



1. Introduction and Overview

This document outlines the key features of the Digital & Technology Solutions Professional apprenticeship, a programme designed to develop skilled professionals for the digital economy. It focuses on how this apprenticeship integrates academic learning with practical workplace experience. This apprenticeship leads to a BSc Honours degree, contextualised for occupational competency in various technology roles. The programme is a “closed degree for this occupation” that also acts as verification that the standard has been met by the apprentice.

"This new route to recruitment of young talent for employers will produce competent technology solutions professionals to complement their graduate recruitment and apprenticeship programmes."

2. Core Objectives and Structure

The apprenticeship aims to equip individuals with a blend of technical, business, project management, interpersonal, and behavioural skills necessary for the digital landscape. The programme is typically a three to four-year commitment. It is structured around a university degree programme with modules mapped to defined industry standards. Assessment is integrated throughout the degree, with a focus on both formative module assessments and a final, synoptic project and presentation.

"What distinguishes this apprenticeship is the blend of employer defined skills, knowledge and behaviour outcomes that are integrated and assessed as part of the degree."

3. Southampton Solent University Pathways Offer (Standard 1.1)

- Software Engineer
- Data Analyst
- Cyber Security Analyst
- Network Engineer

4. Integrated Assessment Approach

The assessment process is designed to ensure apprentices meet defined skill, knowledge, and behaviour outcomes. Universities develop their own degree programmes, but all must adhere to the same set of standards. Assessment is a blend of:

- **Formative Assessments:** These are module-based, including essays, reports, practical exercises, tests, and exams. They contribute to an apprentice's ongoing development and preparation for the final project.
- **Synoptic Project:** A substantial work-based project typically undertaken over six months near the end of the programme. It serves as a capstone assessment, requiring the application of skills, knowledge and behaviours. This is completed alongside the apprentice's normal duties.

- **Presentation:** A structured discussion with university lecturers and the employer, focusing on the outcomes, process and reflection of the synoptic project.
- **KSB Portfolio Mapping:** Apprentices are expected to maintain portfolio mapping of their university learning/assessments and work-based projects. Although the portfolio mapping is not assessed separately, it functions as evidence of an apprentice's progress and coverage of the KSBs.

5. Synoptic Project Details

The synoptic project is a critical component, designed to be relevant to the apprentice's chosen specialism and the employer's business needs. The project should:

- Be based on a real business problem encountered in the apprentice's role.
- Demonstrate application of core and specialist knowledge/skills.
- Involve project planning and execution.
- Showcase relevant behaviours defined in the standard.
- Incorporate an employer assessment to provide a practical perspective.
- Produce a project report with reflective aspects.

Example project descriptors:

Software Engineer: Design and development of software or a prototype.

Cyber Security Analyst: Evaluation of security threats and vulnerabilities.

Data Analyst: Data analysis and solution deployment.

Network Engineer: Planning and configuration of a network.

*"Because of the **significance of the project the employer and university should work together** with the apprentice to agree a project that is achievable within the employer's business constraints and that meets the requirements of the standard."*

6. Synoptic Presentation Details

The presentation serves to demonstrate how the apprentice has approached and achieved the project. It aims to explore the apprentices' process including problem solving and overall work, and must:

- Review the project's aims and results.
- Demonstrate the standard of work.
- Explain the approach and address issues.
- Clarify any questions from university/employer.
- Confirm interpersonal and behavioural skills.
- Be assessed as part of the overall project assessment and inform the degree award.

*"The presentation is a **structured discussion between the apprentice and their university lecturers and employer, focusing on the outcomes of the synoptic project**. It covers both what the apprentice has done, the standard of their work, and how they have done it."*

7. Grading and Award

The apprenticeship culminates in the award of a BSc Honours degree in Digital & Technology Solutions. The final grade is determined by a weighted average of module assessments and, crucially, the synoptic project performance. The degree classification is aligned to typical degree award classifications.

"It is the achievement of the Honours degree that demonstrates that the standard has been met and which provides the grading."

8. Quality Assurance and Responsibilities

Universities are responsible for delivering and assessing the programme, ensuring consistency across institutions. Key measures include:

- **Internal Moderation:** Ensuring assignments are appropriate and marking is consistent.
- **External Examiners:** Independent academics who oversee assessment processes.
- **Employer Involvement:** **Employers contribute to the assessment of the synoptic project and presentation.**
- **Clear Assessment Criteria:** Specific criteria for each assessment to ensure fair grading.

10. Core Competencies

The apprenticeship focuses on developing competencies across various areas including skills, knowledge and behaviour, some examples including:

- **Skills:** Information Systems analysis, systems development, data modelling, cyber security, business organisation, project management, and computer network management.
- **Knowledge:** Business alignment with technology, contemporary development techniques, data and security concepts, project management principles and network protocols.
- **Behaviours:** Professional communication, interpersonal skills, time-management, problem-solving and the ability to work effectively in teams.

Core Skills

- **Information Systems:** can critically analyse a business domain to identify the role of information systems, highlight issues and identify opportunities for improvement through evaluating information systems in relation to their intended purpose and effectiveness.
- **Systems Development:** analyses business and technical requirements to select and specify appropriate technology solutions. Designs, implements, tests, and debugs software to meet requirements using contemporary methods including agile development. Manages the development and assurance of software artefacts applying secure development practises to ensure system resilience. Configures and deploys solutions to end users.
- **Data:** identifies organisational information requirements and can model data solutions using conceptual data modelling techniques. Can implement a database solution using an industry standard database management system (DBMS). Can perform database administration tasks and is cognisant of the key concepts of data quality and data security. Can manage data effectively and undertake data analysis.

- **Cyber Security:** can undertake a security risk assessment for a simple IT system and propose resolution advice. Can identify, analyse and evaluate security threats and hazards to planned and installed information systems or services (e.g. Cloud services).
- **Business Organisation:** can apply organisational theory, change management, marketing, strategic practice, human resource management and IT service management to technology solutions development. Develops well- reasoned investment proposals and provides business insights.
- **IT Project Management:** follows a systematic methodology for initiating, planning, executing, controlling, and closing technology solutions projects. Applies industry standard processes, methods, techniques and tools to execute projects. Can manage a project (typically less than six months, no inter-dependency with other projects and no strategic impact) including identifying and resolving deviations and the management of problems and escalation processes.
- **Computer and Network Infrastructure:** can plan, design and manage computer networks with an overall focus on the services and capabilities that network infrastructure solutions enable in an organisational context. Identifies network security risks and their resolution.

Core Technical Knowledge

- How business exploits technology solutions for competitive advantage.
- The value of technology investments and how to formulate a business case for a new technology solution, including estimation of both costs and benefits.
- Contemporary techniques for design, developing, testing, correcting, deploying and documenting software systems from specifications, using agreed standards and tools.
- How teams work effectively to produce technology solutions.
- The role of data management systems in managing organisational data and information.
- Common vulnerabilities in computer networks including unsecure coding and unprotected networks.
- The various roles, functions and activities related to technology solutions within an organisation.
- How strategic decisions are made concerning acquiring technology solutions resources and capabilities including the ability to evaluate the different sourcing options.
- How to deliver a technology solutions project accurately consistent with business needs.
- The issues of quality, cost and time for projects, including contractual obligations and resource constraints.

Core Behavioural Skills

Professional, interpersonal and business skills	Attributes and behaviours
<ul style="list-style-type: none"> • Fluent in written communications and able to articulate complex issues. • Makes concise, engaging and well-structured verbal presentations, arguments and explanations. • Able to deal with different, competing interests within and outside the organisation with excellent negotiation skills. • Can identify the preferences, motivations, strengths and limitations of other people and apply these insights to work more effectively with and to motivate others. • Competent in active listening and in leading, influencing and persuading others. • Able to give and receive feedback constructively and incorporate it into his/her own development and life-long learning. • Applies analytical and critical thinking skills to Technology Solutions development and to systematically analyse and apply structured problem-solving techniques to complex systems and situations. • Able to put forward, demonstrate value and gain commitment to a moderately complex technology-oriented solution, demonstrating understanding of business need, using open questions and summarising skills and basic negotiating skills. • Able to conduct effective research, using literature and other media, into IT and business-related topics. 	<ul style="list-style-type: none"> • Have demonstrated that they have mastered basic business disciplines, ethics and courtesies, demonstrated timeliness and focused when faced with distractions and the ability to complete tasks to a deadline with high quality. • Flexible attitude. • Ability to perform under pressure. • A thorough approach to work. • Logical thinking and creative approach to problem solving.

Software Engineer (Skills & Technical Knowledge)

The primary role of a software engineer is to be able to design, build and test high-quality software solutions. The software engineer role is broader and with higher levels of responsibility than a software developer as they need to apply engineering principles to all stages of the software development process, from requirements, analysis and design, development and data requirements whilst ensuring security robustness is built in. They will typically be working as part of a larger collaborative team and will have responsibility for significant elements of software projects.

Skills

- Create effective and secure software solutions using contemporary software development languages to deliver the full range of functional and non-functional requirements using relevant development methodologies.
- Undertake analysis and design to create artefacts, such as use cases to produce robust software designs.
- Produce high quality code with sound syntax in at least one language following best practices and standards.
- Perform code reviews, debugging and refactoring to improve code quality and efficiency.
- Test code to ensure that the functional and non-functional requirements have been met.
- Deliver software solutions using industry standard build processes, and tools for configuration management, version control and software build, release and deployment into enterprise environments.

Technical Knowledge

- How to operate at all stages of the software development lifecycle.
- How teams work effectively to develop software solutions embracing agile and other development approaches.
- How to apply software analysis and design approaches.
- How to interpret and implement a design, compliant with functional, non-functional and security requirements.
- How to perform functional and unit testing.
- How to use and apply the range of software tools used in Software engineering.

Cyber Security Specialist (Skills & Technical Knowledge)

A cyber security analyst is responsible for the implementation, maintenance and support of the security controls that protect an organisation's systems and data assets from threats and hazards. They ensure that security technologies and practices are operating in accordance with the organisation's policies and standards to provide continued protection. They require a broad understanding of network infrastructure, software and data to identify where threat and hazard can occur. They are responsible for performing periodic vulnerability assessments to evaluate the organisation's ongoing security posture and will provide visibility to management of the main risks and control status on an ongoing basis. They respond to security incidents and implement resolution activities across the organisation.

Skills

- Analyse and evaluate security threats and vulnerabilities to planned and installed information systems or services and identify how these can be mitigated against.
- Perform security risk assessments for a range of information systems and propose solutions.
- Develop a security case against recognised security threats, and recommend mitigation, security controls and appropriate processes.

- Define and justify a user access policy for an information system given knowledge of the system architecture, security requirements and threat/risk environment. This should be in terms of what they can do, resources they can access, and operations they are allowed to perform.
- Perform a business impact analysis in response to a security incident and follow a disaster recovery plan to meet elements of a given business continuity policy.
- Conduct a range of cyber security audit activities to demonstrate security control effectiveness

Technical Knowledge

- The types of security (confidentiality, authentication; non-repudiation; service integrity) and security big picture (network security; host OS security; physical security).
- The main types of common attack techniques, including phishing, social engineering, malware, network interception, blended techniques, denial of service and theft.
- How to recognise and assess risk including performing a risk assessment.
- How to apply penetration testing effectively and how it contributes to assurance.
- The different approaches to risk treatment and management in practice.
- What the 'cyber security culture' in an organisation is, and how it may contribute to security risk.

Data Analyst (Skills & Technical Knowledge)

The primary role of a data analyst is to collect, organise and study data to provide new business insight. They are responsible for providing up-to-date, accurate and relevant data analysis for the organisation. They are typically involved with managing, cleansing, abstracting and aggregating data across the network infrastructure. They have a good understanding of data structures, software development procedures and the range of analytical tools used to undertake a wide range of standard and custom analytical studies, providing data solutions to a range of business issues. They document and report the results of data analysis activities making recommendations to improve business performance. They need a broad grounding in technology solutions to be effective in their role.

Skills

- Import, cleanse, transform, and validate data with the purpose of understanding or making conclusions from the data for business decision making purposes.
- Present data visualisation using charts, graphs, tables, and more sophisticated visualisation tools.
- Perform routine statistical analyses and ad-hoc queries.
- Use a range of analytical techniques such as data mining, time series forecasting and modelling techniques to identify and predict trends and patterns in data.
- Report on conclusions gained from analysing data using a range of statistical software tools.
- Summarise and present results to a range of stakeholders making recommendations.

Technical Knowledge

- The quality issues that can arise with data and how to avoid and/or resolve these.
- The processes involved in carrying out data analysis projects.
- How to use and apply industry standard tools and methods for data analysis.
- The range of data protection and legal issues.
- The fundamentals of data structures, database system design, implementation and maintenance.
- The organisation's data architecture.

Network Engineer (Skills & Technical Knowledge)

The primary role of a network engineer is to design, install, maintain and support communication networks within an organisation or between organisations. They need to maintain high levels of network 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. As part of their role, they need to be proficient in technology solutions as they will analyse system requirements to ensure the network, and its services operate to desired levels. They will need to understand the data traffic and transmission across the network, and they have a major role to play in ensuring network security.

Skills

- Plan, design, build and test a simple network to a requirement specification that includes hubs, switches, routers and wireless user devices, applying appropriate security products and processes.
- Identify the key characteristics of a new network service and develop estimates of the expected traffic intensity and traffic load that the network must support.
- Determine the minimum network capacity of planned networks to meet network requirements.
- Design, build, test, configure and optimise a distributed network (more than 1 sub-net), including switches, routers and firewalls to meet given requirements.
- Analyse network performance and troubleshoot typical problems in networks.
- Identify and evaluate network security risks and incorporate appropriate security products and processes into network designs to increase security, resilience and dependability.

Technical Knowledge

- The fundamental building blocks (e.g. routers, switches, hubs, storage, transmission) and typical architectures (e.g. server/client, hub/spoke) of computers, networks and the Internet.
- The main features of routing and Internet network protocols in use, their purpose and relationship to each other, including the physical and data link layer (e.g. https, HTTP, SMTP, SNMP, TCP, IP, etc.).
- The main factors that affect network performance (e.g. the relationship between bandwidth, number of users, nature of traffic, contention).
- Failure modes in protocols (e.g. why a protocol may 'hang' and the effect of data communication errors).
- The ways to improve performance (e.g. application of traffic shaping, changes to architecture to avoid bottlenecks, network policy that prohibit streaming protocols).
- The issues that may arise in the day-to-day operation of networks and how to resolve them.

DTS 1.1 Standard

SKILLS ENGLAND EDUCATION GOV UK, 2015. *Digital and technology solutions professional (integrated degree)* [viewed 30 August 2025]. Available from: <https://skillsengland.education.gov.uk/apprenticeship-standards/st0119-v1-1>

DTS EPA 1.1 Standard Assessment Plan:

SKILLS ENGLAND EDUCATION.GOV.UK, 2015. DIGITAL INDUSTRIES -ASSESSMENT PLAN DIGITAL & TECHNOLOGY SOLUTIONS PROFESSIONAL BSC (Hons) Digital & Technology Solutions [viewed 30 August 2025]. Available from: https://skillsengland.education.gov.uk/media/1073/digital_and_technology_solutions_professional.pdf