**BCS Digital Industries Apprenticeship**

**Template 5 - Summative Portfolio Checklist**

**Level 4 Software Tester Apprenticeship**

**Version 6.0**

**August 2020**

**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.

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| Version Number and Date | Changes Made |
| V5.0 May 2019 | Change History table added to document. Major changes to document format (no Standard specific content changes). |
| V6.0August 2020 | Overview section paragrah updated |
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## Overview

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This template is to 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. If the evidence in the portfolio is weak due to limited exposure within the day to day activities of the workplace, the synoptic project should be considered and selected to allow the apprentice to demonstrate that they are competent in those criteria and to provide the breadth and depth to meet the specified minimum requirements of the Occupational Brief.

**Summative Portfolio Declaration**

**Apprentice Declaration**

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| Name |  |
| ULN |  |
| Declaration | I confirm that all the evidence submitted is my own work and it has been completed as specified. |
| Signature |  |
| Date |  |

**Line Manager Declaration (Employer)**

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| Name |  |
| Company |  |
| Declaration | I confirm that the work contained within this portfolio has, to the best of my knowledge, been completed solely by \_\_\_\_\_\_\_\_\_\_\_\_\_\_  |
| Signature |  |
| Date |  |

**Training Provider Declaration**

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| Name |  |
| Company |  |
| Declaration | I confirm that the work contained within this portfolio has, to the best of my knowledge, been completed solely by \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Signature |  |
| Date |  |

**Summative Portfolio Acceptable Evidence Format**

BCS’ intention is to allow flexibility in the format that evidence can take in order to reflect the type of records that an apprentice could realistically be expected to have access to. Typical acceptable evidence includes:

* photographic or video evidence of activity;
* witness statement;
* observation reports;
* annotated screenshots;
* signed-off work records;
* printed outputs of pre- and post-configuration settings;
* peer reviews.

It is important to note that when the summative portfolio is submitted to EPA gateway it is locked and will no longer be editable by the apprentice, for this reason links to external content will not be accepted as suitable evidence.

**Technical Competencies Evidence Checklist**

The defined competence areas are listed below. Not all employer businesses are identical so there will be variation in the types of activity that will be carried out in the course of each apprentice’s daily work; however, the apprentice must be able to demonstrate evidence of every competence.

**Competence – Implements Software Testing**

**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.**

**Minimum expected requirement:**

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.

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| **List the evidence in the portfolio that fulfils this requirement:**NOTE: this box will expand as required |

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| **Reflections on applying knowledge learnt:**NOTE: this box will expand as required |

**Minimum expected requirement:**

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.

* causes of defects;
* role of software testing;
* software testing processes, procedures, tools and techniques;
* the collation and documentation of information relating to software testing activities;
* the range of software testing activities commonly implemented;
* test levels:
	+ component testing;
	+ integration testing;
	+ system testing;
* acceptance testing.

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**Competence – Reviews Software Requirements**

**Reviews software requirements and specifications for software functionality and security and defines comprehensive tests and conditions.**

**Minimum expected requirement:**

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.

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**Competence – Designs Simple Test**

**Designs simple test strategies for non-complex projects.**

**Minimum expected requirement:**

Apprentices should be able to design simple test strategies. A Test strategy defines the testing approach to be taken, and identifies theobjectives 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.

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**Competence – Analyses Test Requirements**

**Analyses test requirements and designs and prepares a test plan.**

**Minimum expected requirement:**

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.

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**Competence – Designs and Builds**

**Designs and builds test cases, test scripts, and test procedures, with expected results.**

**Minimum expected requirement:**

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.

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**Competence – Develops and Collects**

**Develops and collects representative and realistic test data.**

**Minimum expected requirement:**

Preparing realistic test data is a core part of defining the test environment setup. Software testers should create their own test dataadditional to the existing standard production data. Test data should be defined as the ideal data set in terms of testing quality, cost andtime. 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.

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**Competence – Conducts a Range of Different Software Testing Types**

**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.**

**Minimum expected requirement:**

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 definedprocess 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.

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**Competence – Accurately Records**

**Accurately records the outcomes of test activities and maintains accurate test records and reports.**

**Minimum expected requirement:**

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.

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**Competence – Assesses Test Results**

**Assesses test results against expected results and acceptance criteria and through traceability to requirements.**

**Minimum expected requirement:**

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.

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**Competence – Presents and Communicates**

**Presents and communicates results effectively using appropriate communication styles and media.**

**Minimum expected requirement:**

Test monitoring provides visibility and progress about test activities. Test reporting is concerned with summarizing information about thenature 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.

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**Competence – Operates**

**Operates the organisation's software testing tools effectively and follows procedures and techniques correctly.**

**Minimum expected requirement:**

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.

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;
* factors for choosing a particular tool.

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**Competence – Complies**

**Complies with relevant legislation and internal/external standards related to software testing and software security.**

**Minimum expected requirement:**

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/IEEE29119SoftwareTesting;
	+ 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.

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**Competence – Advises and Supports**

**Advises and supports others on testing processes and procedures.**

**Minimum expected requirement:**

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.

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**Competence – Completes Allocated Tasks**

**Completes allocated tasks in accordance with the organisation’s reporting and quality systems.**

**Minimum expected requirement:**

Completes allocated tasks in accordance with the organisation’s reporting and quality systems.

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| **List the evidence in the portfolio that fulfils this requirement:**NOTE: this box will expand as required |

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**Competence – Operates to SLA**

**Operates within service level agreements.**

**Minimum expected requirement:**

Operates within service level agreements.

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| **List the evidence in the portfolio that fulfils this requirement:**NOTE: this box will expand as required |

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| **Reflections on applying knowledge learnt:**NOTE: this box will expand as required |

**Generic Levels of Responsibility Evidence Checklist**

Areas of responsibility and associated typical evidence are shown below.

**Proficiency – 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 of client.**

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| **List the evidence in the portfolio that fulfils these requirements:****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 of client:**NOTE: this box will expand as required |

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| **Reflections on applying knowledge learnt:****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 of client:**NOTE: this box will expand as required |

**Proficiency – 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.**

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| **List the evidence in the portfolio that fulfils these requirements:****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.**NOTE: this box will expand as required |

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| **Reflections on applying knowledge learnt:****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.**NOTE: this box will expand as required |

**Proficiency – 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.**

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| **List the evidence in the portfolio that fulfils these requirements:****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:**NOTE: this box will expand as required |

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| **Reflections on applying knowledge learnt:****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:**NOTE: this box will expand as required |

**Proficiency – 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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| **List the evidence in the portfolio that fulfils this requirement:****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:**NOTE: this box will expand as required |

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| **Reflections on applying knowledge learnt:****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:**NOTE: this box will expand as required |