

## **BCS** Digital Industries Apprenticeship

# **Standard Specific Guidance for Training Providers**

### **Level 4 Software Tester Apprenticeship**

Version 5.0 May 2019

#### **Change History**

Any changes made to the project shall be clearly documented with a change history log. This shall include the latest version number, date of the amendment and changes made. The purpose is to identify quickly what changes have been made.

Version Number and Date	Changes Made
V1.0 September 2017	Documented Created
V2.0	Removed typical evidence from all competencies, update to work
May 2018	activities and proficiencies, removal of table 1 knowledge standards
V3.0	Updates to proficiencies Business Skills, Complexity, Autonomy and
February 2019	Influence throughout the document
V4.0	Updates to proficiencies Business Skills, Complexity, Autonomy and
April 2019	Influence throughout the document
Version 5.0 May 2019	Complete document layout overhaul. Significantly higher criteria updated to align with occupational brief.

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#### **Purpose of this Document**

The purpose of this document is to provide useful information and suggested supporting documentation specific to the Software Tester apprenticeship. It should be read in conjunction with the Standard, Occupational Brief and Assessment Plan and is designed to give training providers some tools to help them build their own programme from training plan through to end point assessment (EPA).

This guide will provide supporting information around how to help the apprentice to meet and go beyond the standard and a number of useful documents to support the training provider in meeting their responsibilities in managing the apprenticeship from training plan through to the EPA.

#### Introduction

The BCS Level 4 Software Tester Apprenticeship is one of the suite of Digital Industries Apprenticeships that have been designed by the industry to address skills shortages and meet the ever-changing needs of UK employers.

The BCS website provides the broad view on how to run an apprenticeship programme to the BCS Digital Industries Standard. This document has been designed to give training providers the tools to build their programme and to assist them in helping apprentices and employers towards the successful completion of each element of the EPA.

The areas where a training provider should be involved in ensuring a successful outcome to the apprenticeship are:

- mapping and assessing work against the standard;
- advising the employer and the apprentice on which knowledge modules, vendor or professional certificates and other relevant training and activities are most appropriate for their requirements, and agree a suitable training plan;
- assisting the apprentice with applying knowledge in the workplace;
- acting as an advisor to the apprentice and the employer to ensure the programme remains on track and any concerns are addressed;
- helping the apprentice to select evidence for their summative portfolio;
- supporting the apprentice through the synoptic project;
- confirming the apprentice's readiness for the EPA.

The following series of checklists can be used by the training provider to help manage the process through to completion. Training providers may substitute their own processes and documentation as they see fit in order to effectively manage their key areas of responsibility as set out above.

#### **The Software Tester Apprentice**

The primary role of a Software Tester is to ensure that software operates as intended. Testers typically design and prepare test plans and conduct software testing as appropriate to ensure that software is fit for purpose. They document and report the results of testing activities. They have a good understanding of the software lifecycle and software development practices.

Job titles may be different across different organisations so the role may also be referred to as Software Tester, Software Test Analyst.

# **Technical Competence and Behaviour and Relationship Standards**

Tables 1 and 2 contain details of the topics that the training provider may decide to cover in their development plans and scheduled work activities in order to stretch the apprentice.

#### **Table 1 – Software Tester – Technical Competency Standards**

The competency standards have been defined to demonstrate that the knowledge learnt has been applied in real work tasks, activities and projects in a business environment. Competencies are assessed throughout the apprenticeship through a combination of the employer reference, the synoptic project and a summative portfolio completed by apprentices from records of the work activities in which they have been involved. The training provider should assist the employer to identify suitable work tasks, activities and projects within the scope of their normal business activities for the apprentice to practice what they have learnt and to demonstrate all the competencies below.

The BCS apprenticeship is mapped to an internationally recognised skills framework and to work activities in which the apprentice would be involved. The following tables set out these competencies and the expected requirements against the work activities that might be demonstrated at and beyond the minimum expectation:

Competency Standard (IfATE Standard)	Expected Requirement (Occupational Brief)	Work Activities Demonstrating Expected Level of Competence
Implements software testing procedures on software applications (including desktop, web, mobile, embedded, mainframe) to ensure agreed errors and security issues are identified, recorded, prioritised and corrected before release.	Apprentices should be competent in implementing a wide range of software testing procedures for their employer context to achieve the desired test outcomes (desktop, web, mobile apps, games, business solutions etc) to identify, prioritise and correct software defects before release.  Apprentices should be familiar with the range of industry standard software test management and automation tools that are available and in particular those for their employer context.	Uses normal operating facilities, diagnostic tools, technical manuals, test scripts and systems documentation to identify, diagnose and report on system errors.
	<ul> <li>causes of defects;</li> <li>role of software testing;</li> <li>software testing processes, procedures, tools and techniques;</li> <li>the collation and documentation of information relating to software testing activities;</li> <li>the range of software testing activities commonly implemented;</li> <li>test levels:</li> </ul>	
	<ul> <li>component testing;</li> <li>integration testing;</li> <li>system testing;</li> <li>acceptance testing.</li> </ul>	

Competency Standard (IfATE Standard)	Expected Requirement (Occupational Brief)	Work Activities Demonstrating Expected Level of Competence
Reviews software requirements and specifications for software functionality and security, and defines comprehensive tests and conditions.	Apprentices need to be able to analyse software requirements so that they understand the intended purpose of software being developed. They need to be able to review and validate that each requirement can be tested for so that they can define tests and test conditions, identifying any requirement ambiguities ensuring that they are fixed early in the development life cycle.  • test analysis and design;  • reviewing functional software requirement specification (SRS) documents;  • requirements testing;  • software tests, test conditions and exit criteria for each requirement;  • testing for security.	Defines test conditions for given requirements.  Reviews requirements and specifications and defines test conditions.
Designs simple test strategies for noncomplex projects.	Apprentices should be able to design simple test strategies. A test strategy defines the testing approach to be taken, and identifies the objectives of testing and how they will be achieved. The test strategy is usually defined in a document as an early deliverable in software testing. The components of the test strategy, typically include:  • testing scope;  • the testing process and the level of testing;  • test type and the testing approach;  • test environment setup;  • test data requirements;  • test management and automation tools;  • risk identification and analysis;  • release control.	Designs and produces re-usable test scripts (including simple automated test scripts and packages), procedures and regression test packs (with expected results) to test new and amended software. Produces plans to test the effect of new and changed software on existing systems.

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Competency Standard (IfATE Standard)	Expected Requirement (Occupational Brief)	Work Activities Demonstrating Expected Level of Competence
Analyses test requirements and designs and prepares a test plan.	Apprentices need to be able to interpret and understand test plans and be able to create a test plan from scratch. The test plan serves as the primary means of communication with members of the software testing project team, testers, peers, managers and other stakeholders. The test plan also helps to manage change during early phases of the project when, as we gather more information, we need to revise the plan.  • requirements analysis;  • test planning process;  • creating a test plan;  • the components of a test plan:  • test scenarios/test objectives that will be validated;  • test schedules;  • roles and responsibilities;  • deliverables;  • test environments;  • tools;  • defect management;  • risks and risk management;  • completion and exit criteria.	Analyses test requirements, designs and builds simple test case suites, test scripts, and test procedures, with expected results.

Competency Standard (IfATE Standard)	Expected Requirement (Occupational Brief)	Work Activities Demonstrating Expected Level of Competence
Designs and builds test cases, test scripts, and test procedures, with expected results.	Test cases are documented while the software development team builds the software system that help test the system once it is ready, test cases focus on how to test each requirement in the software requirements specification and defines the expected results.  • functional and non-functional testing; • creating detailed test cases and test scripts; • test conditions for test cases; • the expected results for each test case.	Ensures that all tasks and procedures are carried out effectively and efficiently to agreed levels of service or specific requirements of Service or Operational Level Agreements. If required, gathers and records service level information.
Develops and collects representative and realistic test data.	Preparing realistic test data is a core part of defining the test environment setup. Software testers should create their own test data additional to the existing standard production data. Test data should be defined as the ideal data set in terms of testing quality, cost and time. Test cases need input data for any kind of test that is to be implemented. Testers should check and update the test data before execution of any test case.  • test data types; • test data preparation; • the testers responsibility in creating their own test data according to testing needs; • the role of common test data; • cost, quality and time constraint for preparing; test data and running tests.	Applies appropriate analysis methods and interprets the results.

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Competency Standard (IfATE Standard)	Expected Requirement (Occupational Brief)	Work Activities Demonstrating Expected Level of Competence
Conducts a range of different software testing types (including Unit Testing, Integration Testing, Functional and Non-Functional Testing, System Testing, Stress Testing, Performance Testing, Usability Testing, Acceptance Testing, Regression Testing and Exploratory Testing); interpreting and executing sets of moderately complex test scripts using agreed methods and standards.	Test execution includes the execution of test cases or test scripts, manually or in an automated way, the logging of test results, comparison of the expected and actual results, reporting the incidents and retesting the fixed bugs. Test execution follows the defined process of the test execution activities  • software testing techniques;  • executing different types of test as defined in the testing plan;  • assigning the test cases in each test suite to testers for execution;  • defect and bug reporting;  • reporting status, and dynamic planning and prioritisation;  • report testing test cycle findings and status.	Checks test results, and documents test failures and successes compared with pre-determined criteria, in accordance with agreed standards.  Uses in-depth technical analysis of both functional and non-functional specifications (such as reliability, efficiency, usability, performance and portability) to determine test requirements. Specifies requirements for environment, data, resources and tools.

Competency Standard (IfATE Standard)	Expected Requirement (Occupational Brief)	Work Activities Demonstrating Expected Level of Competence
Accurately records the outcomes of test activities and maintains accurate test records and reports.	In software testing there are two outcomes, a test pass or fail. If a test fails then the details need to be recorded and archived so that they can be reviewed quickly and accurately to analyse the error that caused the test to fail. If a test passes the test pass record becomes the evidence that the test was executed and passed.  • documenting testing activities and test outcomes;  • recording test executions, test passes and test failures;  • logging new defects into the defect tracking system;  • user acceptance testing results should be recorded including the user interaction leading up to a test failure.	Checks test results, and documents test failures and successes compared with pre-determined criteria.  Records explicit details of failing test cases, such that delivery teams can understand and reproduce issues found.  Monitors progress, and documents test failures and successes compared with pre-defined criteria, creating traceability records, from test cases back to requirements, in accordance with agreed standards.
Assesses test results against expected results and acceptance criteria and through traceability to requirements.	It is important to assess test results to identify any arising defects or bugs. There are a wide variety of causes of software defects (errors and bugs) which may cause software not to operate as intended.  • determining and reporting root causes for test failures;  • compare actual results with expected results;  • report discrepancies as incidents.	Checks test results, and documents test failures and successes compared with pre-determined criteria, in accordance with agreed standards.

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Competency Standard (IfATE Standard)	Expected Requirement (Occupational Brief)	Work Activities Demonstrating Expected Level of Competence
Presents and communicates results effectively using appropriate communication styles and media.	Test monitoring provides visibility and progress about test activities. Test reporting is concerned with summarising information about the nature of the software object under test and whether test criteria are being met.  • monitoring test results and test progression;  • present software test results;  • communicate software test results to different stakeholders.	Arranges, prepares and facilitates client / users' meetings and presents issues and solutions both orally and in writing.

Competency Standard (IfATE Standard)	Expected Requirement (Occupational Brief)	Work Activities Demonstrating Expected Level of Competence
Operates the organisation's software testing tools effectively and follows procedures and techniques correctly	Software testing tools can increase efficiency and reliability of software testing and speed up the process in order to more reliably meet deadlines.  There are a wide range of open source and vendor software testing tools in the market. The tools are divided into different categories as follows:  Test management tools; Functional testing tools; Load testing tools; Bug tracking tools; Bug tracking tools; There are also a range of Automation Testing Tools:  the classification of the major types of software test tools; an overview of the major functional testing tools and their application; overview of test management and bug tracking tools; how to perform automated testing; benefits and risks of automated testing;	Uses normal operating facilities, diagnostic tools, technical manuals, test scripts and systems documentation to identify, diagnose and report on system errors.

Competency Standard (IfATE Standard)	Expected Requirement (Occupational Brief)	Work Activities Demonstrating Expected Level of Competence
Complies with relevant legislation and internal/external standards related to software testing and software security.	Apprentices should be aware of the standards and procedures to follow during software testing, as well as sector specific legislation and standards. Also, they should be aware of code of ethics for accessing private and sensitive data.  Software testing is defined in BS 7925-1 as the "process of exercising software to verify that it satisfies specified requirements and to detect errors".  • organisational standards for software testing;  • sectoral standards and legislation legislation (e.g. insurance, food, health, automotive etc.);  • National and international standards for software testing:  • the International Software Testing Standard - ISO/IEC/IEEE29119SoftwareTestin g;  • IEEE 829-2008, also known as the 829 Standard for Software and System Test Documentation;  • BS 7925-1;  • code of ethics for accessing private data.	Interprets and executes complex test scripts using agreed methods and standards.
Advises and supports others on testing processes and procedures.	Apprentices should be able to inform and advise a wide range of stakeholders on software testing processes, procedures and outcomes.  • Inform, advise and guide others on all aspects of software testing activities, including best practice.	Guides team members on the practices of testing and prioritises their tasks to achieve results ready for milestones.

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Competency Standard (IfATE Standard)	Expected Requirement (Occupational Brief)	Work Activities Demonstrating Expected Level of Competence
Completes allocated tasks in accordance with the organisation's reporting and quality systems.	Completes allocated tasks in accordance with the organisation's reporting and quality systems.	Prioritises sets of tests in order to carry out those most important within a limited timebox.
Operates within service level agreements.	Operates within service level agreements.	Uses the facilities of the tools and systems available to monitor and report on regular activities which are subject to the Service Level Management process and SLA OR OLA such as job activity, transaction processing, network activity, database activity, etc. Understands the use of service level agreement metrics. Monitors the levels of performance achieved, keeping detailed and clear metrics, and records all deviations from service levels agreed.

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Below are the criteria for demonstrating if the apprentice is working at a significantly higher level than the expected level of competence:

Criteria for Demonstrating Significantly Higher Competencies.	Key Indicators
Understands and applies a wide range of tools and methods.	This must be in addition to the range of tools required for a pass and demonstrate solid breadth and depth of knowledge, application and purpose
	of the tools used.
Accurately and appropriately applies and effectively implements the right	These situations / tasks must show a wide range and breadth of situations
tools and methods in a variety of different situations.	and be in addition to normal day to day work
A sophisticated user - fully exploits the functionality/capability of the tools	This must demonstrate solid breadth and depth of functionality, application
and methods.	and purpose of the tools selected.
	That they have researched and understood the rational for use and not just
	taken directions from others in the selection.
Extensive and deep understanding of different tools and methods and	This must demonstrate breadth and depth of the tools selected, why they
how and why they can be applied in different contexts.	have been selected and their appropriateness for the different tasks and uses.
Deals confidently and capably with a high level of interrelated and	This must demonstrate a confident and consistent approach to all areas of
interdependent factors in their work.	their work (both mundane and interesting work).

#### **Table 3 – Generic Behaviour and Relationship Standards**

The behaviour and relationship standards have been defined to demonstrate that the apprentice applies the good behaviours and interpersonal skills that are needed in a business environment. Behaviours and business relationship skills are assessed throughout the apprenticeship through a combination of the employer reference, the synoptic project and a summative portfolio, which is completed by apprentices from records of the work activities in which they have been involved. The training provider could assist the apprentice by offering some additional soft skills training over and above their apprenticeship. The apprenticeship standard sets out the attributes required within the occupation brief, which can be accessed via the Apprenticeship section of <a href="https://www.bcs.org">www.bcs.org</a>.

Behaviour and Relationship Standard	Expected Requirement
Apprentices can demonstrate the full range of skills, knowledge and behaviours required to fulfil their job role.	Knows what skills, knowledge and behaviours are needed to do the job well.  Are aware of their own strengths in the job role, and any areas for improvement.  Appreciate who else is important, for them to do their job and fulfil the role effectively (e.g. colleagues, managers, other stakeholders).  Are aware of potential risks in the job role (e.g. security, privacy, regulatory).  Use personal attributes effectively in the role, e.g. entrepreneurship.  Understand how the job fits into the organisation as a whole.
Apprentices can demonstrate how they contribute to the wider business objectives and show an understanding of the wider business environments.	Understands the goals, vision and values of the organisation.  Aware of the commercial objectives of the tasks/ projects they are working on.  Understands their role in meeting or exceeding customers' requirements and expectations.  Is in tune with the organisation's culture.  Aware of the position and contribution of the organisation in the economy.  Understands the key external factors that shape the way the organisation function, e.g. regulation.  Knows how the organisation can gain advantage in the industry, e.g. through innovation, technology, customer service etc.

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Behaviour and Relationship Standard	Expected Requirement
Apprentices can demonstrate the ability to use both logical and creative thinking skills when undertaking work tasks, recognising and applying techniques from both.	Logical thinking:  • Understands initial premise(s) and preconditions;  • Recognises the conclusion to be reached;  • Proceeds by rational steps;  • Evaluates information, judging its relevance and value;  • Supports conclusions, using reasoned arguments and evidence.  Creative thinking:  • Explores ideas and possibilities;  • Makes connections between different aspects;  • Adapts ideas and approaches as conditions or circumstances change.
Apprentices can show that they recognise problems inherent in, or emerging during, work tasks, and can tackle them effectively.	Problem-solving:

Behaviour and Relationship Standard	Expected Requirement
Apprentices can manage relationships with work colleagues, including those in more senior roles, customers / clients and other stakeholders, internal or external, and as appropriate to their roles, so as to gain their confidence, keep them involved and maintain their support for the task / project in hand.  Apprentices can establish and maintain productive working relationships, and can use a range of different techniques for doing so.	<ul> <li>Managing relationships: <ul> <li>Understands the value and importance of good relationships;</li> <li>Influences others by listening to and incorporating their ideas and views;</li> <li>Acknowledges other people's accomplishments and strengths;</li> <li>Manages conflict constructively;</li> <li>Promotes teamwork by participation;</li> </ul> </li> <li>Customer/client relationships: <ul> <li>Understands their requirements, including constraints and limiting factors;</li> <li>Sets reasonable expectations;</li> <li>Involves them in decisions and actions;</li> <li>Interacts positively with them;</li> <li>Provides a complete answer in response to queries ('transparency', 'full disclosure');</li> </ul> </li> <li>Stakeholders: <ul> <li>Understands who they are and what their 'stake' is;</li> <li>Prioritises stakeholders in terms of their importance, power to affect the task and interest in it;</li> <li>Uses stakeholders' views to shape projects early on;</li> <li>Gains support from stakeholders, e.g. to win resources;</li> <li>Agrees objectives.</li> </ul> </li> </ul>

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These attributes are difficult to measure and are subjective in nature so cannot guarantee that any greater level of competence or proficiency is being demonstrated. The BCS apprenticeship is mapped to the Skills Framework for the Information Age (SFIA), an internationally recognised skills framework and to observable activities that an apprentice working to the level of responsibility appropriate for the role should demonstrate. Accordingly, the proficiencies that should be demonstrated by the apprentice are shown below.

Proficiency Standard	Work Activities Demonstrating Expected Level of Competence
Business skills	Demonstrates an analytical and systematic approach to issue resolution.
	Takes the initiative in identifying and negotiating appropriate personal development opportunities.
	Demonstrates effective communication skills.
	Contributes fully to the work of teams.
	Plans, schedules and monitors own work (and that of others where applicable) competently within limited deadlines and according to relevant legislation, standards and procedures.
	Appreciates the wider business context, and how their role relates to other roles and to the business of the employer or client.
Complexity	Performs a range of work, sometimes complex and non-routine, in a variety of environments.
	Applies a methodical approach to issue definition and resolution.
	Undertakes all work in accordance with agreed safety, technical and quality standards, using appropriate methods and tools.
Influence	Interacts with and influences colleagues.
	Has working level contact with customers, suppliers and partners.
	May supervise others or make decisions which impact the work assigned to individuals or phases of projects.
	Makes decisions which influence the success of projects and team objectives.

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Proficiency Standard	Work Activities Demonstrating Expected Level of Competence
Autonomy	Works under general direction.
	Uses discretion in identifying and responding to complex issues and assignments.
	Usually receives specific instructions and has work reviewed at frequent milestones.
	Determines when issues should be escalated to a higher level.

Below are the criteria for demonstrating if the apprentice is working at a significantly higher level than the expected level of proficiency:

Proficiency Standard	Work Activities Demonstrating Competence Beyond the Minimum Expected
Business skills	Works independently and takes high level of responsibility.
	Undertakes work that is more complex, more critical or more difficult.
	Independently demonstrates an ability to extend or enhance their approach to work and the quality of outcomes.
	Doesn't just solve the problem but explores creative or innovative options to do it better, more efficiently, more elegantly or to better meet customer needs.
	Shows strong project management skills, in defining problem, identifying solutions and making them happen.
Complexity	Demonstrates a disciplined approach to execution, harnessing resources effectively.
	Drives solutions – with strong goal focused and appropriate level of urgency.
Influence	Externally – works with customers, suppliers and partners in a variety of situations.
	Actively inspires and leads others, takes others with them, leads by example.

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Proficiency Standard	Work Activities Demonstrating Competence Beyond the Minimum Expected
Autonomy	Internally – works alone, 1:1, in a team and across the company with colleagues at all levels.
	Reads situations, adapts behaviours, and communicates appropriately for the situation and the audience.
	Can be trusted to deliver, perform and behave professionally, manages and delivers against expectations, proactively updates colleagues and behaves in line with the highest values and business ethics.

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#### **Software Tester Apprentice Templates**

The following templates are designed to support the training provider, and will take them from training and development planning, through to the EPA readiness check. As with the tables above they can be used by the training provider to help them manage the process through to completion, although training providers may also substitute their own processes and documentation as they see fit in order to effectively manage their programme.

#### **Template 1 – Training and Development Plan**

<b>Apprentice Detail</b>	S
Name	
ULN number	
Employer Details	
Contact name	
Company name	
Company address	
Training Provider	Details
Contact name	
Company name	
Company address	

#### **Role Mapping Against the Software Tester Standard**

For each area of technical and behavioural competence an overall evaluation should be provided on a three-point scale to show how often this competence is required during the normal work carried out by the employer:

- competence is applied most of the time;
- · competence is applied some of the time;
- · competence is rarely required.

This evaluation could form the basis of an ongoing review with the apprentice on a regular basis.

#### **Workplace Competence Map**

This template shows the type of activities that are identified in the apprenticeship standard.

It is recognised that there are differences between the types of work carried out by different employers, so this template provides the opportunity to include any other activity that demonstrates the apprentice's competence during their normal duties.

The tables below could be used to make an evaluation of the apprentice's work environment and detail the work activities that a competent apprentice should be able to undertake. This activity should then lead to a discussion to identify any gaps with the employer and make a plan to redress the balance.

	Is the apprentice required to demonstrate the competency in the normal course of work?		
Competency Standard	Most of the Time	Some of the Time	Rarely
Implements software testing procedures on software applications (including desktop, web, mobile, embedded, mainframe) to ensure agreed errors and security issues are identified, recorded, prioritised and corrected before release.			
Reviews software requirements and specifications for software functionality and security, and defines comprehensive tests and conditions.			
Designs simple test strategies for non-complex projects.			
Analyses test requirements and designs and prepares a test plan.			
Designs and builds test cases, test scripts, and test procedures, with expected results.			
Develops and collects representative and realistic test data.			

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	Is the apprentice required to demonstrate the competency in the normal course of work?		
Competency Standard	Most of the Time	Some of the Time	Rarely
Conducts a range of different software testing types (including Unit Testing, Integration Testing, Functional and Non-Functional Testing, System Testing, Stress Testing, Performance Testing, Usability Testing, Acceptance Testing, Regression Testing and Exploratory Testing); interpreting and executing sets of moderately complex test scripts using agreed methods and standards.			
Accurately records the outcomes of test activities and maintains accurate test records and reports.			
Assesses test results against expected results and acceptance criteria and through traceability to requirements.			
Presents and communicates results effectively using appropriate communication styles and media.			
Operates the organisation's software testing tools effectively and follows procedures and techniques correctly.			
Complies with relevant legislation and internal/external standards related to software testing and software security.			
Advises and supports others on testing processes and procedures.			
Completes allocated tasks in accordance with the organisation's reporting and quality systems.			
Operates within service level agreements.			
What is your overall evaluation of the apprentice competencies in the employer's normal workpla			ne technical
Please continue on a separate sheet if require			

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#### **Knowledge Module Training Plan**

The knowledge standards define learning that should take place during the apprenticeship, both through the training provider activities and the apprentice's independent learning. The training provider should work with the employer to identify appropriate training for the apprentice to meet the requirements of the standard and the employer should identify opportunities within the scope of their normal business activities for the apprentice to demonstrate what they have learnt.

Knowledge and understanding will be delivered through BCS qualifications and vendor certifications in accordance with the standard.

#### Training Plan - Knowledge

BCS qualification	Selected	Vendor certification alternatives (or their direct replacement)	Selected
Knowledge Module 1: Testing Tools (for Level 4 Software Tester Apprenticeship) NOT AVAILABLE		ISTQB Certified Tester Foundation Level	
Knowledge Module 2:		ISTQB Certified Tester Foundation Level	
Testing Concepts (for Level 4 Software Tester Apprenticeship) NOT AVAILABLE		BCS Intermediate Certificate in Software Testing	

#### **Technical Competence Development Plan**

The following template may be used to ensure that the apprentice will be given the opportunity to demonstrate each of the required technical competencies stated in the standard.

	Responsibility	Employer		Training Provider □		
Implements software testing procedures on software applications (including desktop, web, mobile, embedded, mainframe) to ensure agreed errors and security issues are identified, recorded, prioritised and corrected before release.						
How will this be ensured?				ļ		

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	Responsibility	Employer		Training Provider	
Reviews software requirements a defines comprehensive tests and		or software funct	ional	ity and security, and	
How will this be ensured?					
	Responsibility	Employer		Training Provider	
Designs simple test strategies for	noncomplex project	cts.			
How will this be ensured?					
	Responsibility	Employer		Training Provider	
Analyses test requirements and o				Training Provider	
Analyses test requirements and c How will this be ensured?				Training Provider	
				Training Provider	
				Training Provider	
				Training Provider	
				Training Provider	
				Training Provider	
				Training Provider	

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	Responsibility	Employer		Training Provider	
Designs and builds test cases, tes	st scripts, and test	procedures, with	exp	ected results.	
How will this be ensured?	<b>,,</b>	, ,			
	Responsibility	Employer		Training Provider	
Develops and collects representa					
How will this be ensured?	tive and realistic te	ssi uaia.			
	<b>D</b> 11 11/4				
	Responsibility	Employer		Training Provider	
Conducts a range of different soft	ware testing types	(including Unit 1	estin	g, Integration Testing,	
Functional and Non-Functional Te	ware testing types esting, System Tes	(including Unit 7 sting, Stress Tes	estin ting, I	g, Integration Testing, Performance Testing,	
Functional and Non-Functional Te Usability Testing, Acceptance Tes	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	
Functional and Non-Functional Te Usability Testing, Acceptance Tes and executing sets of moderately	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	
Functional and Non-Functional Te Usability Testing, Acceptance Tes	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	
Functional and Non-Functional Te Usability Testing, Acceptance Tes and executing sets of moderately	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	
Functional and Non-Functional Te Usability Testing, Acceptance Tes and executing sets of moderately	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	
Functional and Non-Functional Te Usability Testing, Acceptance Tes and executing sets of moderately	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	
Functional and Non-Functional Te Usability Testing, Acceptance Tes and executing sets of moderately	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	
Functional and Non-Functional Te Usability Testing, Acceptance Tes and executing sets of moderately	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	
Functional and Non-Functional Te Usability Testing, Acceptance Tes and executing sets of moderately	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	
Functional and Non-Functional Te Usability Testing, Acceptance Tes and executing sets of moderately	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	
Functional and Non-Functional Te Usability Testing, Acceptance Tes and executing sets of moderately	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	
Functional and Non-Functional Te Usability Testing, Acceptance Tes and executing sets of moderately	ware testing types esting, System Testing, Regression	(including Unit 7 sting, Stress Tes Festing and Expl	estin ting, I orato	ig, Integration Testing, Performance Testing, ry Testing); interpretin	

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	Responsibility	Employer □	Training Provider □
Accurately records the outcomes	of test activities ar	nd maintains accurat	e test records and reports.
How will this be ensured?			•
	Responsibility	Employer 🗆	Training Provider
Assesses test results against exp requirements.	ected results and a	acceptance criteria a	and through traceability to
How will this be ensured?			
	Responsibility	Employer □	Training Provider □
Presents and communicates resu	ılts effectively using	g appropriate comm	unication styles and media.
How will this be ensured?			

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	Responsibility	Employer □	Training Provider □
Operates the organisation's softw techniques correctly.	are testing tools ef	fectively and follows	procedures and
How will this be ensured?			
	Responsibility	Employer □	Training Provider □
Complies with relevant legislation			
software security.  How will this be ensured?			
Advises and supports others on to	Responsibility	Employer   nd procedures	Training Provider
How will this be ensured?	esting processes a	na procedures.	

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	Responsibility	Employer		Training Provider	
Commission allocated tools in one	-				
Completes allocated tasks in acco	ordance with the o	rganisation's rep	ortin	g and quality systems.	
How will this be ensured?					
	Responsibility	Employer		Training Provider	
Operates within service level agree		Employer		Training Provider	
Operates within service level agreement How will this be ensured?		Employer		Training Provider	
		Employer		Training Provider	
		Employer		Training Provider	
		Employer		Training Provider	
		Employer		Training Provider	
		Employer		Training Provider	
		Employer		Training Provider	
		Employer		Training Provider	
		Employer		Training Provider	
		Employer		Training Provider	

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#### **Template 2 – Weekly Diary**

Week number	Activities completed	Competencies displayed	Supporting evidence

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# Template 3 – Periodic Workplace Competence Assessment and Remedial Action Plan

This template can be used to track the competencies being applied in the workplace on a continual / periodic basis. The training provider can then discuss any gaps with the employer and make a plan to redress the balance.

#### **Competence assessment**

	Is the apprentice meeting the minimum competence standard?	
	ting procedures on software applications (including desktop, web, mobile on ensure agreed errors and security issues are identified, recorded, before release.	ile,
What should the appre competence?	ntice start, stop or continue doing in order to develop this	
	Is the apprentice meeting the minimum competence standard?	
Reviews software require defines comprehensive t	ements and specifications for software functionality and security, and ests and conditions.	
What should the appre competence?	ntice start, stop or continue doing in order to develop this	

	Is the apprentice meeting the minimum competence standard?	
	Is the apprentice meeting the minimum competence standard?	
	tegies for non-complex projects.  ntice start, stop or continue doing in order to develop this	
competence?		
	Is the apprentice meeting the minimum competence standard?	П
	nts and designs and prepares a test plan.  ntice start, stop or continue doing in order to develop this	
	Is the apprentice meeting the minimum competence standard?	
Designs and builds toot	cases, test scripts, and test procedures, with expected results.	
	ntice start, stop or continue doing in order to develop this	

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	Is the apprentice meeting the minimum competence standard?	
Develops and collects re	epresentative and realistic test data.	
	ntice start, stop or continue doing in order to develop this	
competence?		
•		
	Is the apprentice meeting the minimum competence standard?	
Conducts a range of diffe	erent software testing types (including Unit Testing, Integration Testing,	
	ctional Testing, System Testing, Stress Testing, Performance Testing,	
	tance Testing, Regression Testing and Exploratory Testing); interpreting	j
	oderately complex test scripts using agreed methods and standards.	
What should the appre	ntice start, stop or continue doing in order to develop this	
competence?		
-		
	Is the apprentice meeting the minimum competence standard?	
	utcomes of test activities and maintains accurate test records and report	ts.
What should the appre	ntice start, stop or continue doing in order to develop this	
competence?		

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	Is the apprentice meeting the minimum competence s	standard?	
Assesses test results against expected results and acceptance criteria and through traceability to requirements.			to
	ntice start, stop or continue doing in order to develop t	his	
Is th	ne apprentice meeting the minimum competence standard?		
Accurately records the o records and reports.	utcomes of test activities and maintains accurate test	Presents a communication results effectively using appropriate communication styles and media	ates e
What should the appre develop this competen	ntice start, stop or continue doing in order to ce?		
	Is the apprentice meeting the minimum competence s	standard?	
Operates the organisation techniques correctly.	on's software testing tools effectively and follows procedures	s and	

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	ntice start, stop or continue doing in order to develop this		
competence?			
	Is the apprentice meeting the minimum competence standard?		
Complies with relevant le	egislation and internal/external standards related to software testing and	<u> </u>	
software security.			
	ntice start, stop or continue doing in order to develop this		
competence?			
	Is the apprentice meeting the minimum competence standard?		
Advises and supports of	hers on testing processes and procedures.		
	ntice start, stop or continue doing in order to develop this		
competence?			
	Is the apprentice meeting the minimum competence standard?		

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What should the apprentice start, stop or continue doing in order to develop this	
competence?	
Is the apprentice meeting the minimum competence standard?	_
Operates within service level agreements.	
What should the apprentice start, stop or continue doing in order to develop this	
competence?	
Remedial action plan	
An important function of the training provider is to act as an advisor to the apprentice and	tha
employer to ensure that the programme remains on track and any concerns are addresse	a.
The training provider should agree how best to provide ongoing assistance / advice	
throughout the apprenticeship, possibly as part of their contract / service agreement with t	he
apprentice's employer.	
approntice of ompleyor.	
If any remedial action is required, the table below equily be used to record it	
If any remedial action is required, the table below could be used to record it.	

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## Template 4 - The Employer Reference

### **Overview**

This template and guidance will assist the training provider in supporting the employer when completing the employer reference, which forms a key part of the EPA. The intent of the employer reference is for the employer to support the apprentice by validating the evidence that they have submitted for EPA.

The employer will be asked to provide an overall evaluation of the apprentice for each area of technical competence and behavioural proficiency, giving detail of how the apprentice meets each requirement.

This guidance shows the type of activities that could demonstrate the required competencies and behaviours being applied in the workplace. There are always differences between individual employers and their requirements so there is the opportunity for the employer to include any other activity that they think demonstrates the apprentice's competence. It should be completed by a senior member of the team, who is able to comment directly on work activities.

The apprenticeship standards are designed to cover a wide range of different job roles so there may be a small number of areas within these mandatory requirements that are not naturally occurring within the day-to-day duties of the apprentice. If it is not possible for the apprentice to demonstrate competence within their duties, a synoptic project should be selected that will allow the apprentice to demonstrate that they are competent in criteria that they are not exposed to during their normal working activities.

The template is provided as a standalone editable document and can be found on the BCS Accredited Provider area. This should be completed by the employer and submitted for review as part of the EPA.

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## **Template 5 – Summative Portfolio Checklist**

This template will support the training provider in working with the apprentice and employer to ensure the successful completion of the summative portfolio.

The checklists can be used by training providers to help them manage the process through to completion, although training providers may also substitute their own processes and documentation as they see fit.

The apprentice should gather artefacts and record information that can evidence their activities undertaken in the workplace. The portfolio of evidence should demonstrate that the apprentice can fulfil the full range of competencies which are required by the standard, as shown in this template.

The apprenticeship standards are designed to cover a wide range of different job roles so there may be a small number of areas within these mandatory requirements that are not naturally occurring within the day-to-day duties of the apprentice. If it is not possible for the apprentice to demonstrate competence within their summative portfolio, a synoptic project should be selected that will allow the apprentice to demonstrate that they are competent in criteria that they are not exposed to during their normal working activities.

The template is provided as a standalone editable document and can be found on the BCS Accredited Provider area.

## **Template 6 – EPA Readiness Check**

This template is to support the training provider in assessing whether the apprentice has met the criteria for the EPA, as defined in the standard.

	Is the apprentice ready?		
Implements software testing procedures on software applications (including desktop, web, mobile, embedded, mainframe) to ensure agreed errors and security issues are identified, recorded, prioritised and corrected before release.			
Comments			
	Is the apprentice ready?		
Reviews software requirements and specifications for software fundefines comprehensive tests and conditions.	ctionality and security, and		
Comments			
	le the apprentice ready?	_	
Designs simple test strategies for nancompley projects	Is the apprentice ready?		
Designs simple test strategies for noncomplex projects.  Comments			

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		_
	Is the apprentice ready?	
Analyses test requirements and designs and prepares a test plan.		
Comments		
	Is the apprentice ready?	
Designs and builds test cases, test scripts, and test procedures, w	rith expected results.	
Comments		
		_
	Is the apprentice ready?	
Develops and collects representative and realistic test data.		
Comments		

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	Is the apprentice ready?	
Conducts a range of different software testing types (including Uni Functional and Non-Functional Testing, System Testing, Stress Te Usability Testing, Acceptance Testing, Regression Testing and Ex and executing sets of moderately complex test scripts using agree	esting, Performance Testing, ploratory Testing); interpreting	
Comments		
	Is the apprentice ready?	
Accurately records the outcomes of test activities and maintains ad	ccurate test records and reports	s.
Comments		
	Is the apprentice ready?	
Assesses test results against expected results and acceptance cri requirements.	teria and through traceability to	)
Comments		

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	Is the apprentice ready?	
Presents and communicates results effectively using appropriate	communication styles and me	dia.
Comments		
	Is the apprentice ready?	
Operates the organisation's software testing tools effectively and t		
techniques correctly.	ollows procedures and	
Comments		
	Is the apprentice ready?	
Complies with relevant legislation and internal/external standards software security.		
Comments		

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	Is the apprentice ready?	
Advises and supports others on testing processes and procedures		
Comments		
	Is the apprentice ready?	
Completes allocated tasks in accordance with the organisation's re	eporting and quality systems.	
Comments		
	Is the apprentice ready?	
Operates within service level agreements.		
Comments		

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## **Professional Development**

#### **Activities Plan**

BCS has defined a number of professional development activities that support wider professional and career development. These activities have been associated with the various levels of responsibility, and the activities listed in the table below represent those that are appropriate for an apprentice.

Training providers may wish to engage in assisting the apprentice in some of these activities as they can contribute towards the portfolio of evidence. The recommended activities include those shown below.

Professional Development Activities	the Role	Agreed with Apprentice and Employer
Participating in group activities inside or outside the working environment that can assist with the development of interpersonal skills.		
Undertaking unpaid activities that can help to develop professional skills or offer additional insight into, or understanding of, their working role.		
Undertaking learning in subjects relevant to, but not directly related to, their role (e.g. mentoring skills, cultural awareness and diversity training), perhaps through self-study or evening classes.		
Gaining basic knowledge of the employing organisation, its business, structure, culture, products/services, operations and terminology.		
Gaining knowledge of IT activities in the employing organisation external to their function.		
Exploring a topic that is not part of their normal responsibilities, and presenting findings to colleagues and/or management.		
Attending meetings, seminars and workshops organised by a professional body, and reading published material such as journals and web content.		
Undertaking learning and practice in the techniques of team and collaborative working. Gaining an understanding of the underlying concepts.		
Undertaking learning and practice in oral and written communications, including report writing and presentations.		

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# **Activities Typical Evidence**

Areas of additional professional development activities that might be undertaken and associated typical evidence are shown below.

Professional Development	Objectives	Typical Evidence
Topic Understanding organisation	Gaining basic knowledge of the employing organisation, its business, structure, culture, products/services, operations and terminology.  Gaining knowledge of IT activities in the employing organisation external to their function.	<ul> <li>organisation charts;</li> <li>company annual reports;</li> <li>company website;</li> <li>documents or reports from other areas of the business.</li> </ul>
Additional business skills	Undertaking learning and practice in the techniques of team and collaborative working. Gaining an understanding of the underlying concepts.  Undertaking learning and practice in oral and written communications, including report writing and presentations.  Learning from experience and mistakes and applying the lessons as part of continuous improvement.	<ul> <li>presentations, reports or minutes of meetings that demonstrate communication skills, report writing abilities and collaborative activities;</li> <li>evidence of reviewing their work and suggesting improvements or critically appraising what they did and what they learned from it.</li> </ul>
External activities	Participating in group activities inside or outside the working environment that can assist with the development of interpersonal skills.  Undertaking pro bono (unpaid) activities that can help to develop professional skills or offer additional insight into, or understanding of, their working role.	<ul> <li>evidence of meetings attended through continuous professional development records;</li> <li>evidence of activities undertaken.</li> </ul>

Professional Development Topic	Objectives	Typical Evidence
Additional learning	Undertaking learning in subjects relevant to, but not directly related to, their role (e.g. foreign language courses, mentoring skills, cultural awareness and diversity training), perhaps through self-study or evening classes.  Exploring a topic that is not part of their normal responsibilities, and presenting findings to colleagues and/or management.	<ul> <li>evidence of learning undertaken from continuous professional development records;</li> <li>evidence of presentations given to colleagues and/or management.</li> </ul>
Professional networking	Attending meetings, seminars and workshops organised by a professional body and reading published material such as journals and web content.	<ul> <li>evidence of meetings attended through continuous professional development records;</li> <li>written evidence summarising learning gained from reading.</li> </ul>