Qualification Specification

Accelerate People L4 EPA for Software Developer ST0116/AP06

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Version History		
Version	**Date Amended**	**Changes Made**
1.0	Sept 2022	Document created.
2.0	January 2023	Edits to wording throughout to focus on assessment criteria.
3.0	February 2025	Document rebranded. Edited gateway requirements to accommodate change in policy for English and Maths requirements.

Contents

Qualification Objective

The level 4 Software Developer apprenticeship is one of a suite of apprenticeships that have been designed by industry employers to meet a range of job roles across different industries and sizes of business.

Accelerate People are an end-point assessment organisation (EPAO) for the digital apprenticeship standards that are defined by the Institute for Apprenticeships & Technical Education (IfATE). The apprenticeship standard and assessment plan can be found on the IfATE website.

As part of this apprenticeship all apprentices are required to complete an independent end-point assessment (EPA). The purpose of the EPA is to independently assess that any apprentice on this standard is competent in a relevant job role and can evidence meeting all the assessment criteria relating to the knowledge, skills and behaviours (KSB) outcomes.

The Level 4 Software Developer Apprenticeship

Role Profile:

This occupation is found across every sector for example, Financial Services, Computer Gaming, Retail, Transport, Security and Defence in organisations ranging from large multi-nationals, public sector bodies and government projects developing multi-billion-pound software solutions to support key projects to small consultancy firms designing bespoke software solutions for clients.

The broad purpose of the occupation is to understand a client's requirements as provided in design specification and then build and test high-quality code solutions to deliver the best outcome.

Software developers are the creative minds behind computer programs. Some develop the applications that allow people to do specific tasks on a computer or another device. Others develop the underlying systems that run the devices or that control networks.

For example, a software developer may work on transport ticketing systems, traffic light control systems, customer-facing websites for journey planning and account management, internal websites for monitoring the status of train and road networks. Bespoke asset management systems.

In a computer gaming context, a software developer may work with a creative digital design team to give life to the team's ideas through the delivery of effective code to provide an attractive gaming experience that can give the product a commercial advantage.

In a retail context a software developer may work on delivering coding solutions to deliver online retail opportunities for businesses that provide a responsive and secure trading environment for customers to purchase goods and interact with the retailer.

Organisations use software to ensure that their operations become ever more effective and robustly reduce the incidence of downtime by building quality tested software solutions to give a better service. For example, in commercial organisations this can give them a competitive advantage by being able to analyse significant amounts of data quickly and efficiently to provide the business with information and management systems. This can save time and help the business spot profit making opportunities. For public sector bodies the right software solution can drive up performance and help target scarce resources more effectively and ensure that customer expectations are more likely to be met.

A software developer in a medium to large organisation will typically be working as part of a larger team, in which they will have responsibility for some of the straightforward elements of the overall project. In a smaller enterprise a software developer may be working as the only developer on a project but under direct supervision. A software developer will interpret design documentation and specifications provided by more experienced or specialist members of the team, such as a business analyst or technical architect.

In their daily work, a software developer interacts with internal and external parties including users/customers (to understand their needs and test the software developed through user testing) and team members from a range of specialist fields including designers, developers, engineers, analysts and project/delivery managers (to ensure the effective implementation of software solutions). A developer will typically be working as part of a larger team, in which they will have responsibility for some of the straightforward elements of the overall project. The developer will need to be able to interpret design documentation and specifications. The customer requirements will typically be defined and agreed by more experienced or specialist members of the team, such as a business analyst or technical architect.

A software developer is typically office-based however field-based research and testing may require periods of time working in the environments of the clients whose needs they are seeking to meet.

An employee in this occupation will be responsible for developing software solutions across the full software development lifecycle (SDLC) from research and development, through continuous improvement, to product/service retirement. They may work both autonomously and as part of wider teams, typically reporting to a more senior member of their team.

Typical Job Titles:

Application developer, mobile application developer, software developer, web developer.

Duties:

This apprenticeship standard includes duties to support alignment between the job role and the apprenticeship standard. Listed below are the duties that all apprentices must demonstrate in their apprenticeship. These duties are not assessed or graded as part of the EPA.

Duty 1: Take and interpret given software development requirements to estimate effort to deliver the work product to enable accurate costs to be established.

Duty 2: Break software development activities down into logical units of work to enable sequencing and ensure the best possible structuring of activities to deliver a high-quality product right first time.

Duty 3: Report progress accurately throughout the development life-cycle stages to ensure adequate audit trails of key work steps such that the organisation can demonstrate how the product has been created for quality and commercial purposes.

Duty 4: Identify and report any impediments to software development activities and propose practical solutions.

Duty 5: Convert customer requirements into technical requirements, both functional and non-functional to ensure that customers' expectations are accurately reflected in the software products developed.

Duty 6: Identify and select the most appropriate technical solution, taking into consideration coding best practice and appropriate quality standards.

Duty 7: Communicate software development solutions to a range of internal or external stakeholders to ensure clear understanding of requirements and how they have been met or adjusted.

Duty 8: Consider security implications of proposed design to ensure that security considerations are built in from inception and throughout the development process.

Duty 9: Write logical and maintainable software solutions to meet the design and organisational coding standards (SDLCSDLC -Implementation and Build phase).

Duty 10: Apply security best practice to the software solution throughout the SDLC.

Duty 11: Create and maintain appropriate project documentation to explain the development process and resources used.

Duty 12: Apply appropriate recovery techniques to ensure the software solution being developed is not lost (SDLC -Implementation and Build phase).

Duty 13: Implement appropriate change control to ensure that software development changes may be tracked and quality risks managed.

Duty 14: Undertake unit testing of solutions, with appropriate levels of test code coverage, to identify and, where necessary, resolve issues (SDLC -Implementation and Build phase).

Duty 15: Perform testing of the software solution to ensure a high-quality output (SDLC - Test phase).

Duty 16: Deliver a suitably documented deployable solution to the customer for their use (SDLC -Deploy phase).

Duty 17: Support delivery of one or more software deployment phases, such as trials and final release, to ensure that software developer outcomes are deployed correctly.

Duty 18: Provide support during software trials and after final release to ensure that customers understand and can correctly apply the product, and risks are mitigated.

Duty 19: Respond appropriately to given Service Level Agreements (SLAs) to ensure that time and resources invested in software development activity are allocated appropriately to deliver good customer service.

Duty 20: Apply suitable 'bug fix', appropriate to the severity and priority of the software development issue identified.

Duty 21: Practice continuous self-learning to keep up to date with technological developments to enhance relevant skills and take responsibility for own professional development.

Entry Requirements

Qualifications

Apprentices aged 16-18 on their apprenticeship start date, without level 2 English and maths, will need to achieve this level prior to taking the EPA. For those with an education, health and care plan or a legacy statement, the apprenticeship's English and maths minimum requirement is Entry Level 3. A British Sign Language (BSL) qualification is an alternative to the English qualification for those whose primary language is BSL.

Apprentices aged 19+ on their apprenticeship start date, without level 2 English and maths, are exempt from achieving this prior to taking their EPA; this exemption is by prior agreement between the apprentice and employer.

Experience

There are no pre-requisite knowledge, skills or understanding requirements defined for entry onto this qualification.

EPA Requirements

To successfully complete the level 4 Software Developer apprenticeship apprentices must achieve at least a pass in both EPA assessment methods. This EPA consists of two discrete assessment methods which have the following grades awarded.

Assessment Method 1 (AM1): Work-based project with questioning.

- Fail.
- Pass.
- Distinction.

Assessment Method 2 (AM2): Professional discussion underpinned by portfolio.

- Fail.
- Pass.
- Distinction.

All assessment methods must be taken within a six-month period, otherwise the entire EPA will need to be re-sat/re-taken.

EPA Gateway

For this apprenticeship all apprentices must spend a minimum of 12 months on programme, of which a minimum of 20% must be spent undertaking off-the-job training, before being eligible to undertake the EPA.

Before starting the EPA, an apprentice must meet the following gateway requirements:

- The employer is satisfied that the apprentice is working at or above the occupational standard.
- Apprentices must have achieved English and Maths qualifications in line with the apprenticeship funding rules.
- Apprentices must have compiled and submitted a portfolio of evidence to underpin the professional discussion.

Apprentices may request additional time if they require a reasonable adjustment. Information on how and when to apply is contained within the reasonable adjustments policy.

Once the apprentice is ready to enter gateway the following must be submitted to progress:

- Gateway form:
  - Confirming any dates the apprentice is unavailable during the EPA period.
  - Advising Accelerate People if the apprentice requires any reasonable adjustments to be made during the EPA.
  - Confirmation signatures that the apprentice is ready for the EPA.
  - The work-based project summary (for AM1).
- Evidence of:
  - Maths and English qualifications at Level 2 or above (or acceptable equivalent as specified in the entry requirements section), **or**
  - Confirmation that the apprentice is exempt from achieving English and Maths qualifications.

- The apprentices completed electronic portfolio (for AM2).

The gateway form along with all documentation must be uploaded before the EPA can commence. Failure to upload any of the required documentation may delay the EPA start date.

Work-based Project Summary

The work-based project proposal title and summary is to be submitted to the EPAO at the gateway:

- The project must have a real business application.
- The project proposal title and summary must include the chosen stakeholder specification, and outline the project plan, including high level implementation steps and associated timeframes, as well as the date the work-based project has to be submitted to Accelerate People.
- The project proposal title and summary should typically be no more than 500 words and is not an assessed element of the EPA.
- Within two weeks of receiving the work-based project title and summary the EPAO will confirm that it is suitable and provides the scope to meet the required assessment criteria.

Knowledge, Skills and Behaviours

There are no mandatory vendor qualifications or knowledge modules for this apprenticeship. Apprentices are expected to be able to demonstrate competence against the assessment criteria specified within the assessment plan. The assessment criteria are based on the following KSBs, which apprentices are expected to be competent in before entering gateway.

Knowledge

K1: All stages of the SDLC (what each stage contains, including the inputs and outputs).

K2: Roles and responsibilities within the SDLC (who is responsible for what).

K3: The roles and responsibilities of the project lifecycle within your organisation, and your role.

K4: How best to communicate using the different communication methods and how to adapt appropriately to different audiences.

K5: 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.

K7: Software design approaches and patterns, to identify reusable off-the-shelf solutions to commonly occurring problems.

K8: Organisational policies and procedures relating to the tasks being undertaken, and when to follow them. For example, the storage and treatment of GDPR sensitive data.

K9: Principles of algorithms, logic and data structures relevant to software development for example; arrays, stacks, queues, linked lists, trees, graphs, hash tables, sorting algorithms, searching algorithms, critical sections and race conditions.

K10: Principles and uses of relational and non-relational databases.

K11: Software designs and functional or technical specifications.

K12: Software testing frameworks and methodologies.

Skills

S1: Create logical and maintainable code.

S2: Develop effective user interfaces.

S3: Link code to data sets.

S4: Test code and analyse results to correct errors found using unit testing.

S5: Conduct a range of test types, such as integration, system, user acceptance, non-functional, performance and security testing.

S6: Identify and create test scenarios.

S7: Apply structured techniques to problem solving, can debug code and can understand the structure of programmes to identify and resolve issues.

S8: Create simple software designs to effectively communicate understanding of the program.

S9: Create analysis artefacts, such as use cases and/or user stories.

S10: Build, manage and deploy code into the relevant environment.

S11: Apply an appropriate software development approach according to the relevant paradigm (for example object oriented, event driven or procedural).

S12: Follow software designs and functional/technical specifications.

S13: Follow testing frameworks and methodologies.

S14: Follow company, team or client approaches to continuous integration, version and source control.

S15: Communicate software solutions and ideas to technical and non-technical stakeholders.

S16: Apply algorithms, logic and data structures.

S17: Interpret and implement a given design whist remaining compliant with security and maintainability requirements.

Behaviours

B1: Works independently and takes responsibility. For example, has a disciplined and responsible approach to risk, and stays motivated and committed when facing challenges.

B2: Applies logical thinking. For example, uses clear and valid reasoning when making decisions related to undertaking work instructions.

B3: Maintains a productive, professional and secure working environment.

B4: Works collaboratively with a wide range of people in different roles, internally and externally to the team, with 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.

B6: Shows initiative and takes responsibility for solving problems within their own remit, being resourceful when faced with a problem to solve.

B7: Communicates 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, techniques and the tenacity to improve methods and maximise performance of the solution and creativity in their approach to solutions.

B9: Committed to continued professional development.

Assessment

AM1: Work-based Project with Questioning

The apprentice will conduct their project and submit an electronic based report to the EPAO after a maximum of nine weeks following EPAO sign-off of the project summary and stakeholder specification. Apprentices will prepare their project report once they have passed the gateway. Following submission of the project, questioning will take place with an independent assessor.

Project Report

Whilst completing the project, the apprentice should be subject to normal workplace supervision.

The project may be based on any of the following:

- A specific problem.
- A recurring issue.
- An idea/opportunity.

The project report has a maximum word limit of 4,500, with a tolerance of plus or minus 10% (anything outside of this will be marked as a failure). Appendices, references, diagrams and/or video clips of up to 10 minutes in length are not included in this total (the video clip must be a file that can be uploaded, not a link to a video). 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 assessment criteria assigned to this method. The project must map (in an appendix) how it evidences the relevant KSBs for this assessment method as per the table below.

As a minimum all project reports must include:

- 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 SDLC which are involved in the project have been evidenced e.g.
  - Planning.
  - Analysis.
  - Design.
  - Implementation/build.
  - Test.
  - Deploy.
  - Maintain.

Questioning

Questioning will involve questions that focus on the content of the project report. It is a structured conversation with an independent assessor and is designed to draw out the best of the apprentice's competence and excellence and covers the assessment criteria assigned to this assessment method.

Key points:

- Questioning will take place online via video conferencing.
- Apprentices will need access to the internet and a working webcam.
- The apprentice must have access to a quiet room and, unless reasonable adjustments have been requested for additional support, be alone in the room.
- Apprentices must have photographic identification (ID) to verify their identity, if they do not produce any ID then the questioning will be cancelled.
- The questioning will last for 60 minutes with the independent assessor having the discretion to increase the time of the questioning by up to 10% to allow the apprentice to complete their last answer.
- A minimum of 12 questions will be asked based on the project report and will be formed based on the evidence and grading requirements in the table below.

- Apprentices are allowed access to their project report throughout the questioning.
- Questions will only be based on the evidence submitted for this assessment method.
- The questioning cannot commence until a minimum of one week after the project report has been submitted.

AM2: Professional Discussion Underpinned by Portfolio

Portfolio

Training providers must work with the employer and apprentice to select the best evidence completed during the whole of the apprenticeship. All evidence should be real work tasks, and be clear, well documented and demonstrate competency against the assessment criteria listed in the assessment plan.

Typically, portfolios will contain ten discreet high-quality tasks covering a range of different assessment criteria in each, although it is expected that there will be overlaps of assessment criteria in each task. Evidence sources may include:

- Written accounts of activities that have been completed.
- Photographic evidence and work products (annotated).
- Work instructions.
- Safety documentation.
- Technical reports.
- Drawings.
- Company policies and procedures as appropriate to the activities.
- Progress review documentation.
- Witness testimonies.
- Feedback from colleagues and/or clients.
- Video clips (maximum total duration 10 minutes); the apprentice must be always in view and identifiable.
- This is not a definitive list; other evidence sources are possible.

Where apprentices have worked on confidential or secure tasks, they should write high level statements about these tasks, but not upload any restricted information or data.

Apprentices should be prepared to discuss further details during the professional discussion.

Any employer contributions should focus on direct observation of performance (for example witness statements) rather than opinions. The evidence provided must be valid and attributable to the apprentice; the portfolio of evidence must contain a statement from the employer and apprentice confirming this.

The portfolio should **not** include any methods of self-assessment or standalone knowledge statements. Any demonstration of knowledge must be in context of a specific work-related task.

Portfolios should be in an electronic format which must be submitted to Accelerate People at gateway. Paper-based portfolios will not be accepted. If an apprentice uploads a video clip this must be a file that can be uploaded with their portfolio. A link to a video will not be accepted and will not be used as part of their evidence.

Professional Discussion

The professional discussion will take place at least two weeks after the portfolio has been accepted at gateway.

- The professional discussion will take place online via video conferencing.
- Apprentices will need access to the internet and a working webcam for the entire duration.
- The apprentice must have access to a quiet room and, unless reasonable adjustments have been requested for additional support, be alone in the room.
- Apprentices must have photographic identification (ID) to verify their identity, if they do not produce any ID then the professional discussion will be cancelled.
- The discussion will last for 60 minutes with the independent assessor having the discretion to increase the time of the questioning by up to 10% to allow the apprentice to complete their last answer.
- A minimum of 12 questions will be asked and will be formed based on the evidence and grading requirements in the table below.
- Apprentices are allowed access to their portfolio throughout the discussion.

Assessment Criteria

AM1: Work-based Project with Questioning

KSBs	Pass Criteria	Distinction Criteria
K2 K6 K9 K11 S1 S4 S6 S7 S10 S11 S12 S16 B2 B3	Explains the roles and responsibilities of all people working within the SDLC, and how they relate to the project. (K2) Outlines how teams work effectively to produce software and how to contribute appropriately. (K6) Outlines and applies the rationale and use of algorithms, logic and data structures. (K9, S16) Reviews methods of software design with reference to functional/technical specifications and applies a justified approach to software development. (K11, S11, S12) Creates logical and maintainable code to deliver project outcomes, explaining their choice of approach. (S1) Analyses unit testing results and reviews the outcomes correcting errors. (S4) Identifies and creates test scenarios which satisfy the project specification. (S6) Applies structured techniques to problem solving to identify and resolve issues and debug basic flaws in code. (S7) Reviews and justifies their contribution to building, managing	Compare and contrast the requirements of a software development team, and how they would ensure that each member (including themselves) were able to make a contribution. (K6) Evaluates the advantages and disadvantages of different coding and programming techniques to create logical and maintainable code. (S1) Analyses the software to identify and debug complex issues using a fix that provides a permanent solution. (S7) Evaluates different software development approaches in order justifying the best alignment with a given paradigm (for example, object oriented, event driven or procedural). (S11)

KSBs	Pass Criteria	Distinction Criteria
	and deploying code into the relevant environment in accordance with the project specification. (S10) Establishes a logical thinking approach to areas of work which require valid reasoning and/or justified decision making. (B2) Describes how they have maintained a productive, professional and secure working environment throughout the project activity. (B3)	

AM2: Professional Discussion Underpinned by Portfolio

KSBs	Pass Criteria	Distinction Criteria
K1 K3 K4 K5 K7 K8 K10 K12 S2 S3 S5 S8 S9 S13 S14 S15 S17 B1 B4 B5 B6 B7 B8 B9	Describes all stages of the software development lifecycle. (K1) Describes the roles and responsibilities of the project lifecycle within their organisation, and their role. (K3) Describes methods of communicating with all stakeholders that is determined by the audience and/or their level of technical knowledge. (K4, S15) Describes the similarities and differences between different software development methodologies, such as Agile and Waterfall. (K5)	Compares and contrasts the different types of communication used for technical and non-technical audiences and the benefits of these types of communication methods. (K4, S15, B7) Evaluates and recommends approaches to using reusable solutions to common problems. (K7) Evaluates the use of various software testing frameworks and methodologies and justifies their choice. (K12)

KSBs	Pass Criteria	Distinction Criteria
	Suggests and applies different software design approaches and patterns, to identify reusable solutions to commonly occurring problems (include Bespoke or off-the-shelf). (K7)	
	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. (K8 S14)	
	Applies the principles and uses of relational and non-relational databases to software development tasks. (K10)	
	Describes basic software testing frameworks and methodologies. (K12)	
	Explains, their own approach to development of user interfaces. (S2)	
	Explains, how they have linked code to data sets. (S3)	
	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. (S5, S13)	
	Creates simple software designs to communicate understanding of the	

KSBs	Pass Criteria	Distinction Criteria
	programme to stakeholders and users of the programme. (S8)	
	Creates analysis artefacts, such as use cases and/or user stories to enable effective delivery of software activities. (S9)	
	Explains, how they have interpreted and implemented a given design whilst remaining compliant with security and maintainability requirements. (S17)	
	Describes, how they have operated independently to complete tasks to given deadlines which reflect the level of responsibility assigned to them by the organisation. (B1)	
	Illustrates how they have worked collaboratively with people in different roles, internally and externally, which show a positive attitude to inclusion & diversity. (B4)	
	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. (B5)	
	Illustrates their approach to meeting unexpected minor changes at work and outlines their approach to delivering within their remit using their initiative. (B6)	
	Explains how they have communicated effectively in a	

KSBs	Pass Criteria	Distinction Criteria
	variety of situations to both a technical and non-technical audience. (B7) Illustrates how they have responded to the business context with curiosity to explore new opportunities and techniques with tenacity to improve solution performance, establishing an approach to methods and solutions which reflects a determination to succeed. (B8) Explains how they reflect on their continued professional development and act independently to seek out new opportunities. (B9)	

Grading

Each assessment method is graded individually and combined to give an overall grade. Assessment criteria do not appear in more than one assessment method, therefore assessment criteria failed in one assessment method cannot then be demonstrated in the other assessment method. All EPA methods must be passed for the EPA to be passed overall.

Grades from individual assessment methods should be combined in the following way to determine the grade of the EPA as a whole:

Work-based Project with Questioning	Professional Discussion underpinned by Portfolio	Overall Grading
Fail	Any grade	**Fail**
Any grade	Fail	**Fail**
Pass	Pass	**Pass**
Pass	Distinction	**Merit**
Distinction	Pass	**Merit**
Distinction	Distinction	**Distinction**

Re-sits and Re-takes

Apprentices who fail one or more assessment method will be offered the opportunity to take a re-sit or a re-take at the employer's discretion. The apprentice's employer will need to agree that either a re-sit or re-take is an appropriate course of action.

A re-sit does not require further learning, whereas a re-take does. Apprentices should have a supportive action plan to prepare for a re-sit or a re-take.

An apprentice who fails one or more assessment methods, and therefore the EPA in the first instance, will be required to re-sit or re-take the failed assessment method(s) only.

The timescales for a re-sit/re-take are agreed between the employer and EPAO. 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.

All assessment methods must be taken within a six-month period, otherwise the entire EPA will need to be re-sat/re-taken.

Re-sits and re-takes are not offered to apprentices wishing to move from pass to a higher grade.

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

Specimen

All specimen materials can be accessed by registered training providers from the knowledge area on ACE360.

Accelerate People

Accelerate People are an independent EPAO. If you have any questions or queries relating to this qualification specification or EPA, please contact us using the details below.

Registered training providers with Accelerate People can access further guidance material on the knowledge base on ACE360.

Contact Details

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