT solution, and planning its testing and implementation.

- Identify the various stakeholder perspectives to ensure that the solution meets requirements and that the broader implications are considered.

- Use different methods and resources available to them to help them plan for their personal and professional development.

- Learn how to identify factors that may affect targets or goals, prioritise actions and how feedback from others can be utilised to aid their development and career progression.

- Demonstrate the advanced learning associated with industry-recognised certifications such as CompTIA A + and CompTIA Network +.

5. Programme Structure

The Computer Networking Associate Apprenticeship programme is presented in four semesters that chart apprentice growth and progress through the programme.

Semester 1: Laying the Foundation

Apprentices will receive a 'deep dive' of technical and transversal learning in preparation for entry to the workplace. As the title suggests, the purpose of this semester is to "lay the foundation" for the technical knowledge that learners will rely on in Semester 2. It will also help apprentices "find their feet" and introduce them to fellow apprentices and tutors.

Semester 2: Introducing the Workplace

In Semester 2, the off-the-job training/activity combines with time spent in the workplace setting. Apprentices will undertake additional workplace practice to increase their knowledge and skills. The learning undertaken in the workplace will be guided by the tasks outlined in the module "Application of Skills in the Workplace Year 1". The broader purpose of this semester is to integrate apprentices fully into the workplace setting, to introduce the apprentice to their work teams and mentors, and to start applying acquired knowledge and skills. This stage builds on the technical learning undertaken in Semester 1. Off-the-job training activity will enable learners to "re-group" in a familiar setting, share workplace experiences and discuss technical matters with tutors.

Semester 3: Consolidation

Semester 3 continues the model of off-the-job training/activity and work placement. The difference in this semester is that many off-the-job modules have concluded, allowing apprentices to actively contribute to work teams enabling them to focus on consolidating theoretical learning by continuing to apply skills in the workplace. In addition, as in Semester 2, the off-the-job activity will provide a continuing opportunity for engaging with peers and tutors.

Semester 4: Preparation for Autonomy

The final semester will assist apprentices in adapting to full-time employment with more autonomy. Some time will still be allocated to engage with peer groups and tutors. During this semester, the apprentice's future path will become more apparent. It may be that the employer indicates that the apprentice will be offered a role with them upon completion of the apprenticeship. If not, the apprentice will be facilitated to seek alternate employment or further training at the end of the programme.

5.1 Specific On and Off-the-Job Timings

Depending upon noted employer need, the programme may run on either a day release or block release structure to accommodate the required off-the-job modules/elements. The format of particular cohort instance starts will be notified in advance to apprentices and all stakeholders.

Typical Day Release Arrangements*

Semester 1	20 Weeks	Full time off-the-job training Monday-Friday
Semester 2	32 Weeks	Monday day release off-the-job training each Monday for 15 weeks *Remainder of time spent full time in the workplace*
Semester 3	26 Weeks	Monday day release off-the-job training each Monday for 10 weeks *Remainder of time spent full time in the workplace*
Semester 4	26 Weeks	Monday day release off-the-job training each Monday for 15 weeks *Remainder of time spent full time in the workplace*

* May be subject to change dependant upon employer needs.

Typical Block Release Arrangements

Block release arrangement timings may vary from intake to intake following discussion with employers and in consultation with off-the-job delivery partner, the ETBs. However, confirmed block release arrangements will ensure completion of the required total learning hours in both on and off-the-job study as these timings form critical requirements of the programme validation.

6. Indicative Programme Content Summary

The indicative content that forms this programme builds upon increasing complexity from the first to final modules. Early programme modules are targeted towards an NFQ level 5 standard, with later modules NFQ Level 6 standard. This approach allows for an accessible learning experience for those coming new to ICT to understand fundamental topics, technologies and their application while also building their knowledge and skills throughout the programme. The indicative content noted below comprises a brief snapshot of content relating to constituent programme modules. A complete outline of module-specific learning outcomes and aligned indicative content is available by request. Alternatively, FIT is always open to discussing specific programme aspects or where future enhancements can be made.

NE-TA-001   Networking Fundamentals I   (NFQ Level 5)

Utilising a variety of computer networking approaches, this module includes instruction in the fundamental principles of computer networking and the application of techniques used in the field. Apprentices will be able to maintain physical and logical networks based on a comprehensive knowledge of data transmission in terms of network models, protocols, and services.

NE-TA-002   Customer Support Provision for the ICT Professional   (NFQ Level 5)

In the early phase of apprentice training, employers often induct apprentices into the workplace in the discharge of technical support activities. This module will prepare the apprentice to provide technical customer support and understand the processes involved in improving how customers interact with ICT systems. In addition, this module will equip apprentices with knowledge of the differing levels of customer support, such as Level 1, Level 2, and Level 3 support activities. Finally, apprentices will understand the importance of Customer Relationship Management systems as a database and within the remit of a computer programmer.

NE-TA-003   Configuring and Testing of ICT Systems   (NFQ Level 5)

This module aims to provide apprentices with the principles of ICT systems testing and an appreciation for implementing aligned procedures. Apprentices will devise standard testing procedures for stand-alone and networked systems using existing test hardware and software. Apprentices will learn to select and apply test procedures for particular situations, compare the results with benchmarks and recommend further actions.

NE-TA-004   Cloud Technology Implementation and Maintenance   (NFQ Level 5)

This module aims to provide apprentices with the knowledge and skills required to understand standard cloud terminologies and methodologies and to implement, maintain and deliver cloud technologies and infrastructures.

NE-TA-005   Data and Cyber Security—Essentials for Programming   (NFQ Level 6)

This module provides an understanding of the threats to modern ICT systems relating to matters of data security and cybersecurity.

NE-TA-006 Safe Systems of Work (NFQ Level 6)

Safe systems of work ensure that employees in a computer networking environment can complete their work duties safely while maintaining their health when active in their employment. This module will assist apprentices in gaining an understanding of contemporary 'safe' work practices and the control of hazards, including broad legislative requirements. In addition, apprentices will learn how to report personal injury and accidents while also ensuring apprentices can complete basic risk assessments pertinent to their ICT work environment considering the tools and techniques they utilise.

NE-TA-007 Virtualisation Management (NFQ Level 6)

This module aims to provide apprentices with the knowledge and skills related to virtual server management, an understanding of how virtual services rely on physical infrastructure and assist apprentices in developing skills to design, manage, implement and manage virtualisation environments.

NE-TA-008 Project Management and Agile Systems of Work (NFQ Level 6)

This module aims to provide apprentices with an understanding of project management principles and how projects are set up and delivered in the contemporary ICT workplace. Apprentices will understand how to mitigate risks and develop their skills in using management tools to monitor and review projects in agile environments. In addition, apprentices will develop essential skills to communicate through written, verbal and non-verbal means and present to non-technical audiences.

NE-TA-009 ICT System Security Policies (NFQ Level 6)

This module aims to provide apprentices with user awareness and knowledge of ICT System security policies to effectively protect organisational assets and threat mitigation while making provision for better ICT service delivery.

NE-TA-010 Networking Fundamentals II (NFQ Level 6)

Building on the initial Networking Fundamentals module, this module will assist apprentices in developing a broader understanding of networking technologies and operating systems across a range of systems considerations, including topologies, communication bandwidth, throughput, standards and protocols.

NE-TA-011 Intermediate Level IT Support (NFQ Level 6)

Building on all prior modules, this module aims to provide apprentices with the knowledge of intermediate-level IT support activities in areas including but not limited to security, troubleshooting, operating systems diagnostics, virtualisation, cloud options and hardware. Apprentices who have evidenced that they have completed CompTIA A+ (core 1 & 2) are exempt from completing the FIT-devised assessment tasks relating to this module. The FIT Registrar will assess all certificates/transcripts furnished and notify the tutor of the exemption. Apprentices must demonstrate an overall CompTIA A+ score of at least 50% to ensure that they have demonstrably achieved the module learning outcomes. The delivery of this module will provide a facility for those wishing to sit the above vendor exams to do so within the active period of apprentice study.

NE-TA-012 **Intermediate Network Management**   (NFQ Level 6)

Building on the Networking Fundamentals modules I and II, this module aims to provide apprentices with the knowledge of intermediate-level network management in areas including but not limited to network management, security, implementation, troubleshooting and support. Apprentices who have evidenced that they have completed CompTIA Net+ are exempt from completing the FIT devised assessment tasks. The FIT Registrar will assess all certificates/transcripts furnished and notify the tutor of the exemption. Apprentices must demonstrate a CompTIA Net+ score of at least 50% to ensure that they have demonstrably achieved the below-noted module learning outcomes. The delivery of this module will provide a facility for those wishing to sit the above vendor exams to do so within the active period of apprentice study.

NE-TA-013 & NE-TA-014 **Applied Learning in the Workplace Year 1 & 2**

Within the context of a supported work environment, modules 013 & 014 aim to provide apprentices with an opportunity to demonstrate and document their application of learning in a workplace setting, relating to both occupationally specific technical and transversal skills acquisition.

7. Assessment of Learning

Programme elements are assessed in different ways. During the completion of off-the-job modules, apprentices will undertake a series of assessment tasks for each module that demonstrate apprentice attainment of the required minimum standards. Apprentices complete assessments in a controlled tutor-invigilated environment that is time-bound against set and diverse assignment briefs. Typically assessment aligned to a particular module is completed within the final days of the delivery of a particular module. As apprentices progress through the programme, they will have the opportunity in modules NE-TA-010 and NE-TA-011 to complete CompTIA certification, which typically necessitates attendance at a defined testing centre location. Workplace learning is monitored through apprentices providing written responses regarding the completion of defined and relevant workplace tasks of both a hard technical nature and concerning the application of transversal skills. These activites are monitored by the Workplace Learning Officer, reviewed by the Workplace Mentor and assessed by a FIT-appointed Workplace ICT Assessor.

8. Contact Information / National Availability

The programme may commence at any point during the calendar year, depending on a wide range of factors affecting delivery and placement. Programmes typically comprise classes of 15-20 apprentices. The frequency of programmes and the selected locations will be related to regional demand from employers for the Computer Networking Apprenticeship programme.

FIT Contact Information
Phone: 01 8825570   **Email:** info@fit.ie   **Web:** www.fit.ie