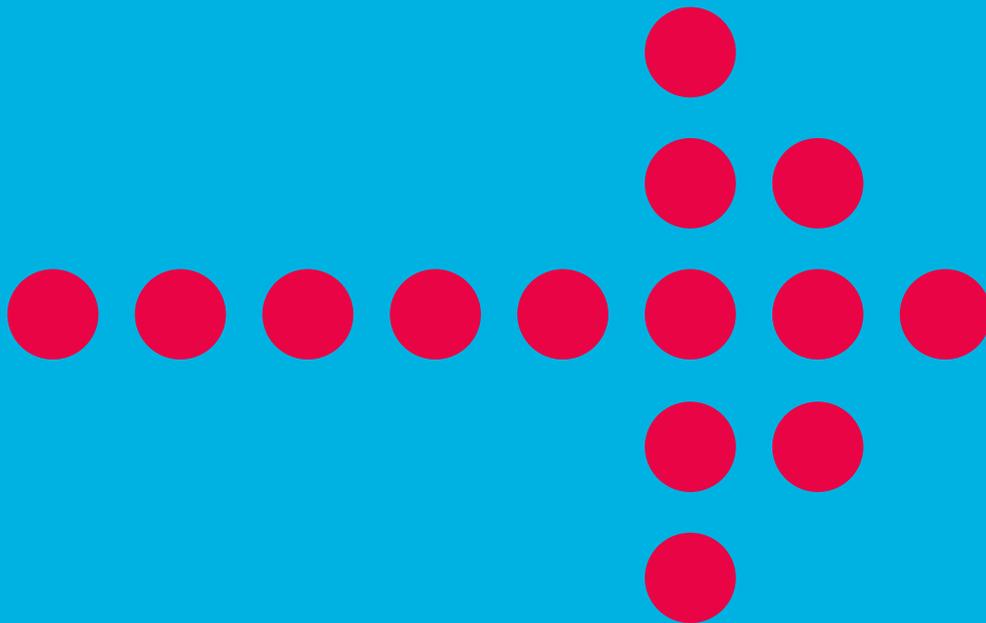


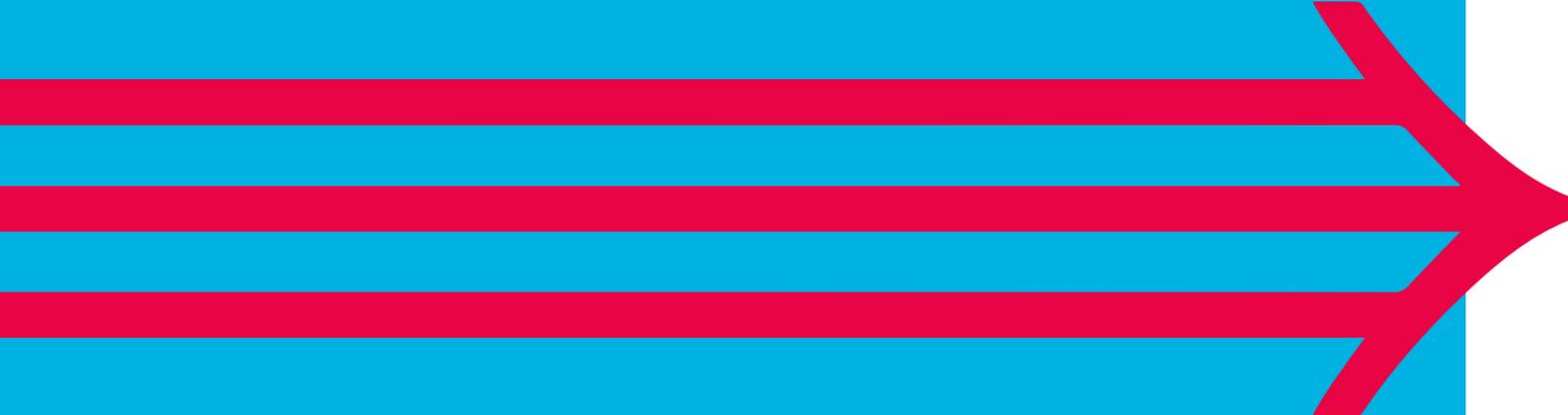


**Software Development
Technician Apprenticeship
Level 3**

**A Digital by Design
Programme**



PROGRAMME GUIDE



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What does “Digital by Design” mean?

It means a greater focus on online learning together with using face-to-face interaction where it adds the most value for learners.

It means that there is a single learner journey which brings teaching, coaching, learning and assessment into a single, repeatable flow for every module.

It means that there is a clear focus from the beginning of the programme on successful completion of the End Point Assessment.

In Digital by Design, these three elements will work together:

- The Content
- The Service and Support
- The Technology

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ROLE PROFILE

Software Development Technician

Software Development Technicians typically work as part of a software development team, to build simple software components (whether web, mobile or desktop applications) to be used by other members of the team as part of larger software development projects.

They will interpret simple design requirements for discrete components of the project under supervision. The approach will typically include implementing code, which other team members have developed, to produce the required component.

The Software Development Technician will also be engaged in testing that the specific component meets its intended functionality.

Software development technicians need:

- Strong analytical and mathematical skills
- A methodical, step-by-step approach to resolving issues
- Business skills like effective communication, teamwork and task/time management
- The adaptability to do a range of work—sometimes complex and non-routine—in different environments
- The ability to work under direction, use discretion and determine when to escalate issues

JOB ROLE SUITABILITY

To help you determine whether a candidate (a new hire or existing employee) will be working in a suitable job role to successfully complete this programme, you must be able to answer “yes” to the following questions.

Will they be doing a full time technical role revolving around coding and programming?

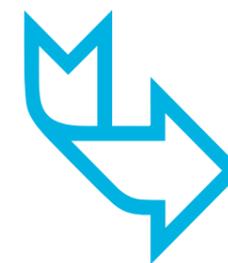
Will they be involved with working with databases and connecting to databases?

Will they be working on software development projects and tasks?

Will they be involved with basic testing of code?

Will they be actively writing code in at least one programming language?

Will they be involved with basic user interface design?



Speak to your Account Manager for more advice on eligibility and job role/existing staff suitability for this programme.

QUALIFICATIONS EARNED

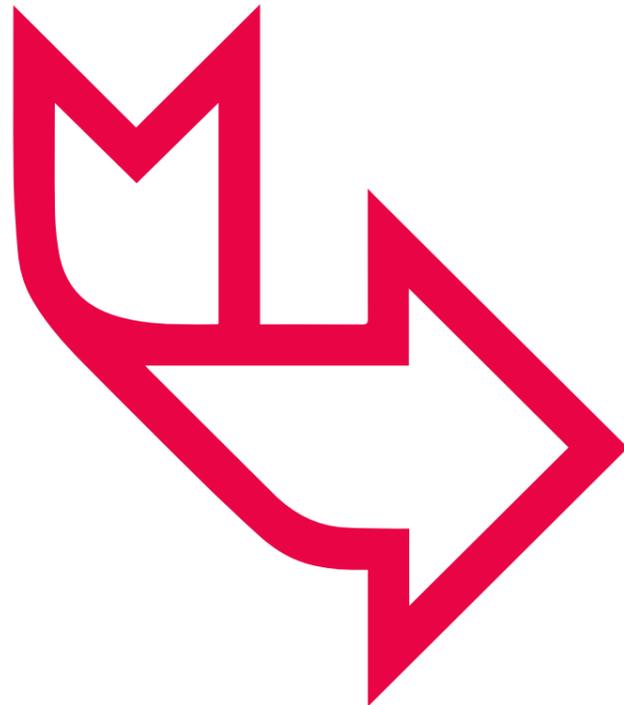
When they achieve this apprenticeship, learners will earn the following qualifications:

- **BCS Certificate in Software Development Context and Methodologies**
- **BCS Certificate in Programming**
- **Level 3 Software Development Technician apprenticeship**

Evidencing 20% off-the-job learning

We are the apprenticeship experts and can help advise you on how best to do this.

Our programme facilitates off-the-job learning, it's been developed with online learning and on-the-job learning, as well as classroom training. This 20% must be done in working hours.



DISCOVER, PRACTICE AND APPLY

Discover, practice and apply are the three pillars of apprenticeship learning.

No matter what part of the apprenticeship a learner is on, discover, practice and apply are combined into each activity.

Discover

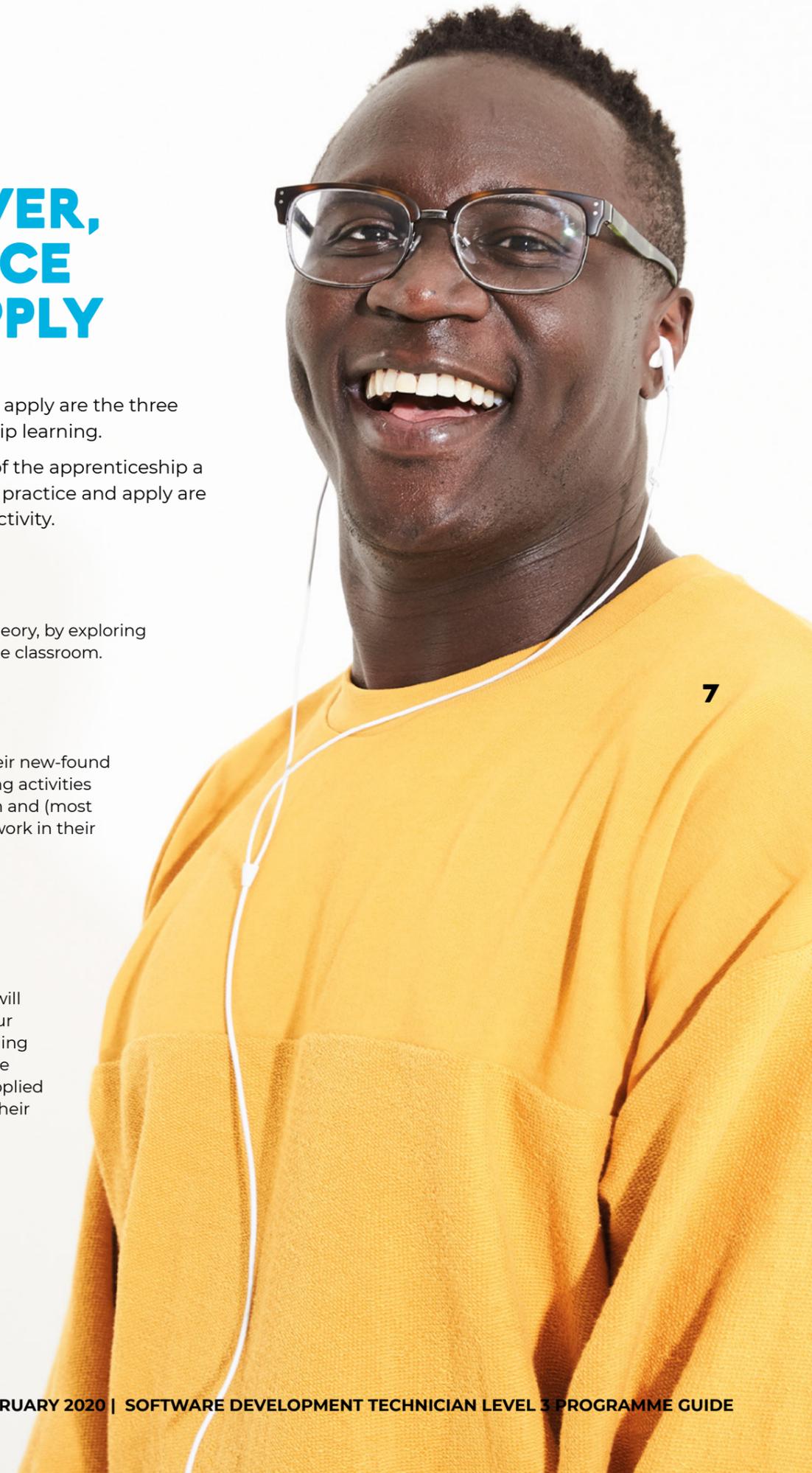
Learners will learn the theory, by exploring subjects online and in the classroom.

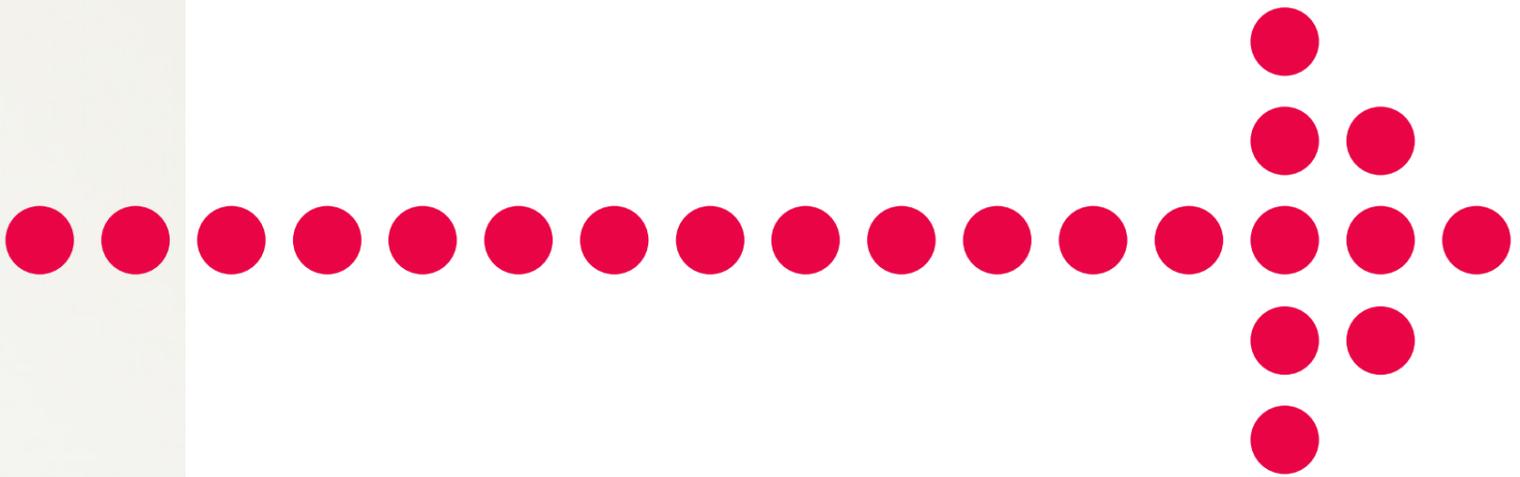
Practice

Learners will practice their new-found knowledge by completing activities - online, in the classroom and (most importantly) directly at work in their day-to-day role.

Apply

Learners will apply what they've discovered and practiced at work. They will actively contribute to your organisation whilst building their portfolio of evidence (showing how they've applied their new skills) to gain their qualification.





INTRODUCING... DIGITAL LEARNING CONSULTANTS

In the new world of apprenticeships, learners will be taken through their programme by a team of people called Digital Learning Consultants (they're subject matter experts).

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On-programme support:

- **3, 2, 1...launch!** Structured programme launch tailored to the learner and focussed on learning, engagement and setting expectations.
- **More help for learners.** Any Digital Learning Consultant can support any learner - so no waiting around for a specific person to be available (this is called a many-to-many approach).
- **Digital first.** Using digital, you're connected to help. Face-to-face visits are only arranged when specific help is required.
- **Faster.** We provide feedback on submissions within 24 hours, and within 4 hours for re-submissions.
- **Group sessions.** There are still regular, planned group guidance sessions to get the benefit of working with others.
- **EPA Readiness.** EPA readiness. We check in regularly, with planned EPA readiness checks that demonstrate distance travelled through the apprenticeship and highlight areas for development.
- **Data driven.** We proactively monitor data to identify learners at risk of falling behind. We take action to re-engage them with their apprenticeship to make sure they stay on track to achieve and remain on the programme.
- **Right learner, right role, right time.** We develop a 5-week initial support plan to make sure the right learner is in the right role at the right time. This is essential to success.



THE APPRENTICESHIP PROGRAMME

Software Development Technician Level 3

This apprenticeship is typically 15 months long (although some learners may finish in less time if their end-point assessment (EPA) is completed quickly).

This flowchart shows how learners progress through the apprenticeship.

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GETTING PRODUCTIVE MONTHS 1-3

Learners enrol in the programme and begin their accelerated learning into programming modules.

TECHNICAL MODULES MONTHS 4-12

Learners work through three modules, which include online learning material on a virtual learning environment, classroom sessions, and applying the learning hands-on in their job.

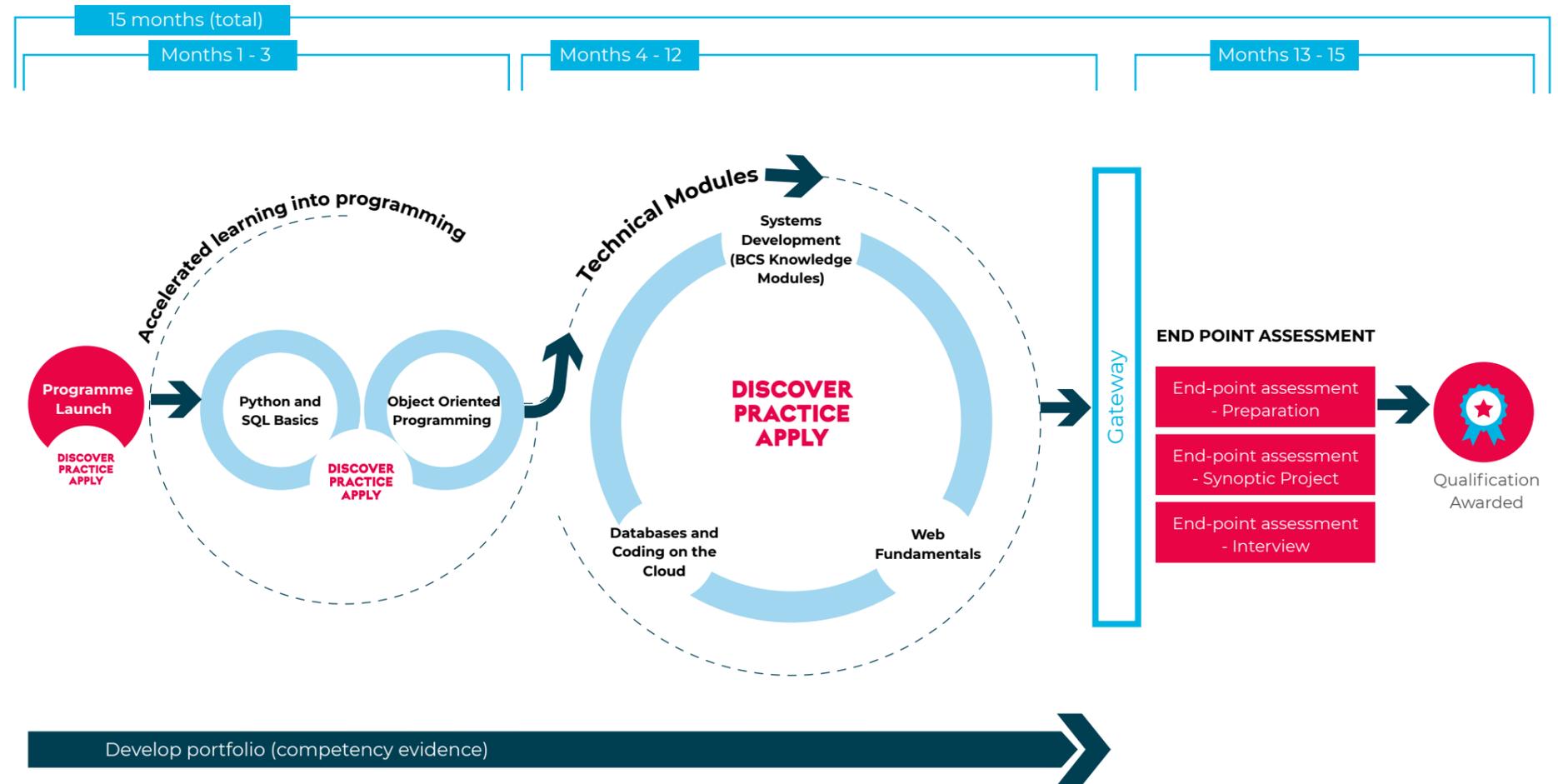
Learners will also build their portfolio and have regular check-ins a Digital Learning Consultant (DLC) and their line manager.

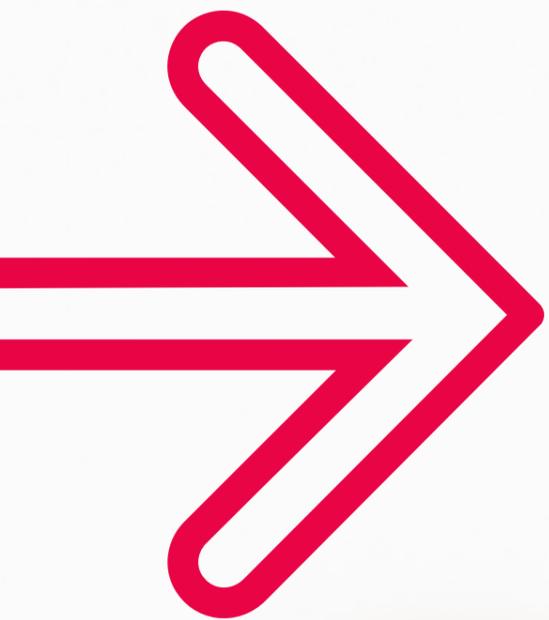
GATEWAY 3 MONTHS BEFORE LEARNER'S TARGET END DATE

Learners will pass through the 'gateway' stage when: all knowledge modules are complete; functional skills or exemptions are confirmed; and their portfolio and employer reference are almost ready.

EPA MONTHS 13-15

Learners complete their EPA (including the synoptic project and interview).





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ACCELERATED LEARNING INTO PROGRAMMING MODULES



Productive at 12 weeks

- 8 weeks training
- 4-week final work-place project



Learn like a developer

- Practical, hands on labs
- Learn by solving problems



Relevant technology stack

- Cloud IDEs
- Github

Module 1:

Python and SQL Basics

This module introduces learners to Python as their first programming language. Learners will then explore the SQL programming language and basic commands. They will do so by:

- Understand and write Python and SQL commands
- Understand control flow, lists and functions
- Explore debugging techniques
- Explore data and databases
- Collaborating on Github

After the module learners can continue to practice their Python programming skills online.

Module 1 and 2 have a combined duration: 12 weeks

Classroom attendance: 5 days

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Module 2:

Object Oriented Programming

This module introduces learners to Object Oriented Programming techniques using both Java and C# syntax. Learners will spend their time completing practical labs online and in the classroom. By doing so, they will:

- Java and C# syntax
- Create and used classes
- Constructors
- Inheritance
- Abstract classes and interfaces
- Static fields
- Testing

After this module, learners will put their new-found knowledge into action at work, progressing their learning online.

Module 1 and 2 have a combined duration: 12 weeks

Classroom attendance: 10 days

TECHNICAL MODULES

The technical modules focus on the knowledge and skills required of an Software Development Technician in detail. After each module learners will 'apply' what they've learned at work on current projects.

Module 3:

Web Fundamentals

This module introduces learners to writing simple scripts and builds using the JavaScript framework. Learners will also delve into HTML and CSS for web applications. In summary, learners will:

- Write a simple HTML page to display static data
- Use simple CSS to change the look and feel of a page
- Building responsive web applications
- Client side code using JavaScript.
- Data Structures
- Programme control
- Learners can explore React.js, Angular.js and Node.js later

After this module, learners will put their new-found knowledge into action at work, progressing their learning online.

Module duration: 8 weeks

Classroom attendance: 5 days

Module 4:

Systems Development

In this module learners explore the software development lifecycle including systems design, modelling and specifications.

There will be two exams for the learners to attempt, these are BCS Certificate in Software Development Context and Methodologies and BCS Certificate in Programming. This module will include:

- Software Development Lifecycle
- Software Development Methodologies
- Team Roles and Responsibilities
- Business Context and Market Environment
- Implementing Code
- Integrating Code
- Requirements
- End-User Context
- Data Sources
- Security

After this module, learners will put their new-found knowledge into action at work, progressing their learning online.

Module duration: 8 weeks

Classroom attendance: 5 days

Module 5:

Databases and Coding on the Cloud

This module introduces learners to the concept of Microservices and cloud services. Learners will further explore databases and gain the skills to embed data queries into code. This includes:

- The cloud
- API
- Microservices
- Data Modelling
- Normalisation
- Performance
- Database objects
- SQL Server

After this module, learners will put their new-found knowledge into action at work, progressing their learning online.

Module duration: 8 weeks

Classroom attendance: 5 days

Module 6: Consolidate End Point Assessment Preparation (Virtual)

In the last three months of the apprenticeship, learners will focus on preparing for the EPA. They'll be supported by the Digital Learning Consultant (DLC).

Learners will:

- Submit their portfolio
- Submit the final employer reference
- Complete their synoptic project
- Compete their interview

Discover

- Online content about the EPA, and the components it includes

Practice

- Refine and consolidate final portfolio and employer reference.
- Present options for the EPA synoptic project (which is case-study based) to the DLC. They will discuss if it's a suitable example, and refine the workplace activity to use at EPA.
- Prepare for, and conduct a mock EPA with the DLC.

Apply

- 'Apply' in this module is the EPA itself - learners will apply their knowledge to pass their EPA. This includes submitting their portfolio and employer reference.

Module duration: 1 week



COMPETENCY STANDARDS

As well as being assessed on their technical knowledge, apprentices are also assessed on their ability to demonstrate the following more advanced competencies through their portfolio and interview. This ensures balanced development – as the competency standards provide a greater emphasis on the importance of both technical and soft skills relevant to their role in the workplace. The DLC will help apprentices build their portfolio and record these skills throughout the programme.

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LOGIC

Follow an appropriate logical approach.
Understand the context for the development platform.
Understand how code integrates to the wider project.
Understand how to follow a set of functional and non-functional requirements.

DEVELOPMENT SUPPORT

Apply industry standard approaches to manage code.
Understand there are different methodologies for software development.

DEVELOPMENT LIFECYCLE

Support build and test stages.
Understand all stages of the lifecycle.

SECURITY

Apply appropriate secure development principles.
Understand the importance of building in security at the development stage.

DATA

Make connections between code and defined data sources.
Understand database normalisation.

DATA

Follow good coding practices.
Understand configuration management and version control.
Understand why there is a need to follow good coding practices.

BUSINESS SKILLS

Operate appropriately in their own business, their customers' and the industry's environments.
Understand the business context.
Understand their role within the development team.

TEST

Understand how to test code.
Carry out functionality tests.

PROBLEM SOLVING

Solve logical problems and seek assistance when required.

USER INTERFACE

Develop appropriate to the organisation's standards and the type of component being developed.
Understand the end user context for the activity.
Understand the principles of good interface design.

ANALYSIS

Follow basic analysis models.

COMMUNICATION

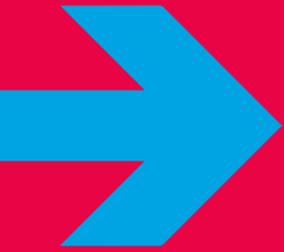
Communicate clearly to a variety of stakeholders.

SKILLS AND BEHAVIOURS

Apprentices will also need to show they have demonstrated the following skills and behaviours in their role:

- Logical and creative thinking skills
- Problem solving skills
- Work independently and take responsibility
- Use own initiative
- Take a thorough and organised approach
- Work with a range of internal and external people
- Communicate effectively in a variety of situations
- Maintain a productive, professional and secure working environment

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HOW TO GET READY FOR THE END-POINT ASSESSMENT

We want to deliver memorable learning experiences, whilst developing learners with well-rounded skill sets - ready to meet their professional requirements.

To make sure we achieve this goal consistently, it's important for learners, DLCs and employers to work together. We all need to support learners to succeed in their third-party end-point assessment (EPA).

In this section, we've included some guidelines - acting as a framework to achieve consistency.

Preparing for the EPA starts from day one of the apprenticeship.

STAYING ON-TRACK THROUGHOUT THE PROGRAMME

The EPA preparation starts as soon as each new learner joins a programme. All its components will support the learner to develop the necessary technical knowledge, skills, and behaviours to confidently meet, or exceed, all the requirements specified in the standard.

For this reason, it is very important to keep learners, DLCs and employers informed about the expected programme progress plan. It's critical all of the above works together for the programme to be successful. And to make sure that each learner is kept on-track to avoid further interventions (and time commitment) whenever possible.

To help learners with this, we have created two guiding documents – a programme timeline, and a progress review map – so progress can be checked against it, at any time. Any progress deviations above 20% will be reviewed on a case-by-case basis. This is to ensure the apprenticeship is progressing in a timely manner.

HOW THE EPA IS GRADED

After the EPA interview, the assessor will make a holistic judgement of the apprentice's performance across all four assessment methods based on three criteria:

1

WHAT

What has been learned

2

HOW

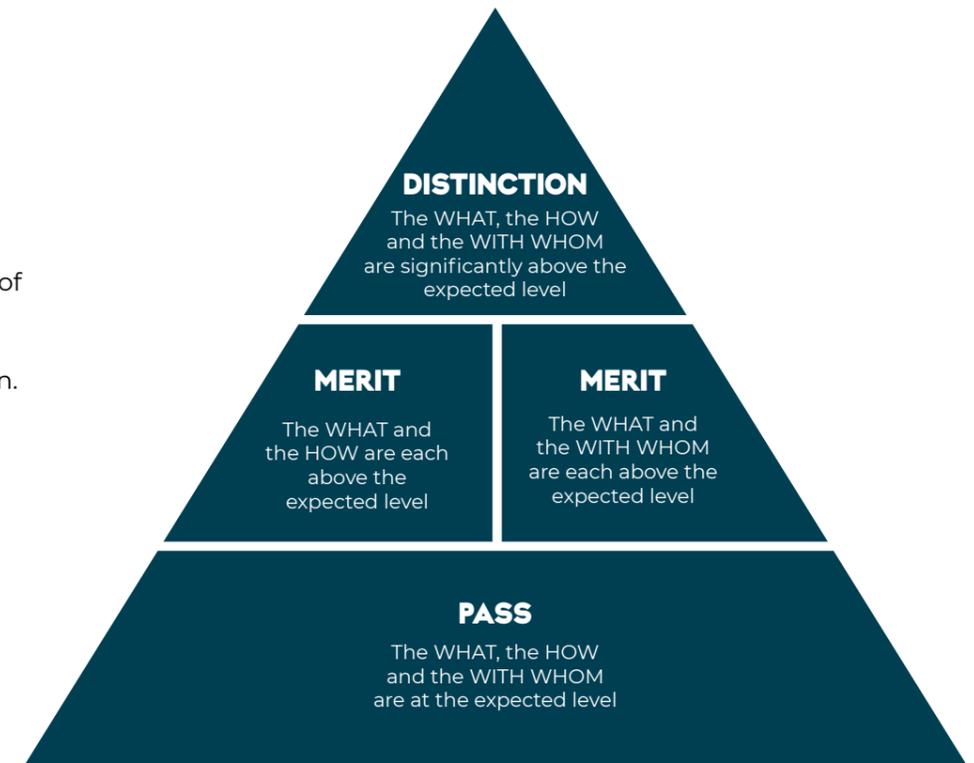
The way the work was done

3

WITH WHOM

The personal and interpersonal qualities brought to working relationships

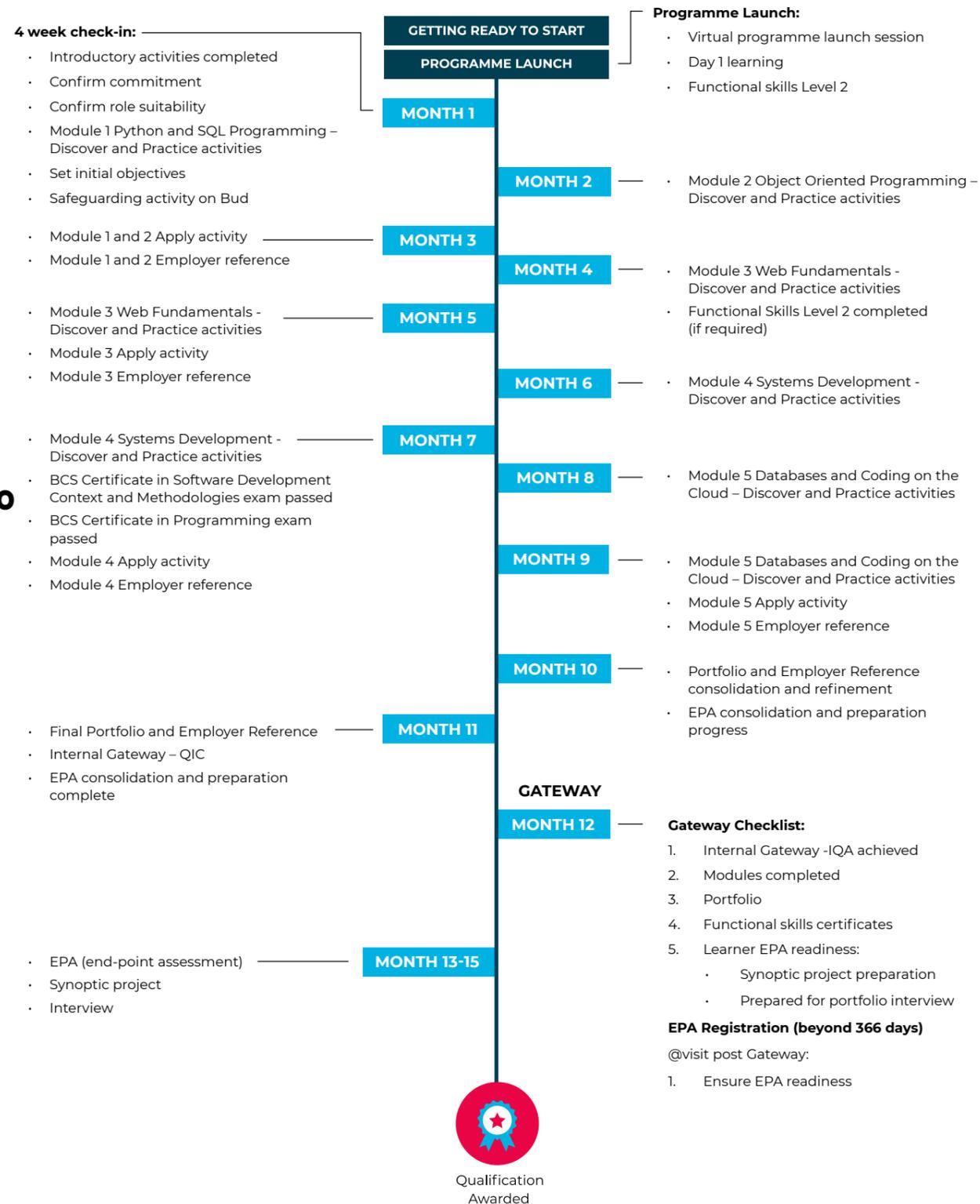
The learner will receive a single grade for their entire apprenticeship: **Pass, Merit or Distinction.** For an in-depth understanding of grading, please refer to the assessment plan.



THE LEARNER'S JOURNEY

Software Development Technician L3

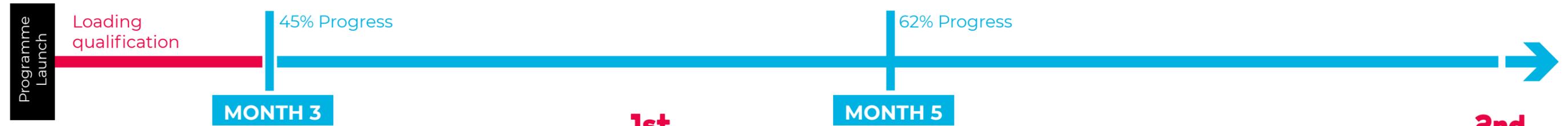
Programme timeline | Duration: 15 Months | Gateway: 12 Months



THE LEARNER'S JOURNEY

Software Development Technician L3

Progress review map | Duration: 15 Months | Gateway: 12 Months



This programme guide gives an estimate of progress and indicates the potential performing grade of the apprenticeship.

QA does not formally grade the apprenticeship, this is the responsibility of the end-point assessment organisation.

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MONTH 3		1st	
Completion by the end of month 3	Completion %		
Python and SQL Basics - Completed all Discover and Practice activities	14%		
Object Oriented Programming - Completed all Discover and Practice activities	23%		
Completed Apply activity 2.3	8%		
Employer Reference entry	Completed		
Safeguarding module	Completed		

By the end of month 3:	
A learner should have completed 45% of their programme	
Is the learner on track?	YES: The learner has completed 45% or more ● NO: The learner is between 0-44% ●
In addition, the learner is currently (*) performing at the following level:	Distinction ● Merit ● Pass ● Fail ●

MONTH 5		2nd	
Completion by the end of month 5	Completion %		
Web Fundamentals – Completed all Discover, Practice and Apply activities	17%		
Employer Reference entry	Completed		
Functional Skills Math L2 - Exemption/Exam	Completed		
Functional Skills English L2 - Exemption/Exam	Completed		

By the end of month 5:	
A learner should have completed 62% of their programme	
Is the learner on track?	YES: The learner has completed 59-62% ● NO: The learner is between 46-58% ● NO: The learner has completed less than 45% ●
In addition, the learner is currently (*) performing at the following level:	Distinction ● Merit ● Pass ● Fail ●

(*) Past results are not indicative of future performance.

80% PROGRESS

MONTH 7 **3rd**

Completion by the end of month 7	Completion %	
Systems Development - Completed all Discover, Practice and Apply activities	16%	
Employer Reference entry	Completed	
Exam passed – BCS Certificate in Software Development Context and Methodologies	1%	
Exam passed – BCS Certificate in Programming	1%	

By the end of month 7:		
A learner should have completed of their programme 80%		
Is the learner on track?	YES: The learner has completed 77-80%	●
	NO: The learner is between 63-76%	●
	NO: The learner has completed less than 62%	●
In addition, the learner is currently (*) performing at the following level:	Distinction	●
	Merit	●
	Pass	●
	Fail	●

96% PROGRESS
+ Gateway registration

MONTH 9 **4th**

Completion by the end of month 9	Completion %	
Databases and Coding on the Cloud - Completed all Discover, Practice and Apply activities	16%	
Employer Reference entry	Completed	

By the end of month 9:		
A learner should have completed of their programme 96%		
Is the learner on track?	YES: The learner has completed 93-96%	●
	NO: The learner is between 81-92%	●
	NO: The learner has completed less than 80%	●
In addition, the learner is currently (*) performing at the following level:	Distinction	●
	Merit	●
	Pass	●
	Fail	●

100% PROGRESS

MONTH 11 **4th**

Completion by the end of month 11	Completion %	
PA Consolidation and Preparation – portfolio - completed final consolidation of the full portfolio	4%	

By the end of month 11:		
A learner should have completed of their programme 100%		
Is the learner on track?	YES: The learner has completed 100%	●
	NO: The learner is between 96-99%	●
	NO: The learner has completed less than 96%	●
In addition, the learner is currently (*) performing at the following level:	Distinction	●
	Merit	●
	Pass	●
	Fail	●

GATEWAY

MONTH 12 **5th**

Completion by the end of month 12	Completion %	
Gateway checklist	Completion	
EPA Registration	Completion	

By the end of month 12:		
Has the learner been EPA registered?	YES	●
	NO	●

(*) Past results are not indicative of future performance.

END-POINT ASSESSMENT



Qualification
Awarded

MONTH 13

MONTH 14

MONTH 15

6th

7th

8th

Completion by the end of month 13		Completion %	Completion by the end of month 14		Completion %	Completion by the end of month 15		Completion %
Synoptic Project submitted to BCS	Completion		Interview	Completion		Result from BCS	Completion	
Initiate interview preparation	Completion							
By the end of month 13:								
Has the learner completed the Synoptic Project?	YES	●						
	NO	●						



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