



Level 4 End-point Assessment for Software Developer (9600-12)

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End-point Assessment Pack

For Centres/End-point Assessment Customers/Employers

Version and date	Change detail	Section
V1.0	Document created	Document
V1.1 May 2025	Product titling updated Update of wording for Gateway requirements for Maths and English Additional wording from the plan added for re-sit and re-take "Where any assessment method must be re-sat or re-taken, the apprentice will be awarded a maximum EPA grade of distinction" PD mapping was showing a B10 but EPA Plan only shows behaviours up to B9. Corrected to meet behaviours shown in EPA Plan. Feedback wording updated	

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1 Introduction

About this apprenticeship occupation

This End-point Assessment (EPA) pack has been designed to assess all requirements as stipulated in the Software Developer assessment plan version ST0116/AP06.

The following information is taken from documentation published on www.instituteforapprenticeships.org

Occupational profile

The primary role of a software developer is to build and test high-quality code across front end, logic and database layers. In their daily work, software developers interact with internal and external parties, including users and customers, to understand their needs and test the software being developed through user testing. They also interact with team members from a range of specialist fields, including designers, developers, engineers, analysts and delivery managers to ensure the effective implementation of software solutions.

Typical job roles: Web Developer, Application Developer, Mobile App Developer, Games Developer, Software Developer.

What is in this document

- The occupational standard
- Resource requirements for End-point Assessment (EPA)
- Timeline for EPA
- EPA tasks and guidance on grading
- Guidance for the Independent End-point Assessor (IEPA)
- Guidance for the EPA customer and apprentice.

This document must be used alongside the **9600-12 Software Developer EPA Recording Forms** document.

End-point Assessment

The focus of the End-point Assessment (EPA) is for the apprentice to fully demonstrate the knowledge, skills and behaviours set out in the apprenticeship standard and to be able to demonstrate this level of professional competence in authentic workplace contexts.

EPAs are formal summative assessments that conclude an apprenticeship programme. Each apprenticeship will be assessed in a number of ways to provide a clear indication of the apprentice's knowledge and skills. For this apprenticeship the following assessment methods need to be achieved:

- **700: Work-based project with questioning**
- **701: Professional discussion underpinned by portfolio.**

The EPA should be completed within a period lasting **typically 6 months** after the EPA gateway.

Grading

This apprenticeship is graded Fail/Pass/Merit/Distinction. EPAs will be assessed and graded by City & Guilds Independent End-point Assessors. More information about how each assessment is graded and how the overall apprenticeship grade is determined can be found in later sections of this document.

Entry requirements for End-point Assessment

To be eligible for End-point Assessment the apprentice must have successfully achieved the following:

- a minimum of 12 months on-programme
- fulfilled the English and mathematics requirements in line with the apprenticeship funding rules
- an approved project summary
- a portfolio to underpin the professional discussion.

For those with an education, health and care plan or a legacy statement, the apprenticeship's English and Mathematics minimum requirement is Entry Level 3. British Sign Language (BSL) qualifications are an alternative to English qualifications for those who have BSL as their primary language.

Gateway – prior to End-point Assessment

Full-time apprentices will typically spend 24 months on-programme (before the gateway) working towards the occupational standard, with a minimum of 20% off-the-job training. All apprentices must spend a minimum of 12 months on-programme.

The Gateway process is designed to provide an opportunity for the employer/tutor to review progress of the apprentice and confirm that they are eligible for carrying out EPA. The employer/tutor will review the apprentice's achievements to date, ensuring that all entry requirements have been met and that the apprentice is proficient in all areas of the standard.

On completion of the Gateway process, the apprentice will be required to sign an **Apprentice Gateway Declaration Form**. This form should be submitted as part of the Gateway process in EPA Pro. A copy of this form can be found in the Support Resources section on EPA Pro. The provider will be required to make a declaration and electronic signature on behalf of the employer and provider/tutor in EPA Pro.

Remote assessment

Remote assessment is live assessment that is supported by technology where the IEPA and the apprentice are not in the same physical location when the assessment takes place.

The following assessments can be conducted remotely:

- work-based project with questioning
- professional discussion underpinned by a portfolio.

Security, confidentiality & copyright of End-point Assessment materials

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Additional conditions of use

City & Guilds End-point assessment materials are protected by copyright and are supplied only to approved centres for use solely for the purpose of summative assessment.

The following conditions, which apply to City & Guilds End-point Assessment materials, are additional to:

- the **Standard Copying Conditions** which can be found at <https://www.cityandguilds.com/help/copyright> and
- (where the City & Guilds assessment materials are dated examinations) the JCQ Instructions for Conducting Examinations. <https://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations>.

The tutor/employer must:

- only use the City & Guilds End-point Assessment materials in formal, summative end-point assessment leading to the award of an apprenticeship and not for any other purpose (including, but not restricted to, teaching, revision, as practice assessments or for commercial purposes)
- handle and store securely the City & Guilds End-point Assessment materials in accordance with the following conditions:
 - City & Guilds End-point Assessment materials must be accessible to apprentices only during formal end-point assessment as governed by the assessment conditions specified for the individual apprenticeship.
 - The portfolio of the apprentice may contain assessment results referenced to the assessment taken but should not contain the City & Guilds End-point Assessment materials (such as assessment tasks or questions or marked scripts if the tests may be reused (unless otherwise stated)).
 - The content of any City & Guilds End-point Assessment Materials must not be made public in any format, either in part or in full.
 - City & Guilds End-point Assessment materials must be securely handled and under no circumstances shared with third party organisations or individuals.

- seek written permission from City & Guilds if they want to convert City & Guilds End-point Assessment material for storage, retrieval and delivery in electronic form (ie using some form of e-assessment or e-learning system)
- provide access, on request, to City & Guilds to the system(s) on which the End-point Assessment materials appear.

2 Apprenticeship Occupational Standard

The following information is taken from documentation published on www.gov.uk and www.instituteforapprenticeships.org websites.

Ref.	Knowledge and understanding	Assessment method and minimum requirements
K1	all stages of the software development life cycle (what each stage contains, including the inputs and outputs).	Professional discussion underpinned by portfolio Describes all stages of the software development lifecycle.
K2	roles and responsibilities within the software development lifecycle (who is responsible for what).	Work-based project with questioning Explains the roles and responsibilities of all people working within the software development lifecycle, and how they relate to the project.
K3	the roles and responsibilities of the project life cycle within your organisation, and your role.	Professional discussion underpinned by portfolio Describes the roles and responsibilities of the project lifecycle within their organisation, and their role.
K4	how best to communicate using the different communication methods and how to adapt appropriately to different audiences.	Professional discussion underpinned by portfolio Describes methods of communicating with all stakeholders that is determined by the audience and/or their level of technical knowledge.
K5	the similarities and differences between different software development methodologies, such as agile and waterfall.	Professional discussion underpinned by portfolio Describes the similarities and differences between different software development methodologies, such as agile and waterfall.
K6	how teams work effectively to produce software and how to contribute appropriately.	Work-based project with questioning Outlines how teams work effectively to produce software and how to contribute appropriately.
K7	software design approaches and patterns, to identify reusable solutions to commonly occurring problems.	Professional discussion underpinned by portfolio Suggests and applies different software design approaches and patterns, to identify reusable solutions to commonly occurring problems (include Bespoke or off-the-shelf).
K8	organisational policies and procedures relating to the tasks being undertaken, and when to follow them, eg the storage and treatment of GDPR sensitive data.	Professional discussion underpinned by portfolio Explains the relevance of organisational policies and procedures relating to the tasks being undertaken, and when to follow them including how they have followed company, team or client approaches to continuous integration, version, and source control.

Ref.	Knowledge and understanding	Assessment method and minimum requirements
K9	principles of algorithms, logic and data structures relevant to software development, eg Arrays, Stacks, Queues, Linked Lists, Trees, Graphs, Hash Tables, Sorting Algorithms, Searching Algorithms, Critical sections and race conditions.	Work-based project with questioning Outlines and applies the rationale and use of algorithms, logic and data structures.
K10	principles and uses of relational and non-relational databases.	Professional discussion underpinned by portfolio Applies the principles and uses of relational and non-relational databases to software development tasks.
K11	software designs and functional/technical specifications.	Work-based project with questioning Reviews methods of software design with reference to functional/technical specifications and applies a justified approach to software development.
K12	software testing frameworks and methodologies.	Professional discussion underpinned by portfolio Describes basic software testing frameworks and methodologies.

Ref.	Skills	Assessment method and minimum requirements
S1	create logical and maintainable codes.	Work-based project with questioning Creates logical and maintainable code to deliver project outcomes, explaining their choice of approach.
S2	develop effective user interfaces.	Professional discussion underpinned by portfolio Explains their own approach to development of user interfaces.
S3	link code to data sets.	Professional discussion underpinned by portfolio Explains how they have linked code to data sets.
S4	test code and analyse results to correct errors found using unit testing.	Work-based project with questioning Analyses unit testing results and reviews the outcomes correcting errors.
S5	conduct a range of test types, such as Integration, System, User Acceptance, Non-Functional, Performance and Security testing.	Professional discussion underpinned by portfolio Illustrates how to conduct test types, including Integration, System, User Acceptance, Non-Functional, Performance and Security testing including how they have followed testing frameworks and methodologies.
S6	identify and create test scenarios.	Work-based project with questioning Identifies and creates test scenarios which satisfy the project specification.
S7	apply structured techniques to problem solving, can debug code and can understand the structure of programmes to identify and resolve issues.	Work-based project with questioning Applies structured techniques to problem solving to identify and resolve issues and debug basic flaws in code.
S8	create simple software designs to effectively communicate understanding of the program.	Professional discussion underpinned by portfolio Creates simple software designs to communicate understanding of the programme to stakeholders and users of the programme.
S9	create analysis artefacts, such as use cases and/or user stories.	Professional discussion underpinned by portfolio Creates analysis artefacts, such as use cases and/or user stories to enable effective delivery of software activities.
S10	build, manage and deploy code into the relevant environment.	Work-based project with questioning Reviews and justifies their contribution to building, managing and deploying code into the relevant environment in accordance with the project specification.

Ref.	Skills	Assessment method and minimum requirements
S11	apply an appropriate software development approach according to the relevant paradigm, eg object oriented, event driven or procedural.	Work-based project with questioning Reviews methods of software design with reference to functional/technical specifications and applies a justified approach to software development.
S12	follow software designs and functional/technical specifications.	Work-based project with questioning Reviews methods of software design with reference to functional/technical specifications and applies a justified approach to software development.
S13	follow testing frameworks and methodologies.	Professional discussion underpinned by portfolio Illustrates how to conduct test types, including Integration, System, User Acceptance, Non-Functional, Performance and Security testing including how they have followed testing frameworks and methodologies.
S14	follow company, team or client approaches to continuous integration, version and source control.	Professional discussion underpinned by portfolio Explains the relevance of organisational policies and procedures relating to the tasks being undertaken, and when to follow them including how they have followed company, team or client approaches to continuous integration, version, and source control.
S15	communicate software solutions and ideas to technical and non-technical stakeholders.	Professional discussion underpinned by portfolio Describes methods of communicating with all stakeholders that is determined by the audience and/or their level of technical knowledge.
S16	apply algorithms, logic and data structures.	Work-based project with questioning Outlines and applies the rationale and use of algorithms, logic and data structures.
S17	interpret and implement a given design whilst remaining compliant with security and maintainability requirements.	Professional discussion underpinned by portfolio Explains how they have interpreted and implemented a given design whilst remaining compliant with security and maintainability requirements.

Ref.	Behaviours	Assessment method and minimum requirements
B1	works independently and takes responsibility, eg has a disciplined and responsible approach to risk, and stays motivated and committed when facing challenges.	Professional discussion underpinned by portfolio Describes, how they have operated independently to complete tasks to given deadlines which reflect the level of responsibility assigned to them by the organisation.
B2	applies logical thinking, eg uses clear and valid reasoning when making decisions related to undertaking work instructions.	Work-based project with questioning Establishes a logical thinking approach to areas of work which require valid reasoning and/or justified decision making.
B3	maintains a productive, professional and secure working environment.	Work-based project with questioning Describes how they have maintained a productive, professional and secure working environment throughout the project activity.
B4	works collaboratively with a wide range of people in different roles, internally and externally, with a positive attitude to inclusion & diversity	Professional discussion underpinned by portfolio Illustrates how they have worked collaboratively with people in different roles, internally and externally, which show a positive attitude to inclusion & diversity.
B5	acts with integrity with respect to ethical, legal and regulatory ensuring the protection of personal data, safety and security.	Professional discussion underpinned by portfolio Explains how they have established an approach in the workplace which reflects integrity with respect to ethical, legal, and regulatory matters and ensures the protection of personal data, safety and security.
B6	shows initiative for solving problems within their own remit, being resourceful when faced with a problem to solve.	Professional discussion underpinned by portfolio Illustrates their approach to meeting unexpected minor changes at work and outlines their approach to delivering within their remit using their initiative.
B7	communicates effectively in a variety of situations to both a technical and non-technical audience.	Professional discussion underpinned by portfolio Explains how they have communicated effectively in a variety of situations to both a technical and non-technical audience.
B8	shows curiosity to the business context in which the solution will be used, displaying an inquisitive approach to solving the problem. This includes the curiosity to explore new opportunities, and techniques; the tenacity to improve methods and maximise performance of the solution; and creativity in their approach to solutions.	Professional discussion underpinned by portfolio Illustrates how they have responded to the business context with curiosity to explore new opportunities and techniques and tenacity to improve solution performance.

Ref.	Behaviours	Assessment method and minimum requirements
B9	committed to continued professional development.	Professional discussion underpinned by portfolio Explains how they reflect on their continued professional development and act independently to seek out new opportunities.

3 End-point Assessment guidance for the Centre/End-point Assessment Customer/Employer

End-point Assessment

The apprentice will be asked to complete two end-point assessments to conclude their apprenticeship in order to provide a clear indication of their knowledge, skills and ability using the following assessment methods:

- Work-based project with questioning
- Professional discussion underpinned by portfolio.

The assessments can be taken in any order. All the criteria must be evidenced by the apprentice's own work and therefore met without support.

Introducing the End-point Assessment to the apprentice

Prior to the Gateway process, the employer/training provider should make the apprentice aware of the different assessment methods that make up the End-point Assessment (EPA) of the apprenticeship.

The IEPA will guide the apprentice through the EPA components on the day/s of the assessment. However, it is the responsibility of the employer/training provider to introduce the assessment methods to the apprentice ahead of the EPA event.

Further information regarding what can be shared with the apprentice and the associated timelines can be found in the **Task Instructions for the Centre/EPA customer/Employer** sections within this document. When introducing any assessments, a realistic timeframe should be set for completion of each task, in line with the timeline agreed with City & Guilds when booking EPA. If tasks are not completed within the agreed timeframe without the apprentice having a good reason, the timeline for any EPA visit may be reviewed.

For any assessments that occur over a longer duration, employers/training providers are expected to work with apprentices to develop a submission schedule that aligns with the overall timeline for assessments and with any timelines agreed with City & Guilds when booking EPA.

Health and safety/codes of practice

The importance of safe working practices, the demands of the Health and Safety at Work Act and any Codes of Practice associated with the industry **must** always be adhered to.

The requirement to follow safe working practices is an integral part of all City & Guilds assessments, and it is the responsibility of the training provider/employer to ensure that all relevant health and safety requirements are in place when working on any projects or before apprentices begin any practical assessment.

Should an IEPA identify something, when assessing evidence submitted for the apprenticeship or pick up on something during an oral assessment that indicates that health and safety practices and procedures may not have been adhered to, they will feed this back to City & Guilds EPA team.

Authenticating the apprentice's work

When making judgements on evidence of unobserved tasks, IEPAs will ensure all decisions satisfy Validity, Authenticity, Currency and Sufficiency (VACS). For evidence produced outside controlled conditions the apprentice will be required to:

- sign a declaration that the work is their own
- reference all sources.

The training provider/employer should also aid authentication by:

- supplementary (oral) questioning to gauge familiarity with the topic
- looking out for any changes to the apprentices usual writing style, unusual sources/examples or the use of eg US spellings or phrases that might indicate cutting and pasting from the internet
- requiring access to evidence of steps in the process eg drafts, notes, planning etc.

City & Guilds have produced evidence reference forms for both apprentices and IEPAs to use when reviewing evidence produced outside of controlled conditions. These forms include a **Declaration of Authenticity Form** which must be completed when submitting evidence. These forms can be found in the **g600-12 Software Developer Recording Forms** document.

Recording forms

City & Guilds have designed specific recording forms for the apprentice and EPA customer to use for this apprenticeship.

These can be found in the following document:

- **g600-12 Software Developer Recording Forms**

The EPA customer must use the forms provided by City & Guilds in the format laid out in this document.

Determining the apprenticeship grade

IEPAs are responsible for grading all tasks and communicating these outcomes to City & Guilds. IEPAs are also responsible for determining the overall grade of the apprenticeship.

Each assessment will be individually assessed and graded by an IEPA. The grade will be determined using the grading criteria detailed in each assessment method.

The overall grade will be based on the grades achieved in the two End-point Assessment methods: work-based project with questioning and professional discussion underpinned by a portfolio.

To achieve a pass overall, an apprentice must achieve a pass in both assessment methods. If either End-point Assessments are not achieved, the apprentice would not achieve the apprenticeship overall.

To achieve a distinction, an apprentice must achieve a distinction in both assessment methods. If a pass is achieved in one assessment and a distinction is achieved in the other, the apprentice would achieve a merit overall.

The table below is designed to support IEPAs working out the overall grade for the apprenticeship. Grades from individual assessment methods should be combined in the following way to determine the grade of the EPA as a whole:

Assessment method: 700 – Work-based project with questioning	Assessment method: 701 – Professional discussion underpinned by a portfolio	Overall grading
Fail	Any grade	Fail
Any grade	Fail	Fail
Pass	Pass	Pass
Pass	Distinction	Merit
Distinction	Pass	Merit
Distinction	Distinction	Distinction

All assessment methods are weighted equally in their contribution to the overall EPA grade. The contribution of the assessments towards the EPA grade is as follows:

Assessment method	Grade scale	% contribution
700 Work-based project with questioning	X/P/D	50%
701 Professional discussion underpinned by portfolio	X/P/D	50%
	Total	100%

Feedback

The IEPA will not provide feedback to the apprentice during or immediately following the assessment process. The provider will be informed by the City & Guilds EPA Team of the assessment results.

The IEPA will communicate the grade allocated for each assessment to the Lead Independent End-point Assessor (LIEPA) for quality assurance and sampling. The LIEPA will submit the results to the City & Guilds EPA Team.

Summary feedback will be provided to all apprentices after any grade determination has been carried out. The feedback will cover the areas against which insufficient evidence has been provided, leading to a 'Fail'. Our 'End-point Assessment Feedback' will also cover the areas against which the apprentice's evidence has resulted in the award of a Pass or Distinction.

Results submission and certification

IEPAs are responsible for submitting apprentice's results to City & Guilds. City & Guilds will issue an EPA record of achievement confirming the grade achieved and will notify the appropriate body who will issue the Apprenticeship certificate.

Opportunities to re-take/re-sit or improve results for end-point assessments

Apprentices who fail one or more assessment method will be offered the opportunity to take a re-sit or a re-take. A re-sit does not require further learning, whereas a re-take does.

Apprentices are only required to re-take/re-sit the element of the EPA they have failed. Apprentices will be offered the opportunity to take a re-sit/re-take. In all cases the apprentice's employer will need to agree that a re-sit or re-take is an appropriate course of action.

A re-sit is typically taken within **two months** of the EPA outcome notification. The timescale for a re-take is dependent on how much re-training is required and is typically taken within **four months** of the EPA outcome notification.

Apprentices should have a supportive action plan provided by the training provider and/or employer to prepare for the re-sit/re-take. Re-sits/re-takes are not offered to apprentices wishing to move from pass to merit/distinction or merit to distinction, unless the City & Guilds deems there to be exceptional circumstances warranting consideration. Application of this is at the discretion of City & Guilds.

All assessment methods must be taken within a **six-month period**, otherwise the entire EPA will need to be re-sat/re-taken, unless City & Guilds determine that exceptional circumstances apply outside the control of the apprentice or their employer.

Where any assessment method must be re-sat or re-taken, the apprentice will be awarded a maximum EPA grade of distinction

Work-based project and questioning re-take/re-sit

Apprentices who have failed the work-based project and questioning will need to revise their project report to ensure it covers all the KSBs mapped to this method and submit it prior to the questioning element. This could be the original project proposal and presentation with additional/amended content included.

The apprentice will be given **3 weeks** to rework and submit the amended work-based project; the IEPA will have **2 weeks** to review it. The apprentice will have **5 days' notice** of the re-sit questioning date.

During the work-based project with questioning re-sit, the apprentice will need to be able to demonstrate the pass descriptors they previously met, **not just** the pass descriptors they **failed** during the original assessment.

Where any assessment method must be re-sat or re-taken, the apprentice will be awarded a maximum EPA grade of distinction.

The apprentice will be informed by City & Guilds **within 20 working days** of the completion of the EPA as to whether they have failed any of the assessment methods. They will also have been provided with any feedback and the course of action that they need to undertake to re-sit/re-take any element of the EPA.

4 End-point Assessment resources list

Resource required	
Work-based project with questioning	Internet access and suitable equipment for remote assessment, such as a computer with audio and video capacity, as outlined in the manual for End-point Assessment services.
	A suitable, quiet room for the remote questioning to take place (under exam conditions). The room should have lighting, space and privacy and be free from interruptions. It must be away from the pressures of work activities, in a controlled environment. This may be on or off the employers' premises.
Professional discussion underpinned by a portfolio	Internet access and suitable equipment for remote assessment, such as a computer with audio and video capacity, as outlined in the manual for End-point Assessment services.
	A suitable, quiet room for the remote professional discussion to take place (under exam conditions). The room should have lighting, space and privacy and be free from interruptions. It must be away from the pressures of work activities, in a controlled environment. This may be on or off the employers' premises.
	The apprentice and the IEPA must each have a copy of the apprentice's portfolio of evidence to refer to.

5 End-point Assessment timeline

The process of setting up the End-point Assessment will begin roughly six months before the completion of the apprenticeship, as shown in the table below. It is the responsibility of the employer/training provider to ensure that the apprentice is ready for each stage of this timeline.

Time line	Activity
Six months before planned completion	Employer/training provider: - reviews progress and ensures apprentice's performance is on track as part of the regular performance management system - identifies gaps and creates a plan for the end assessment with the apprentice - considers whether apprentice's potential evidence for the portfolio is appropriate and sufficient to cover the relevant KSBs (scope and breadth) Apprentice: - completes the English and Maths components of the apprenticeship, according to the apprenticeship funding rules - develops a portfolio to evidence the knowledge, skills and behaviours required for the professional discussion assessment method.
Four months before planned completion	Line manager/training provider and apprentice: - meet to review progress for final assessment - refine plans for components of final End-point Assessment - choose the project topic for work-based project with questioning assessment method. Apprentice: - completes work on portfolio of evidence - completes project summary for work-based project with questioning.
Gateway	The apprentice and employer/tutor review progress and confirm that the apprentice is ready for End-point Assessment. - All supporting evidence is uploaded into the EPA Pro platform through the Gateway process. - The employer/training provider uploads the apprentice's portfolio of evidence which will be used in the professional discussion. - The employer/training provider submits the apprentice's project summary.

Time line	Activity
	- The apprentice signs the completed Apprentice Gateway Declaration Form and this is uploaded by the provider in the EPA Pro Gateway process. - The provider completes a declaration and e-signature on behalf of the provider and employer in the EPA Pro platform. - IEPA is allocated 2 weeks to review the project summary. - IEPA accepts or rejects the project summary. If rejected, the employer/training provider/apprentice has 5 days to revise the project summary and resubmit.
Book End-point Assessment in line with City& Guilds booking timelines	The employer/training provider makes End-point Assessment booking in line with City & Guilds booking timelines*
Completion of assessment activities	The assessment methods can be taken in any order. - Apprentice submits the work-based project report. - IEPA carries out questioning with the apprentice. The apprentice receives at least 5 working days' notice of their questioning. - IEPA carries out professional discussion with the apprentice. The apprentice receives at least 5 working days' notice of the professional discussion.
End of apprenticeship	Grade communicated to the EPA customer.

* Customer to advise EPA team **at the point of booking** if they need to arrange for any assessment to take place face-to-face in a physical location. Please note there would be an extra charge for face-to-face assessments.

Assessment 700 Work-based project with questioning

Assessment specification

Component	Description	Coverage	Grading
700	Work-based project with questioning	Knowledge: K2, K6, K9, K11 Skills: S1, S4, S6, S7, S10, S11, S12, S16 Behaviours: B2, B3	X/P/D

Overview

Apprentices will conduct and submit a work-based project in the form of a project report. This will be followed by questioning from the IEPA. The project report is compiled and submitted after the apprentice has gone through the Gateway process.

The aim of the project is to research and develop a software solution to meet the requirements of a customer specification, which has the end-to-end software development lifecycle as its guiding principle.

The employer will provide the customer/other stakeholder specification from their day-to-day business activities. Therefore, a summary of what the project will cover must be submitted to City & Guilds at the gateway. The summary must include the chosen stakeholder specification. The employer will ensure the project has a real business application and has suitable coverage of the knowledge, skills and behaviours assigned to this assessment method.

The purpose of the questioning component will be to check the knowledge and skills shown in the work-based project and explore the underpinning reasoning where the supporting notes may be insufficiently detailed or ambiguous. This component will take the form of questioning to draw out the best of the apprentice's competence and excellence and cover the KSBs assigned to this assessment method. It will involve questions that will focus on coverage of the work-based project report.

The rationale for this assessment method is that it is occupationally relevant to the role and duties of a software developer to undertake projects based on specifications. Software developers work in a project-based environment and are responsible for developing software solutions across the full lifecycle, from research and development, through continuous improvement, to product/service retirement.

Task instructions for the Centre/End-point Assessment Customer/Employer

Component 1: Work-based project

Apprentices will conduct and submit a work-based project in the form of a project report. The project report will be compiled after the apprentice has gone through the Gateway process.

The project should be based on a customer or stakeholder specification requiring the apprentice to respond to any of the following:

- specific problem
- a recurring issue
- an idea/opportunity.

The employer will provide the customer or other stakeholder specification from their day-to-day business activities. Therefore, a summary of what the project will cover must be submitted to City & Guilds at the gateway. The summary must include the chosen stakeholder specification. The employer will ensure the project has a real business application with suitable coverage of the KSBs assignment to this assessment method as shown in the mapping of assessment method within the 'Grading criteria' table later in this section.

Prior to the work-based project report

Prior to compiling the project report, the employer/training provider must attend a planning meeting with the apprentice and IEPA to agree the date that the project report will be submitted.

Prior to compiling the project report, the apprentice will scope out and deliver a summary of what the project will cover to City & Guilds at the Gateway.

Project summary

The project summary should demonstrate that the work-based project will provide sufficient opportunity for the apprentice to cover the KSBs assigned to this method. It will outline the project plan, including high level implementation steps and associated timeframes. The summary must also state the date that the work-based project report will be submitted to the IEPA via the EPA Pro platform.

The summary should be submitted using the 'Work-based Project Summary' template provided in the **9600-12 Software Developer Recording Forms** document and be no longer than **500** words.

The IEPA will review and sign off project summary within **2 weeks** of the gateway to ensure it has sufficient scope to meet the KSBs mapped to this method of assessment.

Should the project summary be rejected, the IEPA will provide feedback to the apprentice in order for the employer and apprentice to submit a revised summary. The employer and apprentice will have **5 working days** from notification of rejection to submit a revised summary.

It is important to note that the apprentice **cannot** start compiling the work-based project until the IEPA has formally accepted the summary.

The examples below have been provided by City & Guilds to assist the employer and apprentice in their selection of a suitable work-based project of an appropriate size and complexity sufficient to cover the knowledge, skills and behaviours assigned to this assignment method.

Scenario 1 – Online retail	You are employed by a web development company that works with small to medium businesses (SMEs). Your company has recently acquired a new customer who produce small craft items. They require an inventory control system and a linked website incorporating a secure online shop. In addition, the customer would like the website to include some instructional/demonstration videos, a blog and a forum page for users. The website needs to be administered by the customer. Therefore, appropriate training and information materials must be provided. The use of commercially available frameworks, components and plug-ins need to be fully justified. This project would be expected to cover all stages of the software development lifecycle.
Scenario 2 – Warehousing	You work for the IT department of a small warehousing organisation. The warehouse is split into activity zones (eg receiving, despatch, fulfilment). As workers move between zones, they log in and log out using key fobs. Identification through key fobs is linked to the HR database. Management wants to have visibility of where staff are working both as a 'live' picture and to keep a record for later analysis. They require the ability to create custom reports.
Scenario 3 – Monitoring equipment	You work for an organisation that installs monitoring equipment at remote sites. The equipment monitors and records environmental information. You have been tasked with creating an application that records the information from the remote sites and builds a 'dashboard' that provides relevant information for customers to access. In addition, there should be the facility to generate alerts and take action if specified parameters are met.
Scenario 4 – Fleet management	You work in a software development team for a large organisation. The organisation is developing a new fleet management system to avoid the problem of inefficient use of available fleet cars. The software development team is working in an agile manner to develop the system. You are working on the team that is developing the interface to the database to provide user booking facilities and reporting.

Time allowed for the work-based project report

The apprentice will conduct their project and submit a project report to City & Guilds after **a maximum of 9 weeks** following the project summary sign off. The project will typically take 7 weeks to compile and the report a further 2 weeks to write.

Assessment conditions

Whilst completing the project, the apprentice should be subject to normal workplace supervision. The employer should ensure the apprentice has sufficient time and the necessary resources to plan and undertake the project. The apprentice may work as part of a team, which could include technical internal or external support, however the report must be the apprentice's own work and be reflective of their own role and contribution. When the project is submitted, the employer and the apprentice should verify the submitted work is that of the apprentice.

The project must map, **in an appendix**, how the work-based project evidences the relevant KSBs for this assessment method. City & Guilds have produced an 'Evidence Reference Matrix' in the **9600-12 Software Developer Recording Forms** document to assist with this.

The IEPA will have **two weeks** in which to assess the work submitted by the apprentice and generate appropriate questions for the questioning component of this assessment method.

Component 2: Questioning

The questioning component, along with the work-based project submission date, will be booked by the centre/training provider for the apprentice. The time and date are to be arranged with the City & Guilds End-point Assessment team during the planning meeting.

The questioning is a structured discussion between the apprentice and the IEPA, focusing on the outputs of the work-based project. The questioning will take place separate day after the completion of the work-based project, covering both what the apprentice has produced and how they have done it. This enables the End-point Assessment to include the full range of core and technical skills, knowledge and understanding, as well as the underpinning behaviours.

The interview will be conducted by the same IEPA who assessed the work-based project. This IEPA will also make the final grading decision.

Assessment conditions

The questioning session will be delivered in a controlled environment free from distractions and external influence via online video conferencing. The conditions under which the questioning session will take place will be arranged with the City & Guilds End-point Assessment team.

Time allowed for questioning

The questioning must last for a minimum of **60 minutes**. The City & Guilds IEPA has the discretion to increase the time of the questioning by up to 10% to allow the apprentice to complete their last answer.

Task instructions for the apprentice

Component 1: Work-based project

You will conduct and submit a work-based project in the form of a project report. The project report will be compiled after the Gateway process.

The project should be based on a customer or stakeholder specification requiring the apprentice to respond to any of the following:

- specific problem
- a recurring issue
- an idea/opportunity.

Your employer will provide the customer or other stakeholder specification from your day-to-day business activities. A summary of what the project will cover must be submitted to City & Guilds at the Gateway. The summary must include the chosen stakeholder specification. Your employer will ensure the project has a real business application with suitable coverage of the KSBs assignment to this assessment method as shown in the mapping of assessment method within the 'Grading criteria' table later in this section.

Prior to the work-based project report

Prior to compiling the project report, you will scope out and deliver a summary of what the project will cover to City & Guilds at the gateway.

The summary should demonstrate that the work-based project will provide sufficient opportunity for you to cover the KSBs assigned to this method. It will outline the project plan, including high level implementation steps and associated timeframes. The summary must include the chosen stakeholder specification. Your employer will ensure the project has a real business application with suitable coverage of the KSBs assignment to this assessment method.

The summary must also state the date that the work-based project report will be submitted to the IEPA via the EPA Pro platform. This date will be agreed upon during a planning meeting that you will attend with the City & Guilds End-point Assessor and employer/training provider.

The summary should be submitted using the 'Work-based Project Summary' template provided in the **9600-12 Software Developer Recording Forms** document and be no longer than **500** words.

The City & Guilds Independent End-point Assessor will review and sign off project summary within **2 weeks** of the Gateway to ensure it has sufficient scope to meet the KSBs mapped to this method of assessment.

Should the project summary be rejected, the IEPA will provide feedback to you in order for you to submit a revised summary. Assisted by your employer, you will have **5 working days** from notification of rejection to submit a revised summary.

It is important to note that you **cannot** start compiling the work-based project until the City & Guilds Independent End-point Assessor has formally accepted the summary.

Time allowed for the work-based project report

You will conduct your project and submit a project report to City & Guilds after **a maximum of 9 weeks** following the project summary sign off. The project will typically take 7 weeks to compile and the report a further 2 weeks to write.

The City & Guilds Independent End-point Assessor will have **two weeks** in which to assess the work submitted.

Assessment conditions

Whilst completing the project, you will be subject to normal workplace supervision. Your employer will ensure that you have sufficient time and the necessary resources to plan and undertake the project. You may work as part of a team, which could include technical internal or external support, however the report must be your own work and be reflective of your own role and contribution. When the project is submitted, you and your employer should verify the submitted work is your own.

What you must produce for marking

The project report should be in the form of an electronic report comprising narrative, one or more coded artefacts, and visual infographics as necessary. NB: coded artefacts may consist of numerous lines of code in one language or be made up of multiple code languages.

As a minimum all project reports must include the following sections:

- an introduction
- the scope of the project (including key performance indicators)
- a project plan
- consideration of legislation, regulation, industry and organisational policies, procedures and requirements
- analysis and problem solving in response to challenges within the project
- research and findings
- project outcomes explained by referencing artefacts within the appendices to convey the software solution and design of the software development outputs
- recommendations and conclusions
- an explanation of how the stages of the software development lifecycle involved in the project have been evidenced, eg
 - planning
 - analysis
 - design
 - implementation/Build
 - test
 - deploy
 - maintain.

The project report has a maximum word limit of **4,500**. A tolerance of plus or minus 10% is allowed.

Appendices, references, diagrams etc. will not be included in this total. The appendices must include artefacts comprising examples of relevant coding undertaken and visual infographics conveying the software solution and design of the software development outputs sufficient to demonstrate the KSBs assigned to this method.

The project must map, **in an appendix**, how it evidences the relevant KSBs for this assessment method. City & Guilds have produced an 'Evidence Reference Matrix' in the **9600-12 Software Developer Recording Forms** document to assist with this.

You will need to consider the availability of company and external resources required to complete the project. You must also ensure they are fully aware of the KSBs the project is intended to assess as that is what the grading of the project will be based on.

You may work as part of a team, which could include technical internal or external support, however, the report will be your own work and will be reflective of your own role and contribution.

The report must be uploaded through the EPA Pro portal.

Component 2: Questioning

The questioning component, along the work-based project submission date, will be booked by your training provider. The questioning is a structured discussion between yourself and the City & Guilds Independent End-point Assessor, focusing on coverage of the work-based project.

Purpose of the questioning

The purpose of the questioning is to:

- clarify any questions the City & Guilds Independent End-point Assessor has from their assessment of the work-based project
- confirm and validate judgements about the quality of your work
- explore aspects of your work, including how it was carried out, in more detail
- provide further evidence for the Independent End-point Assessor to make a holistic decision about the grade to be awarded.

Assessment conditions

The questioning session will be delivered in a controlled environment free from distractions and external influence via online video conferencing. The conditions under which the questioning session will take place will be arranged with the City & Guilds End-point Assessment team.

The questioning will be conducted by the same City & Guilds Independent End-point Assessor who assessed the work-based project. They will also make the final grading decision.

Time allowed for questioning

The questioning must last for a minimum of **60 minutes**. The City & Guilds Independent End-point Assessor has the discretion to increase the time of the questioning by up to 10% to allow the apprentice to complete their last answer.

You should be given a **minimum of 5 working days'** notice of the date for your questioning session.

Recording forms

Please see below summary of the recording forms that are available for this assessment.

Recording form	Purpose	Who should complete	Where it can be found
Work-based Project with Questioning Recording Form	To complete whilst assessing the project report and to record which grading criteria were achieved.	IEPA	9600-12 Software Developer IEPA Recording Forms
Work-based Project – Questioning Recording Form	To record the questions and answers during the assessment and to record which grading criteria were achieved.	IEPA	9600-12 Software Developer IEPA Recording Forms
End-point Assessment Recording/Feedback Form	To record the grade achieved for the assessment method.	IEPA	9600-12 Software Developer IEPA Recording Forms
Apprentice Feedback Form	To be completed in instances when feedback is to be sent to the apprentice.	IEPA	9600-12 Software Developer IEPA Recording Forms

Grading criteria

Descriptors			
KSB	Fail	Pass:	Distinction:
		Apprentices must meet all the pass descriptors in order to achieve a pass.	In addition to the pass criteria, apprentices must demonstrate all the following distinction descriptors in order to get a distinction.
K2	Does not meet the pass criteria	Explains the roles and responsibilities of all people working within the software development lifecycle, and how they relate to the project.	N/A
K6		Outlines how teams work effectively to produce software and how to contribute appropriately.	Compares and contrasts the requirements of a software development team, and how they would ensure that each member (including themselves) were able to make a contribution
K9		Outlines and applies the rationale and use of algorithms, logic and data structures.	N/A
K11		Reviews methods of software design with reference to functional/technical specifications and applies a justified approach to software development.	N/A
S1		Creates logical and maintainable code to deliver project outcomes, explaining their choice of approach.	Evaluates the advantages and disadvantages of different coding and programming techniques to create logical and maintainable code.
S4		Analyses unit testing results and reviews the outcomes correcting errors.	N/A
S6		Identifies and creates test scenarios which satisfy the project specification.	N/A
S7		Applies structured techniques to problem solving to identify and resolve issues and debug basic flaws in code.	Analyses the software to identify and debug complex issues using a fix that provides a permanent solution.
S10		Reviews and justifies their contribution to building, managing and deploying code into the relevant environment in accordance with the project specification.	N/A

S11		Reviews methods of software design with reference to functional/technical specifications and applies a justified approach to software development.	Evaluates different software development approaches in order justifying the best alignment with a given paradigm, eg object oriented, event driven or procedural.
S12		Reviews methods of software design with reference to functional/technical specifications and applies a justified approach to software development.	N/A
S16		Outlines and applies the rationale and use of algorithms, logic and data structures.	N/A
B2		Establishes a logical thinking approach to areas of work which require valid reasoning and/or justified decision making.	N/A
B3		Describes how they have maintained a productive, professional and secure working environment throughout the project activity.	N/A

Assessment 701 Professional discussion underpinned by a portfolio of evidence

Assessment specification

Component	Description	Coverage	Grading
701	Professional discussion underpinned by a portfolio of evidence	Knowledge: K1, K3–K5, K7–K8, K10, K12 Skill: S2–S3, S5, S8–S9, S13–S15, S17 Behaviours: B1, B4–B9	X/P/D

Overview

This assessment will take the form of a professional discussion to draw out the best of the apprentice's competence and cover the KSBs assigned to the assessment method. A professional discussion is a two-way discussion which involves both the IEPA and the apprentice actively listening and participating in a formal conversation. It gives the apprentice the opportunity to make detailed and proactive contributions to confirm their competency across the KSBs mapped to this method.

The rationale for this assessment method is to draw out KSBs, in particular behaviours, which would not naturally occur during other assessment methods. It enables the apprentice to demonstrate the application of skills and behaviours as well as knowledge and allows scope for the apprentice to demonstrate the depth and breadth of KSBs. The assessment method also mirrors the day-to-day work of a software developer as it is commonplace for people in this occupation to engage in detailed technical discussions.

Task instructions for the Centre/End-point Assessment

Customer/Employer

The professional discussion will be booked by the training provider for the apprentice. The time and date are to be arranged with the City & Guilds End-point Assessment team at the planning meeting.

The professional discussion is a structured discussion between the apprentice and the appointed City & Guilds IEPA only, focusing on the portfolio of evidence. It covers both what the apprentice has produced and how they have done it. This enables the End-point Assessment to include the full range of core and technical skills, knowledge and understanding, as well as the underpinning behaviours. The interview can draw on broader experience from the workplace, but the initial and the primary focus is on the work presented in the portfolio.

The professional discussion will be undertaken by the same IEPA who has assessed the portfolio of evidence. They will also make the final grading decision.

Assessment conditions

The professional discussion will be delivered in a controlled environment free from distractions and external influence via online video conferencing. The employer/training provider should ensure that the assessment environment is maintained. This could include ensuring that appropriate signposting and other arrangements are in place that will maintain a suitable environment throughout the duration of the assessment activity. The conditions under which the questioning session will take place will be arranged with the City & Guilds End-point Assessment team.

The apprentice and the IEPA will have access to their own copies of the portfolio throughout the professional discussion and both can refer to it as needed.

The apprentice will have **a minimum of 5 working days'** notice of the date for the professional discussion.

Time allowed for the professional discussion

The professional discussion must last for a minimum of **60 minutes**. The City & Guilds IEPA has the discretion to increase the time of the questioning by up to 10% to allow the apprentice to complete their last answer.

Prior to the professional discussion

The apprentice will prepare a portfolio of evidence during the on-programme phase of their apprenticeship to support the professional discussion and submit it at the Gateway in line with City & Guild requirements. The IEPA will use the contents of the portfolio to identify discussion areas for the professional discussion.

The portfolio is not directly assessed. It underpins the professional discussion and therefore should not be marked by the IEPA.

The employer/training provider and apprentice must ensure the content of the portfolio covers the relevant KSBs and grading descriptors mapped to this assessment method, as indicated in the 'Grading criteria' table provided later in this section.

Guidance on submitting the portfolio of evidence

The portfolio is a concise collection of the apprentice's best pieces of evidence selected from the breadth of available evidence. It efficiently demonstrates the apprentice's performance in relation to the KSBs and grading descriptors and showcases their highest quality work.

The portfolio is not directly assessed by the IEPA but is used as the basis for the professional discussion. The IEPA uses it to familiarise themselves with the apprentice's work in preparation for the professional discussion, and the apprentice can use it to provide tangible evidence to support their accounts of their work during the discussion.

Types of evidence

Ideally the evidence should be produced in electronic format or scanned/photographed to give a clear electronic representation, as it must be submitted electronically for End-point Assessment.

The evidence in the portfolio must be chosen to provide valid evidence for the specified criteria being assessed. Evidence sources may include:

- written accounts of activities that have been completed
- photographic evidence – A set of digital images showing a completed product from a number of angles and close-ups of relevant details. Where relevant, before and after images and stages in development should be included.
- work products
- work instructions
- safety documentation
- technical reports
- drawings
- company policies and procedures as appropriate to the activities
- Progress review documentation
- witness testimonies – evidence from a relevant witness (the witness can range from a manager to a customer) giving their account of what the apprentice has done in their job role. Testimonies must include:
 - their relationship with the apprentice
 - their name and job title
 - evidence that was generated on programme
 - approximate date of work-based examples
 - clear examples of direct observation where the apprentice has demonstrated competency against the standard whilst on programme
- feedback from colleagues and/or clients
- video clips (**maximum total duration 20 minutes**).

NB. Reflective accounts and self-assessments must **not** be included as evidence.

This is not a definitive list; other relevant sources of evidence sources are acceptable.

All evidence must be of the apprentice's own work and, for any group work, must clarify and focus only on their contribution.

Where necessary, confidentiality and data protection requirements must be adhered to, eg permissions for use of video/images containing identifiable 3rd parties (eg clients), anonymisation

of documentation and permissions from clients when submitting designs and plans commissioned by them.

The portfolio of evidence requirements are as follows:

- apprentices must compile a portfolio of evidence during the on-programme period of the apprenticeship
- it must contain evidence related to the KSBs that will be assessed by the professional discussion
- there should be at least one piece of evidence relating to each of the knowledge, skills and behaviours mapped to the professional discussion
- evidence must be clearly mapped, in an annex (ie the 'Evidence Reference Matrix' provided in the **9600-12 Software Developer Recording Forms** document), against the KSBs allocated to this assessment method
- evidence may be used to demonstrate more than one KSB; a **qualitative** as opposed to quantitative approach is suggested
- the portfolio of evidence should contain **10 discrete pieces** of evidence in total

Where the number of pieces of evidence is excessive, the IEPA will return the portfolio **without** being reviewed. City & Guilds will contact the customer asking for the evidence to be revised and resubmitted. In exceptional circumstances it may be required to move the EPA date to accommodate the submission of portfolio evidence and allow the IEPA to review the portfolio in preparation for the EPA event.

Note: The submission of a fully completed 'Evidence Reference Matrix' is mandatory. Failure to do so means that the IEPA will return the Portfolio without being reviewed.

In the case where evidence has been referenced into the 'Evidence Reference Matrix' but is not present within the portfolio, the IEPA will request the missing evidence from the customer.

All the evidence submitted must be in a format that can be opened by the IEPA; where evidence cannot be opened, eg evidence that is linked to an e-portfolio or embedded within a document, the portfolio will be returned without being reviewed. In exceptional circumstances it may be required to move the EPA date to accommodate the submission of the missing portfolio evidence and allow the IEPA to review the portfolio in preparation for the EPA event.

Selecting evidence

Before selecting the evidence to form the portfolio, the apprentice should consider the following:

- the grading descriptors and relevant KSBs to be covered by the portfolio
- the type of evidence that can be presented (see above)
- the amount of evidence that should be presented
- the currency of evidence which must be produced while the apprentice is undertaking their apprenticeship.

To assemble the portfolio the apprentice should consider all the evidence they have available that shows they have met the requirements being assessed. Evidence collected towards the end of their apprenticeship programme, as they become independent in their work, is likely to provide the most holistic evidence – ie covering a number of KSBs and grading descriptors at once. From this, they should select evidence that **most efficiently** meets all the relevant grading descriptors and KSBs and which demonstrate their **best performance**. While there may be some overlap between the

evidence collected, multiple pieces of evidence showing coverage of the same grading descriptors and KSBs should not normally be submitted for EPA.

A discrete piece of evidence is a singular piece of evidence that can holistically be assessed across a range of KSBs and grading descriptors.

There are two questions that an apprentice should consider when selecting work to form their portfolio:

1. Which pieces holistically (most efficiently) give evidence that together cover all of the relevant grading descriptors and KSBs?
2. Is this the **best** evidence I have, showing that I have met all of the requirements for the pass and distinction grade?

Confirming the evidence selection

When the apprentice has selected the evidence to form their portfolio, this must be reviewed by the employer/training provider to ensure:

- all assessment requirements have been met
- it is in line with any requirements relating to the type and amount of evidence required and ensure the evidence originated on-programme
- there is **no** unnecessary duplication of evidence against the same KSBs and grading descriptors
- the work selected represents the best evidence available in relation to the grading descriptors and KSBs
- the clarity of any images or scanned evidence is sufficient to determine the quality of the original evidence
- authenticity of evidence has been established.

Preparing evidence for submission

Evidence being uploaded for EPA must be presented as follows:

- each piece of evidence must have a header containing the name of the apprentice together with the date the evidence was produced, and an evidence reference number. It is good practice, where possible, to add a handwritten/e-signature although this is not mandatory.
- each piece of evidence must be referenced to the KSB(s) it is being submitted against on the 'Evidence Reference Matrix' form (found in the **9600-12 Software Developer Recording Forms** for EPA customers).

This is to ensure that each piece of evidence is cross-referenced to each relevant KSB.

Presenting the evidence in this way also formally confirms that it is the apprentice's own work.

A 'portfolio checklist' has been created to help apprentices and employer/training provider to ensure that all relevant information is accounted for.

Showcase portfolio checklist		Tick when confirmed
1.	Is all evidence signed by the apprentice and dated? * E-signatures are also acceptable	
2.	Is all evidence valid, authentic, current and sufficient (VACS)?	
3.	Does evidence clearly show it is the apprentice's individual work (and if involved in team work is it clear the specific contribution the apprentice made)?	
4.	Does the evidence clearly demonstrate their relevant knowledge?	
5.	Have you used the evidence reference form? And has all evidence been referenced?	
6.	Does it showcase the apprentice's best pieces of work?	
7.	Is the majority of the evidence holistic in its nature?	
8.	Have you checked that you have not included any pieces of evidence that are duplicated or not relevant?	
9.	Is there sufficient evidence to cover the whole of the criteria and grading descriptors that has been referenced to?	
10.	Are any witness testimonies or employer references tailored to the apprentice?	
11.	Has any client/customer reference information been anonymised?	
12.	Have all external sources of information being appropriately documented and referenced to the original source, showing clear understanding of how they relate to the criteria?	
13.	Has the appropriate stakeholder(s) eg employer/training provider checked whether the apprentice's portfolio meets all the required criteria and grading descriptors?	
* where witness testimonies are included as a piece of evidence these do not need to be signed by the apprentice but instead must be signed/authenticated as outlined in the rest of the EPA pack		
Reminder: You must upload the completed 'Evidence Reference Matrix' to EPA Pro in word format		

The portfolio must be accompanied by a mapping document, ie the 'Portfolio Evidence Matrix' provided in the **9600-12 Software Developer Recording Forms** document, that clearly shows how the evidence is mapped against the relevant knowledge, skills and behaviours that are assessed by the professional discussion.

Task instructions for the apprentice

The professional discussion will be booked for you by your employer/centre. The time and date are to be arranged with the City & Guilds End-point Assessment team at the planning meeting.

The professional discussion is a structured discussion between you and the appointed City & Guilds Independent End-point Assessor only, focusing on the portfolio of evidence you have prepared during the on-programme phase of the apprenticeship. It covers both what you have produced and how you have done it. This enables the End-point Assessment to include the full range of core and technical skills, knowledge and understanding, as well as the underpinning behaviours. The interview can draw on broader experience from the workplace, but the initial and the primary focus is on the work presented in the portfolio.

The professional discussion will be undertaken by the same City & Guilds Independent End-point Assessor who assessed the portfolio of evidence. They will also make the grading decision.

Assessment conditions

The professional discussion will be delivered in a controlled environment free from distractions and external influence – presenting only to the City & Guilds Independent End-point Assessor. The professional discussion will take place via online video conferencing. The conditions under which the professional discussion will take place will be arranged with the City & Guilds End-point Assessment team.

You will have access to your own copy of the portfolio throughout the professional discussion to refer to as needed.

You will have **a minimum of 5 working days'** notice of the date for the professional discussion.

Time allowed for the professional discussion

The professional discussion must last for a minimum of **60 minutes**. The City & Guilds Independent End-point Assessor has the discretion to increase the time of the questioning by up to 10% to allow the apprentice to complete their last answer.

Grading

The professional discussion will be graded fail, pass or distinction. The City & Guilds Independent End-point Assessor will allocate the grade using the 'Grading criteria' table provided later in this section.

Prior to the professional discussion

You will have prepared a portfolio of evidence during the on-programme phase of your apprenticeship to support your professional discussion. Your portfolio is not directly assessed. It underpins your professional discussion and therefore will not be marked by the IEPA.

Your underpinning portfolio will have been submitted in line with City & Guilds requirements at the Gateway and must evidence all of the KSBs mapped to this assessment method. The City & Guilds Independent End-point Assessor will use the contents of the portfolio to identify discussion areas for your professional discussion.

Your portfolio must be accompanied by a mapping document, ie the 'Evidence Reference Matrix' available in the **9600-12 Software Developer Recording Forms** document, that clearly shows how

the evidence is mapped against the relevant knowledge, skills and behaviours that are assessed by the professional discussion.

Guidance on submitting the portfolio of evidence

The portfolio is a concise collection of your best pieces of evidence selected from the breadth of available evidence. It efficiently demonstrates your performance in relation to the KSBs and grading descriptors and showcases your highest quality work.

The portfolio is not directly assessed by the City & Guilds Independent End-point Assessor but is used as the basis for the professional discussion. They use it to familiarise themselves with your work in preparation for the professional discussion, and you can use it to provide tangible evidence to support your accounts of your work during the discussion.

Types of evidence

Ideally the evidence should be produced in electronic format or scanned/photographed to give a clear electronic representation, as it must be submitted electronically for End-point Assessment.

The evidence in the portfolio must be chosen to provide valid evidence for the specified criteria being assessed. Evidence sources may include:

- written accounts of activities that have been completed
- photographic evidence – A set of digital images showing a completed product from a number of angles and close-ups of relevant details. Where relevant, before and after images and stages in development should be included.
- work products
- work instructions
- safety documentation
- technical reports
- drawings
- company policies and procedures as appropriate to the activities
- progress review documentation
- witness testimonies – evidence from a relevant witness (the witness can range from a manager to a customer) giving their account of what the apprentice has done in their job role. Testimonies must include:
 - their relationship with the apprentice
 - their name and job title
 - evidence that was generated on programme
 - approximate date of work-based examples
 - clear examples of direct observation where the apprentice has demonstrated competency against the standard whilst on programme
- feedback from colleagues and/or clients
- video clips (**maximum total duration 20 minutes**).

NB. Reflective accounts and self-assessments must **not** be included as evidence.

This is not a definitive list; other relevant sources of evidence sources are acceptable.

Requirements for your portfolio of evidence

- You must compile a portfolio of evidence during your on-programme period of your apprenticeship.
- The portfolio must contain evidence related to the KSBs that will be assessed by your professional discussion.
- There should be at least one piece of evidence relating to each of the knowledge, skills and behaviours mapped to the professional discussion.
- Evidence must be clearly mapped in an annex (ie Evidence Reference Matrix') against the KSBs allocated to this assessment method.
- Evidence may be used to demonstrate more than one KSB; a **qualitative** as opposed to quantitative approach is suggested.
- The portfolio should contain **10 discrete pieces** of evidence in total

Where the number of pieces of evidence is excessive, the IEPA will return the portfolio **without** being reviewed. City & Guilds will contact the customer asking for the evidence to be revised and resubmitted. In exceptional circumstances it may be required to move the EPA date to accommodate the submission of portfolio evidence and allow the IEPA to review the portfolio in preparation for the EPA event.

- The portfolio must be submitted to City & Guilds at the Gateway.
- The evidence provided must be valid and attributable to you; your portfolio of evidence must be accompanied by the 'Declaration of Authenticity – Portfolio of Evidence' form completed by you, your employer and training provider to confirm this.
- All evidence must be of your own work and, for any group work, must clarify and focus only on their contribution.

Where necessary, confidentiality and data protection requirements must be adhered to, eg permissions for use of video/images containing identifiable 3rd parties (eg clients), anonymisation of documentation and permissions from clients when submitting designs and plans commissioned by them.

Note: The submission of a **fully** completed 'Evidence Reference Matrix' is mandatory. Failure to do so means that the IEPA will return your Portfolio **without** being reviewed.

In cases where evidence has been referenced to in the 'Evidence Reference Matrix' but is **not** present within your portfolio, the City & Guilds Independent End-point Assessor will request the missing evidence.

All the evidence submitted must be in a format that can be opened by the IEPA; where evidence cannot be opened, eg evidence that is linked to an e-portfolio or embedded within a document, your portfolio will be returned **without** being reviewed. In exceptional circumstances it may be required to move your EPA date to accommodate the submission of your missing portfolio evidence and allow the IEPA to review your portfolio in preparation for the EPA event.

Selecting evidence

Before selecting the evidence to form the portfolio, you should consider the following:

- the grading descriptors and relevant KSBs to be covered by the portfolio
- the type of evidence that can be presented (see above)
- the amount of evidence that should be presented
- the currency of evidence which must be produced while undertaking your apprenticeship.

To assemble the portfolio, you should consider all the evidence you have available that shows you have met the requirements being assessed. Evidence collected towards the end of your apprenticeship programme, as you become independent in your work, is likely to provide the most holistic evidence – ie covering a number of KSBs and grading descriptors at once. From this, you should select evidence that **most efficiently** meets all the relevant grading descriptors and KSBs and which demonstrate your **best performance**. While there may be some overlap between the evidence collected, multiple pieces of evidence showing coverage of the same grading descriptors and KSBs should not normally be submitted for EPA. A discrete piece of evidence is a singular piece of evidence that can holistically be assessed across a range of KSBs and grading descriptors.

There are two questions that an apprentice should consider when selecting work to form their portfolio:

1. Which pieces holistically (most efficiently) give evidence that together cover all of the relevant grading descriptors and KSBs?
2. Is this the **best** evidence I have, showing that I have met all of the requirements for the pass and distinction grade?

Confirming the evidence selection

When you have selected the evidence to form your portfolio, this must be reviewed by your employer/training provider.

Preparing evidence for submission

Evidence being uploaded for EPA must be presented as follows:

- each piece of evidence must have a header containing the name of the apprentice together with the date the evidence was produced and an evidence reference number. It is good practice, where possible, to add a handwritten/e-signature although this is not mandatory.
- each piece of evidence must be referenced to the KSB(s) it is being submitted against on the 'Evidence Reference Matrix – Portfolio of Evidence' (found in the **9600-12 Software Developer Recording Forms** for EPA customers).

This is to ensure that each piece of evidence is cross-referenced to each relevant KSB. Presenting the evidence in this way also formally confirms that it is your own work.

A 'portfolio checklist' has been created to help apprentices and employers/training providers ensure that all relevant information is accounted for. This checklist is available in the **9600-12 Software Developer Recording Forms** document for EPA customers.

Recording forms

Please see below summary of the recording forms that are available for this assessment.

Recording form	Purpose	Who should complete	Where it can be found
Evidence Reference Matrix – Portfolio of Evidence	To be used to record evidence that will support the professional discussion.	Apprentice/employer/training provider/IEPA	9600-12 Software Developer Recording Forms
Professional Discussion Recording Form	To record the questions and answers during the assessment and to record which grading criteria were achieved.	IEPA	9600-12 Software Developer IEPA Recording Forms
End-point Assessment Recording/Feedback Form	To record the grade achieved for the assessment method.	IEPA	9600-12 Software Developer IEPA Recording Forms
Apprentice Feedback Form	To be completed in instances when feedback is to be sent to the apprentice.	IEPA	9600-12 Software Developer IEPA Recording Forms

Grading criteria

Descriptors			
KSB	Fail	Pass: Apprentices must meet all the pass descriptors in order to achieve a pass.	Distinction: In addition to the pass criteria, apprentices must demonstrate all the following distinction descriptors in order to get a distinction.
K1	Does not meet the pass criteria	Describes all stages of the software development lifecycle.	N/A
K3		Describes the roles and responsibilities of the project lifecycle within their organisation, and their role.	N/A
K4		Describes methods of communicating with all stakeholders that is determined by the audience and/or their level of technical knowledge.	Compares and contrasts the different types of communication used for technical and non-technical audiences and the benefits of these types of communication methods.
K5		Describes the similarities and differences between different software development methodologies, such as agile and waterfall.	N/A
K7		Suggests and applies different software design approaches and patterns, to identify reusable solutions to commonly occurring problems (include Bespoke or off-the-shelf).	Evaluates and recommends approaches to using reusable solutions to common problems.
K8		Explains the relevance of organisational policies and procedures relating to the tasks being undertaken, and when to follow them including how they have followed company, team or client approaches to continuous integration, version, and source control.	N/A
K10		Applies the principles and uses of relational and non-relational databases to software development tasks.	N/A
K12		Describes basic software testing frameworks and methodologies.	Evaluates the use of various software testing frameworks and methodologies and justifies their choice.

S2	Explains their own approach to development of user interfaces.	N/A
S3	Explains how they have linked code to data sets.	N/A
S5	Illustrates how to conduct test types, including Integration, System, User Acceptance, Non-Functional, Performance and Security testing including how they have followed testing frameworks and methodologies.	N/A
S8	Creates simple software designs to communicate understanding of the programme to stakeholders and users of the programme.	N/A
S9	Creates analysis artefacts, such as use cases and/or user stories to enable effective delivery of software activities.	N/A
S13	Illustrates how to conduct test types, including Integration, System, User Acceptance, Non-Functional, Performance and Security testing including how they have followed testing frameworks and methodologies.	N/A
S14	Explains the relevance of organisational policies and procedures relating to the tasks being undertaken, and when to follow them including how they have followed company, team or client approaches to continuous integration, version, and source control.	N/A
S15	Describes methods of communicating with all stakeholders that is determined by the audience and/or their level of technical knowledge.	Compares and contrasts the different types of communication used for technical and non-technical audiences and the benefits of these types of communication methods.
S17	Explains how they have interpreted and implemented a given design whilst remaining compliant with security and maintainability requirements.	N/A
B1	Describes how they have operated independently to complete tasks to given deadlines which reflect the	N/A

B4	level of responsibility assigned to them by the organisation.	
	Illustrates how they have worked collaboratively with people in different roles, internally and externally, which show a positive attitude to inclusion & diversity.	N/A
B5	Explains how they have established an approach in the workplace which reflects integrity with respect to ethical, legal, and regulatory matters and ensures the protection of personal data, safety and security.	N/A
B6	Illustrates their approach to meeting unexpected minor changes at work and outlines their approach to delivering within their remit using their initiative.	N/A
B7	Explains how they have communicated effectively in a variety of situations to both a technical and non-technical audience.	Compares and contrasts the different types of communication used for technical and non-technical audiences and the benefits of these types of communication methods.
B8	Illustrates how they have responded to the business context with curiosity to explore new opportunities and techniques and tenacity to improve solution performance, establishing an approach to methods and solutions which reflects a determination to succeed	N/A
B9	Explains how they reflect on their continued professional development and act independently to seek out new opportunities.	N/A

Useful contacts

EPA Gateway Team: Initial Reservation and Gateway	epa.gateway@cityandguilds.com
EPA Events Team: Bookings and Cancellations (Post Gateway)	EPA@cityandguilds.com
Technical Advisors: Sector Specific Guidance	Technical Advisors contact details
City & Guilds Sales Team	directsales@cityandguilds.com
ILM Sales team	01543 266 867 customer@i-l-m.com
City & Guilds Customer Services team	01924 930800 (option 5 EPA) centresupport@cityandguilds.com
ILM Customer Services team	01543 266 867 customer@i-l-m.com
Digital Sales: on-programme delivery resources	Digitalsales@cityandguilds.com
Digital Credentials	digitalsupport@cityandguilds.com
Digital Credentials: bulk email uploads	DCServiceTeam@cityandguilds.com

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