QA

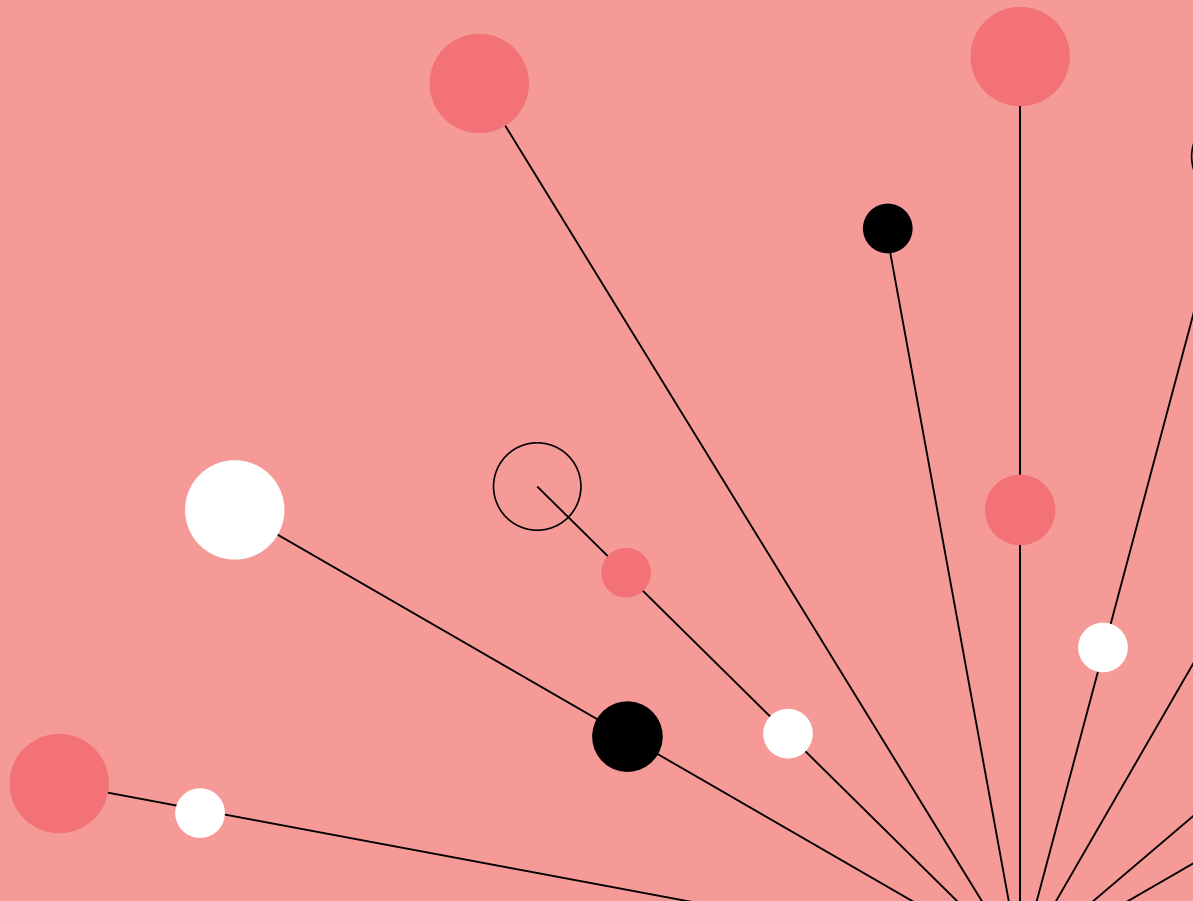
Learn. To Change.

Apprenticeships England

Software Engineer

Level 4 Apprenticeship

Programme Guide



QA.com

Why QA?

Endorsed by 4,000+ global clients, we are the leader in applied and cohort-based learning academies.

Today's biggest technological shifts are shaped by AI, cloud, and data.

In every technology revolution, there are winners and losers – and teams with applied skills make all the difference. We believe you can't change an organisation unless you change the capabilities of its people and ensure human and machine intelligence work together.

Success in numbers:

35+
Years of training experience

1,000+
AI, cloud & coding hands-on labs

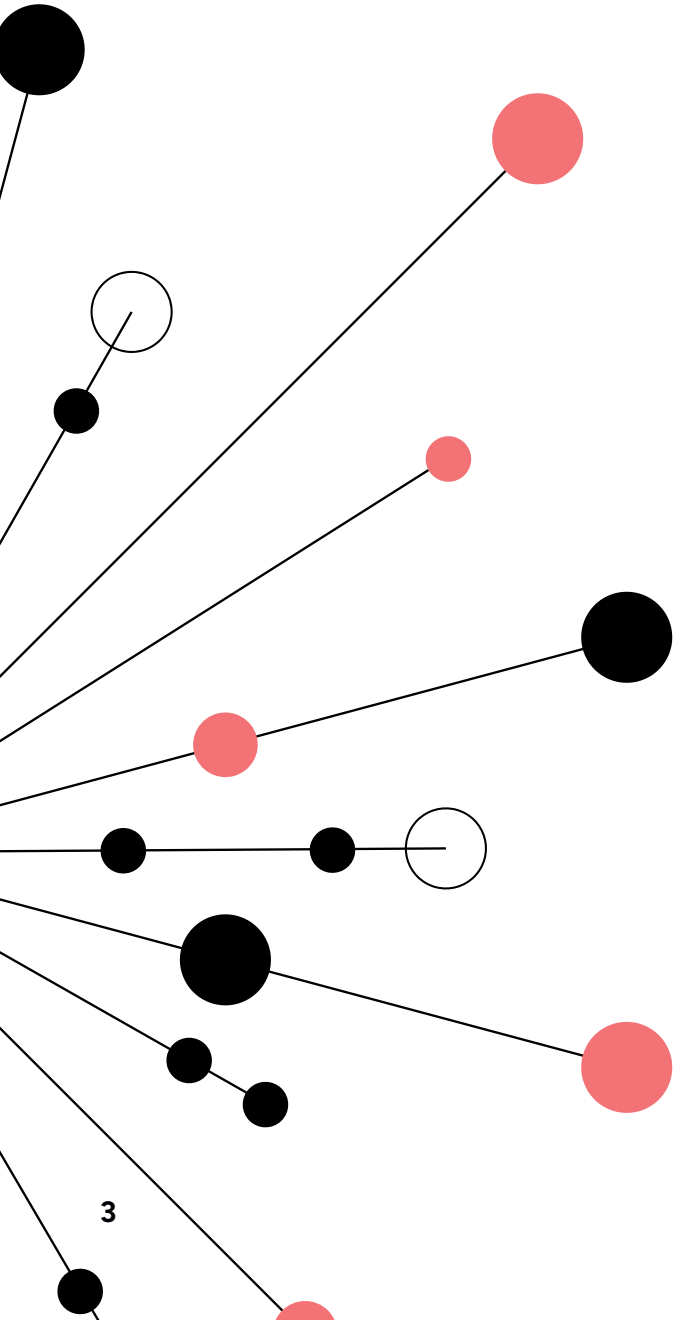
40,000+
Careers launched & accelerated

£500M+
Levy spend invested

24 hours
Feedback time for submissions

<1 minute
Response time to learner queries

Ready to explore how QA can support you?
Let's dive in!



Contents

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Creating Change

Software engineering turns visionary ideas into innovative, seamless digital solutions.

This programme equips your organisation with essential skills for the software development lifecycle, enabling effective product planning and development through agile frameworks, while fostering expertise in both back-end and front-end applications.

Our apprenticeships drive business results by empowering organisations to apply skills consistently at speed and scale.

Upgrade Software Engineering

Transform customer requirements into precise technical specifications that meet both functional and non-functional needs.

Diversify Software Team

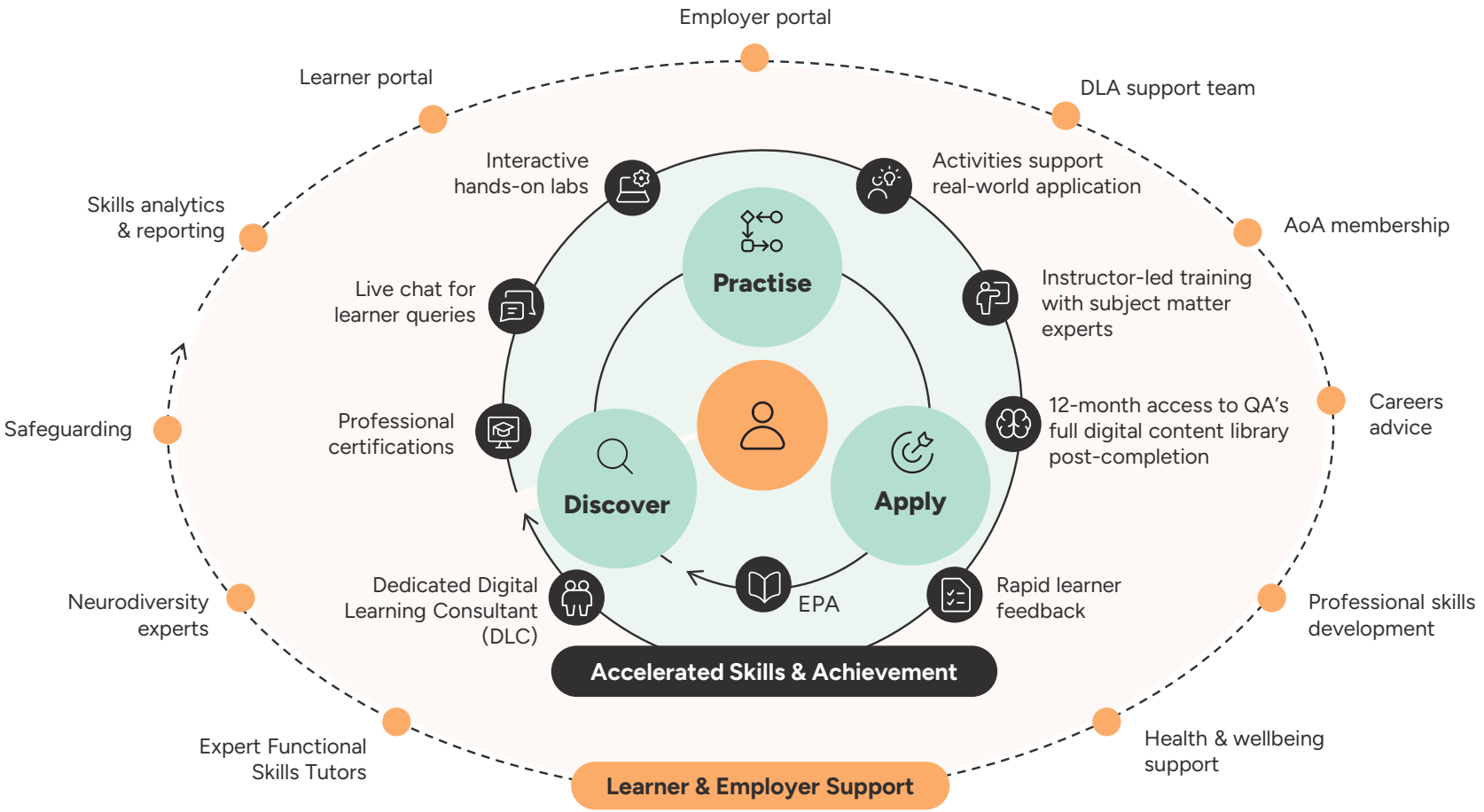
Cultivate a diverse team to optimise software products and drive innovation for superior project outcomes.

Digitally Transform

Integrate theory with hands-on training to empower teams to develop high-quality solutions throughout the software development lifecycle.

Digital by Design

Our market-leading approach accelerates skill development and achievement through our **Discover**, **Practise**, **Apply** methodology, ensuring that both learners and employers are fully supported throughout their programme.



Discover

Leveraging QA's learning platform, learners follow a development path focused on their job role.

Practise

Learners come together for instructor-led training sessions, practising their skills through hands-on labs and sandboxes in a safe environment while collaborating with peers.

Apply

These practiced learnings are applied on the job through work-based activities at key and sequenced stages, fully supported and reviewed by the specialist DLC team.

Programme Overview

Details of standard: Software Developer

Total cost: £18,000

Programme duration: 19 months

Live instructor sessions: 25 days

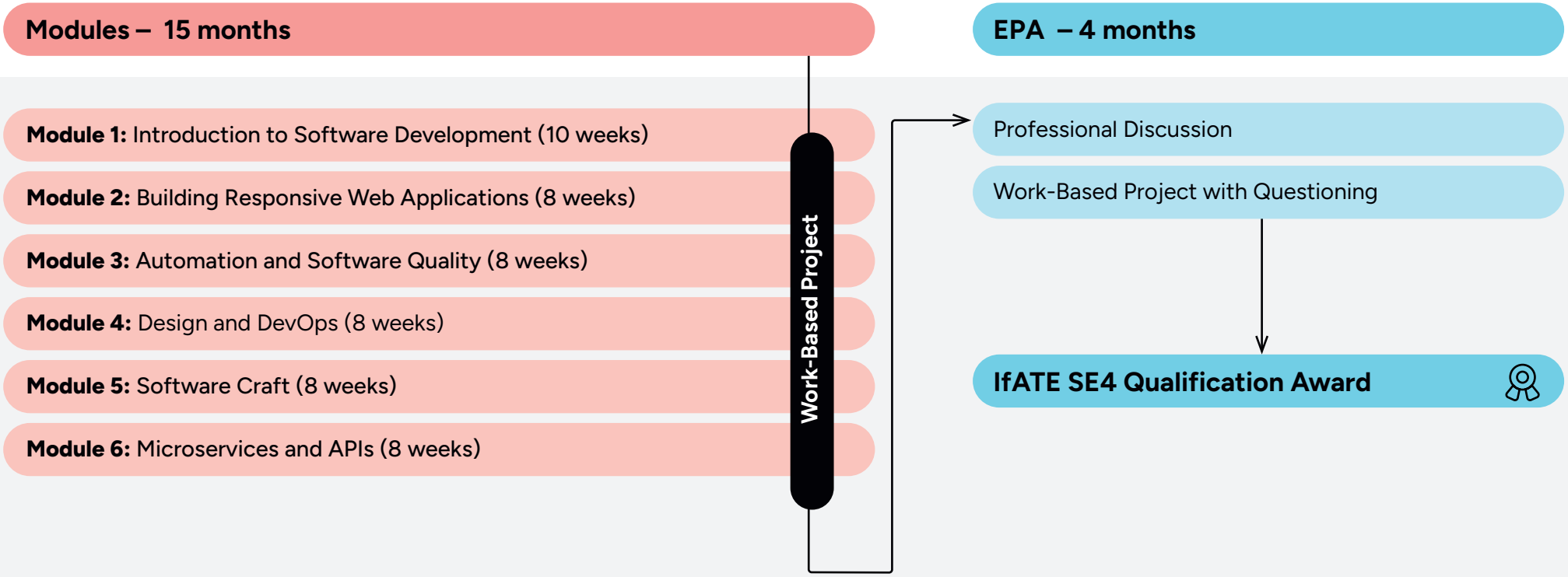
Experience QA's self-paced learning platform with interactive labs and configurable learning.

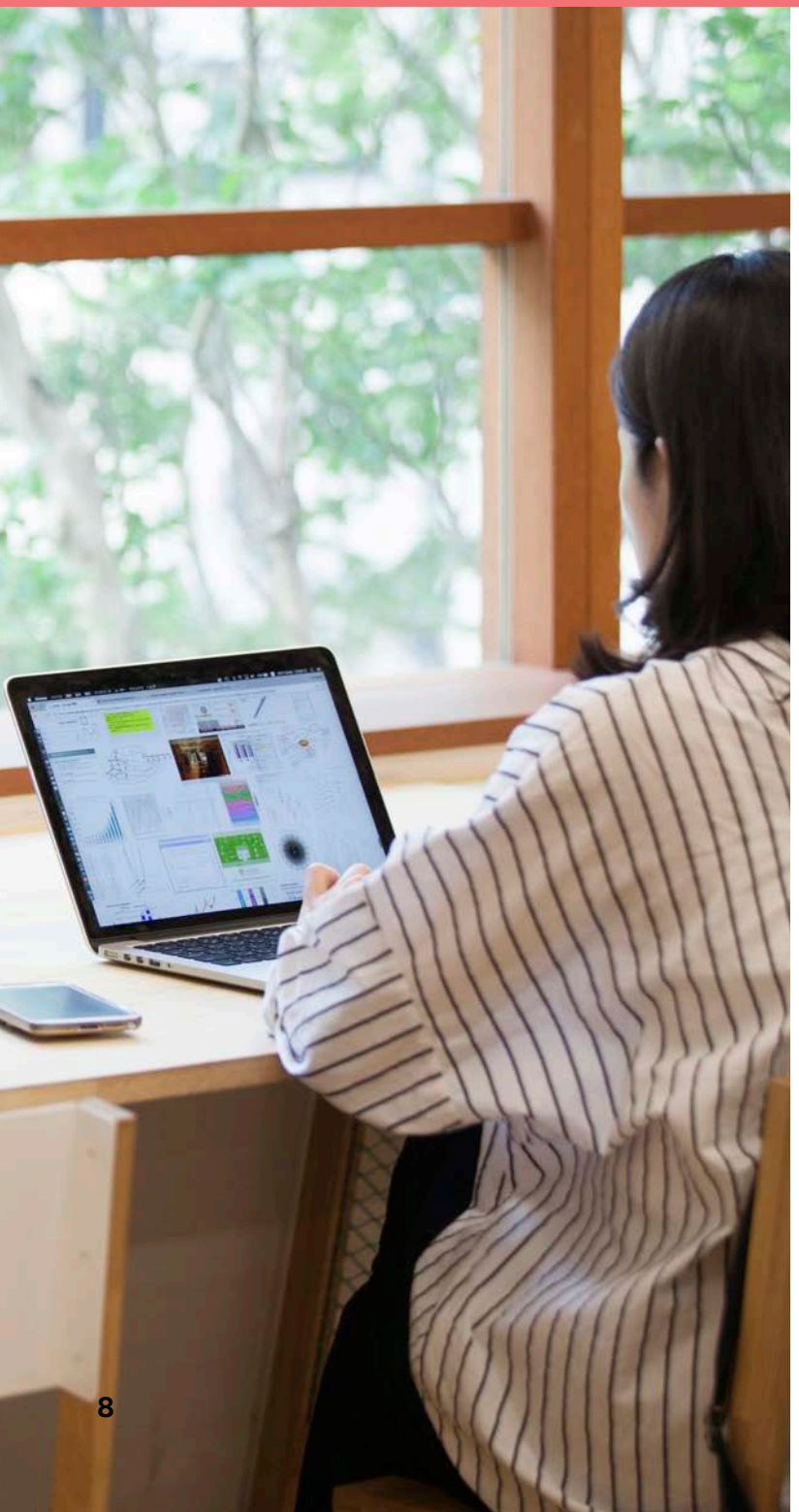
- Introduction to Software Development
- Building Responsive Web Applications
- Automation and Software Quality
- Design and DevOps
- Software Craft
- Microservices, and APIs

Learner Journey

The Software Engineer programme integrates live and online workshops with self-paced learning, employing a guided discovery approach for individual learner contexts.

Learners are assigned a Digital Learning Consultant (DLC) for personalised coaching and support. These specialists ensure their successful progress, wellbeing, and readiness for assessments





Modules

Following each module, learners apply their newly acquired knowledge and skills to ongoing work projects.

01

Module 1:
Introduction to Software Development

This accelerated bootcamp provides essential programming and software design skills for developing front and back-end software applications.

The hands-on labs enhance practical applications, collaboration, and security using a range of tools to effectively address real-world business challenges.

Topics:

- Python Programming Basics
- Java Programming & Object-Oriented Programming (OOP)
- Web Development (HTML, CSS & JavaScript)
- Version Control with Git
- Integrating Python with SQL for Data-Driven Applications
- Algorithms & Data Structures
- Software Patterns & Secure Development Practices
- Mathematics & Computational Thinking
- Fundamentals of Agile & Kanban

Live Instructor Sessions: 12 Days

02

Module 2:
Building Web Responsive Applications

Delves into advanced web development techniques for creating responsive, dynamic applications that deliver seamless and engaging user experiences across all devices.

Topics:

- Responsive Development Practices (HTML5, CSS3)
- JavaScript Frameworks (Node.js, ReactJS)
- User Interface Development
- Coding & Logic
- Single-Page Applications (SPAs) & Routing
- Building a To-Do App in JavaScript

Live Instructor Sessions: 3 Days

03

Module 3:
Automation and Software Quality

Explores the critical role of testing in software development, focusing on both manual and automated testing using Selenium to ensure high-quality software products.

Topics:

- Test Strategy, Planning & Conducting Tests
- Selenium Overview & WebDriver
- Checking Test Results & Documenting Failures
- Analysing & Reporting Test Results
- Reviewing & Testing Non-Functional Aspects of Systems

Live Instructor Sessions: 2 Days

04

Module 4:
Design and DevOps

Examines the concept of DevOps through essential practices and principles in modern software development, highlighting design and deployment strategies.

Topics:

- Agile & Waterfall Methodologies
- DevOps Culture
- Continuous Integration & Continuous Deployment (CI/CD)
- Build Management & Containerisation with Docker
- Jenkins Builds & Pipelines
- Application Deployment
- Software Development Lifecycle (SDLC)

Live Instructor Sessions: 3 Days

05

Module 5:
Software Craft

Refines core skills for advancing as a developer, focusing on testing, code analysis, identifying code smells, and maintaining coding standards.

Topics:

- Version Control & CI/CD (Jenkins, SonarQube)
- Test-Driven Development (TDD) & Behaviour-Driven Development (BDD)
- Code Coverage & Refactoring
- Static Code Analysis (SCA) & Code Smells Identification
- Coding Standards & Best Practices
- Pair Programming

Live Instructor Sessions: 3 Days

06

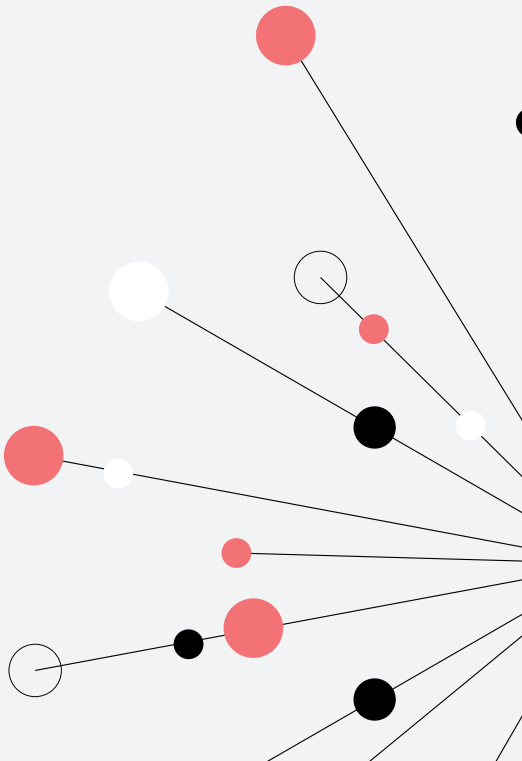
Module 6:
Microservices and APIs

Covers future-focused software development skills, including microservice architecture, API integration, and building a basic microservice app, highlighting key differences from monolithic systems.

Topics:

- Microservices Architecture
- The Cloud
- RESTful APIs (AWS Lambda Usage & API Gateway)
- Development, Testing & Delivery with Docker
- ECS & Container Management
- AWS RDS & DynamoDB
- Deploying Serverless Applications

Live Instructor Sessions: 2 Days



Tools and Technologies

Programming Languages & Frameworks

- Python
- Java (SE)
- HTML
- CSS
- JavaScript
- React

Testing & Build Tools

- Junit
- Selenium
- Maven
- Jenkins

Development & Version Control

- Eclipse
- Git
- GitHub

Containerisation, Cloud & Deployment

- Docker
- Jenkins
- AWS (RDS, Lambda)

Software & Databases

- SQL
- JDBC
- SQLite
- REST
- AWS (RDS, DynamoDB)

Project Management & Collaboration

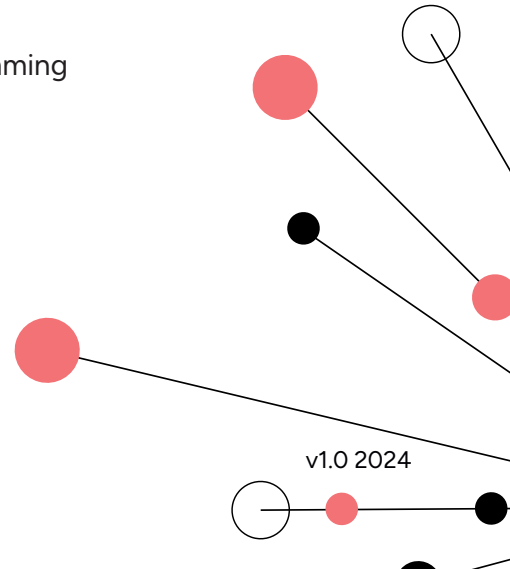
- Trello

General Tools

- Windows OS
- MS Office

Methodologies & Concepts

- Agile
- Scrum
- Waterfall
- Test-Driven Development (TDD)
- Behaviour-Driven Development (BDD)
- CI/CD
- DevOps
- Pair Programming



End-Point-Assessment

We ensure all learners are fully prepared for their End-Point-Assessment (EPA) through our internal gateway process, maximising their success rates.

Assessment criteria:

01

Knowledge
Ability to convey knowledge effectively.

02

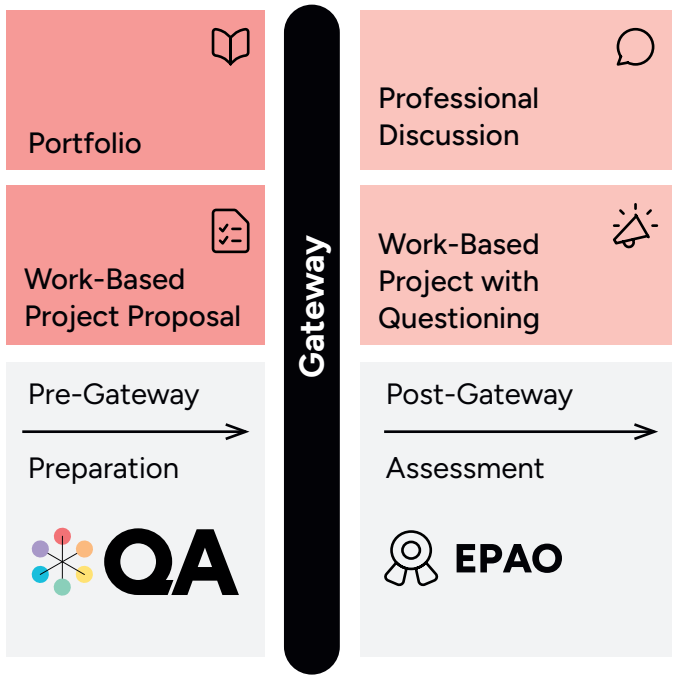
Skills
Demonstrate practical skills with confidence.

03

Behaviour
Exhibit professional workplace behaviour.

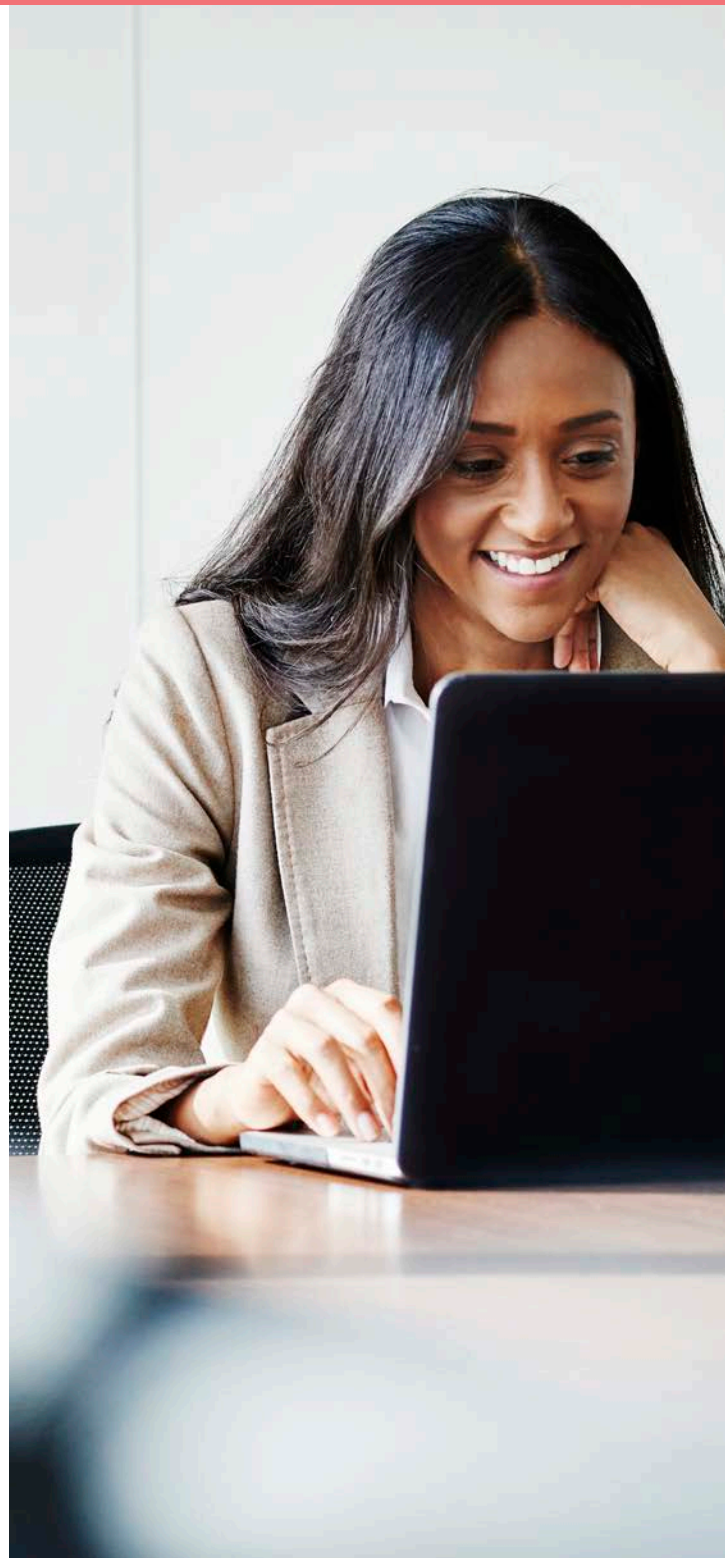
Explore the detailed assessment criteria within the **Software Developer standard.**

EPA process:



Professional Discussion: Engage in a formal two-way conversation to showcase knowledge, skills, and behaviours.

Work-based Project with Questioning: Demonstrate competence in developing a software solution that meets specifications through the full software development cycle, supported by a Q&A.



Ready to partner with us?

Let's talk:

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