

# BCS Practitioner Certificate in Agile Syllabus

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This profession certification is not regulated by the following United Kingdom  
Regulators - Ofqual, Qualification in Wales, CCEA or SQA

## Change History

Any changes made to the syllabus shall be clearly documented with a change history log. This shall include the latest version number, date of the amendment and changes made. The purpose is to identify quickly what changes have been made.

Version Number and Date	Changes Made
V2.3 July 2015	Updated the pass rate from 27/45 to 54/90.
V2.2 March 2015	Updated language requirements for extra time and use of dictionary. Standardised the trainer requirements
V2.1 Oct 2013	Updated trainer requirements to include minimum experience.
V2.0 Sept 2012	Finalised for full product release
V1.1 Sept 2013	Trainer pass rate added
V1.0	Syllabus created

# BCS Practitioner Certificate in Agile

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## Introduction

The BCS Practitioner Certificate in Agile is aimed at candidates working in Agile project environments who already possess some practical experience of Agile within software development.

This certification looks at the essential elements of Agile – delivering early and often, optimising flow and using fast feedback. It also tackles some of the concerns that often lead to failure or disappointing results – how to build and motivate an Agile team; how to handle trade-offs, and when adaptations to process may be required. It also provides a thorough grounding in two of the most popular Agile methods in general use: Scrum and Kanban. The result is a course that offers both breadth and depth of understanding and is suitable for anyone looking to implement or improve Agile within an organisation.

Candidates should choose Agile Practitioner if they:

- Wish to understand the ‘WHY’ that lies behind Agile methods
- Are prepared to apply Agile in practical scenarios
- Intend to improve IT delivery so more people can benefit from better solutions
- Already possess a basic understanding of Agile

## Objectives

Candidates will be able to carry out effectively the adoption, roll out and appropriate adaptation of Agile methods in their organisations.

## Learning Objectives

Having studied the education programme and covered the material in the syllabus, successful candidates will be able to:

- Analyse existing problems with the team, development process and wider organisation (K4)
- Apply a thorough understanding of Agile principles and specific practices (K3)
- Select the most appropriate way to improve results for a specific circumstance or need (K5)
- Judge and craft appropriate adaptations to existing practices or processes depending upon analysis of typical problems (K5 – K6)
- Evaluate likely successes and formulate plans to manage likely risks or problems (K5)

Completing the course will provide the information needed to sit the BCS Practitioner Certificate in Agile examination.

## Target Group

The certification is aimed at those who have, or wish to have, some responsibility for managing, participating in or enabling Agile ways of working within software development. For the purposes of this syllabus, these individuals are described as 'Practitioners'. However, it will also be useful for those who do not yet work in this space, but who intend to, or for those who previously worked here and intend to encourage, train or support others as practitioners.

## Duration and Format of the Course

Candidates can study for this certificate in two ways: by attending training courses provided by Accredited Training Organisations or by self-study. An accredited training course will require a minimum of 16 hours of study run over a minimum of three days.

The course can be delivered a number of different ways from traditional class-room based training to online e-learning.

## Pre-requisite entry criteria for the course and exam

There are no mandatory requirements for candidates taking the examination though candidates will need a good standard of written English. The examination is a demanding one, based upon a thorough understanding and proven ability to apply their knowledge.

It is recommended that candidates prepare for the examination by committing to personal study. This is regarded as a necessary minimum, but it may be supplemented with a training course and work-based learning.

Candidates are expected to have a basic understanding of Agile, this may be demonstrated by passing the Foundation Certificate in Agile.

Accredited training is strongly recommended but is not a pre-requisite. A period of self-study / work based learning is required which is 75 hours if accompanied by an accredited training course or 100 hours without course attendance. Self-study / work based learning materials are available by contacting BCS.

## Duration and Format of the Examination

The format for the examination is a three hour scenario based written paper. The examination is closed book (no materials can be taken into the examination room). Candidates need to achieve a minimum of 54/90 to pass the examination.

## Background of Agile

In the last decade Agile has moved from being an idea on the fringe of software development to something approaching the main stream. In that time, differing methodologies have proliferated, ideas have matured, and many more teams and organisations have adopted 'Agile' ways of working – not always successfully. The field lacks clarity – unsurprising perhaps, given Agile's insistence on working software over documentation and welcoming change rather than rigid process. Yet without an understanding of the principles and thinking that lie behind Agile and its capacity to benefit software development, it is easy to fall into dogma. Blindly following practices and processes fails to take an individual organisation's needs into account. Unlike most certifications and training courses, which tend to focus on the 'HOW', the BCS Practitioner Certification in Agile asks the far more important question 'WHY'.

## Additional time for candidates requiring Reasonable Adjustments due to a disability

Candidates may request additional time if they require reasonable adjustments. Please refer to the [reasonable adjustments policy](#) for detailed information on how and when to apply.

## Additional time for candidates whose native language is not that of the examination

If the examination is taken in a language that is not the candidate's native / official language then they are entitled to 25% extra time

If the examination is taken in a language that is not the candidate's native / official language then they are entitled to use their own **paper** language dictionary (whose purpose is translation between the examination language and another national language) during the examination. Electronic versions of dictionaries will **not** be allowed into the examination room.

# Syllabus

## Unit 1 – Why Change (6%)

This session explores why and how organisations can change in order to deliver software and IT better. It begins by making the case for why changing the way we develop software now is imperative – examining common problems and the unintended consequences of traditional project management and development methods. Candidates will also be introduced to the background to better ways of working, but also why people find change so hard and resist alternative methods.

Specifically, learning outcomes are:

- 1.1 Understand and recognise the scale of issues in existing software development and delivery (K2)
- 1.2 Interpret results to identify flaws in focusing on an iron triangle of cost, time and scope (K3)
- 1.3 Appreciate the history and philosophy behind ‘Agile’ development (K4)
- 1.4 Distinguish the ‘rules of thumb’ that characterise people’s intuitive ways of thinking and how they impact on changing development methods (K4)
- 1.5 Judge how software development can be made more intuitive through faster feedback (K5)
- 1.6 Use three new rules of thumb to break the iron triangle (K3)

## Unit 2 - Deliver Early and Often (10%)

This unit explains the fundamental rationale behind why delivering early and often helps increase value by improving the financial case, drives faster feedback to lessen risk and provide flexibility and improves the flow of work. It goes on to explore the methods and challenges of implementing an incremental and iterative delivery plan. By the end of the session the learner should thoroughly appreciate the benefits of delivering earlier and be confident in taking steps to do so.

Specifically, learning outcomes are:

- 2.1 Define an increment and iteration and compare them (K1)
- 2.2 Appreciate the benefits of delivering early and often: financial, marketing engineering and other. (K2)
- 2.3 Use examples of where incremental delivery is used as a successful business model. (K3)
- 2.4 Apply this knowledge to break projects into increments through:
  - 2.4.1 Determining the mind-set required to split dependencies and ideas (K3)
  - 2.4.2 Selecting different prisms to split ideas: value, risk, stakeholder, urgency, geography, necessity. (K3)
- 2.5 Evaluate how small an increment should be depending on individual constraints (K5)
- 2.6 Select the appropriate tools to support incremental delivery, including mapping a customer journey or story strand to create slices of functionality (K5)
- 2.7 Select and apply practices that enable delivery early and often (K3 and K5)

- 2.8 Balance potential drawbacks or limits to delivering early and often including transaction cost and technological break-through. (K5)
- 2.9 Show the value of incremental delivery using the BADD formula (K3)

### **Unit 3 – Optimising Flow (10%)**

This session explains why many of the working practices in Scrum or Kanban were developed and the principles on which they are built. This session discusses the essential concept of flow, the smooth passage of work through the whole system, and emphasises importance of system thinking, where greater benefits accrue from optimising the whole, rather than focusing on the efficiency of parts. An in depth critique of existing ideas of on time delivery helps candidates focus on business benefits instead of speed and flexibility. This in turn helps candidates make choices and trade-offs by focusing on customer needs and desired business outcome.

Specifically, learning outcomes are:

- 3.1 Recognise the importance of time as a source of competitive advantage within business. (K2)
- 3.2 Explore why definitions of 'on time' or schedule are not fixed but depend on the customer (K4)
- 3.3 Compare the benefits and limitations of 'on time delivery' to appreciate the conflicts and choices in development speed. (K4)
- 3.4 Appraise which business outcome sets the delivery pace. (K4)
- 3.5 Analyse the organisation's end-to-end flow to appreciate how and why to optimize the whole and eliminate delays for faster delivery (K4)
- 3.6 Judge how to balance the cost of extra capacity with cost of delay. (K5)
- 3.7 Appreciate the link between spare capacity and optimal flow (K4)

### **Unit 4 – Feedback (10 %)**

This crucial principle connects the three themes of the education programme: value, flow and quality. The session explores how feedback underpins successful development, from product to process, exploring customer requirements and catching defects at both a micro and macro level. To use feedback effectively, the session describes how to set up feedback loops and then nest them, as well as shorten the overarching concept to cash feedback loop.

Specifically, learning outcomes are:

- 4.1 Understand the importance of feedback to improve responsiveness, customer satisfaction and quality as well as reduce risk (K2)
- 4.2 Differentiate between single and double loop learning (K4)
- 4.3 Examine the structure of feedback loops within the software development cycle and apply this to set up nested feedback loops (K5)
- 4.4 Evaluate the cost of feedback (K5)
- 4.5 Judge how to separate valuable feedback signals from environmental 'noise' (K5)
- 4.6 Select feedback cycles to apply in team and process situations (K5)
- 4.7 Evaluate and judge the situation in which feedback can be misused or ignored (K5)

## **Unit 5 – Teams (10%)**

This session helps explore one of the most crucial elements of all Agile methods – the team and how it functions. Teams are the basic unit of work and organisations rely on them to solve major problems. Despite this, teams often display poor behaviours that impair project success. This session aims to show candidates how to set up and nurture teams, while tackling likely problems and blocks.

Specifically, learning outcomes are:

- 5.1 Choose when a team is the right tool for the job (K3)
- 5.2 Distinguish the main attributes a team needs to be effective and how to set them up (K4)
- 5.3 Analyse key factors stopping a team from being effective (K4)
- 5.4 Analyse how to increase the probability that a team will be effective (K4)
- 5.5 Evaluate broader company-wide issues to ensure individual and team motivation are not at cross purposes (K5)

## **Unit 6 – Motivation (10%)**

Teams and individuals only work effectively if they are motivated to work in the organisation's interests. This session examines why existing motivational interventions are actually counter-productive, with unintended consequences. The session proposes how to change from extrinsic to intrinsic forms of motivation, including removing the blocks that demotivate individuals and teams.

Specifically, learning outcomes are:

- 6.1 Appreciate the connection between motivation and profitability (K2)
- 6.2 Examine the carrot/stick or reward/punishment system of motivation used in most organisations today (K4)
- 6.3 Distinguish particular counter-intuitive behaviours often driven by crude metrics (K4)
- 6.4 Contrast extrinsic and intrinsic motivation (K4)
- 6.5 Value the benefits of harnessing people's natural motivation and role of organisational culture (K5)
- 6.6 Select key factors that make people feel valued and valuable and how to provide flexibility (K5)
- 6.7 Question how to remove the barriers that block people's motivation, from environment to tools (K4)

## **Unit 7 – Trade-offs (10%)**

This session explores the trade-offs that exist between speed and cost to help select a delivery method depending upon the desired business outcome. Software development improvements still require organisations to balance trade-offs between cost and time, and to give up an idea of certainty – an advance guarantee of schedule and budget. Each flow choice is best suited by a particular choice of faster delivery tools, and the session offers guidance on selecting and combining them appropriately.

Specifically, learning outcomes are:

- 7.1 Appreciate the benefits of decreasing cycle time (K2)
- 7.2 Interpret a model of flow choices, featuring key trade-offs between cycle time and cost (K4)
- 7.3 Analyse where a particular organisation sits within this model (K4)
- 7.4 Examine issues connected with certainty, including its effects on cost and time, its appeal and its illusory nature (K4)
- 7.5 Evaluate alternative flow choices, their benefits, most likely application and select the tools which best promote them: all out speed, flexibility, throughput and certainty (K3 and K5)

## **Unit 8 – Adapting Agile (10%)**

This session aims to explore when and where adaptations to existing methodologies should be made, ensuring that candidates are able to adapt or tailor practices without losing their original benefit. By the end of this session, candidates should have a firm understanding of the underlying principles which form the common ground of Agile methodologies and thus an appreciation for the essential changes that must be implemented, as well as a map to when further practices could be introduced.

Specifically, learning outcomes are:

- 8.1 Understand why the reason for change is more important than blindly embracing process (K2)
- 8.2 Distinguish common compromises made in an Agile implementation and the likely impact on expected benefits (K4)
- 8.3 Appraise which elements of Agile methods have the potential to be adapted (K4)
- 8.4 Identify and appraise patterns commonly found in organisations successfully using Agile (K5)
- 8.5 Judge the risks of ignoring each pattern and question if organisations are truly following the underlying principles (K5)
- 8.8 Select an appropriate practice to begin and judge when to move on to more advanced practices (K5)

## Unit 9 – Scrum (12%)

This session provides a brief but thorough explanation of the key artefacts, events and roles used in Scrum, offering a grounding for those wishing to implement Scrum effectively. The session explores the principles that underlie Scrum and how they are expressed in practices, from its focus on iterative development that incorporates frequent feedback to delivering value early and often. The session includes a thoroughly practical session on the realities of introducing Scrum – likely difficulties, constraints and points of conflict, as well as the ideal preparation for a greater likelihood of success. After completing the activities, the learner should feel confident to begin an implementation.

Specifically, learning outcomes are:

- 9.1 Understand the key principles that lie behind Scrum (K2)
- 9.2 Appraise key advantages and benefits the framework is intended to enable (K4)
- 9.3 Confidently employ the practices and roles within Scrum (K3)
- 9.4 Evaluate how to prepare the organisation for a successful implementation of Scrum (K5)
- 9.5 Identify common points of failure or difficulty and develop plans to avoid these (K2 and K6)

## Unit 10 – Kanban (12%)

Offering a thorough explanation of the increasingly popular Kanban methodology, this session provides everything a learner needs to understand the ideas, principles and key practices. Kanban methods focus on optimising the flow of work through the system, measuring success by 'lead time' and making incremental steps towards continuous improvement. The session devotes sections to the original principles as well as the practices and events that have been introduced as Kanban has matured. After considering the key ideas behind Kanban, candidates should be able to decide whether it is right for a specific team and feel confident to introduce Kanban or overlay it on the team's existing working practice without disruption.

Kanban Learning Outcomes

- 10.1 Appraise the underlying principles of Kanban and distinguish the pull system that emphasises the smooth flow of work (K4)
- 10.2 Appreciate the practices and principles of Kanban, including their use, benefits and implementation: (K4)
  - a. Demonstrate how to visualise work flow (K3)
  - b. Decide how and when to limit WIP (K3)
  - c. Take measurements of the workflow and manage the results (K3)
  - d. Communicate work standards using explicit process policies (K3)
  - e. Implement feedback loops (K3)
  - f. Improve collaboratively using models
  - g. Use models to recognise improvement opportunities.
- 10.3 Define classes of service and employ them appropriately in a practical implementation (K1 and K3)
- 10.4 Appreciate the separation of input and delivery cadence.
- 10.5 Judge where and how to implement Queue Replenishment Meetings, Improvement Katas and Operations Review Meetings. (K5)

- 10.6 Appraise ideas of evolutionary change and how to overlay the principles with existing processes.
- 10.7 Evaluate your progress towards continual improvement and technical excellence.

### Optimising Flow

This session explains why many of the working practices in Scrum or Kanban were developed and the principles on which they are built. It introduces and explores discusses the essential concept of flow. This refers to the smooth passage of work through the whole system, an idea that emphasises the importance of system thinking, where greater benefits accrue from optimising the whole, rather than focusing on the efficiency of parts. The session therefore explores ways of reducing and eliminating delays as well as – the methods, structures, attitudes and tools that support moving faster. An in-depth critique of existing ideas of on-time delivery helps candidates focus on business benefits, helping candidates make choices and trade-offs by focusing on customer needs and desired business outcome.

Specifically, learning outcomes are:

10.8 Appreciate why time is so important to an organisation and why the customer's view of time matters. (K4)

10.9 Evaluate what end-to-end flow means within the business and appreciate the benefits of extending the IT's traditional delivery boundaries. (K4)

10.10 Appraise the benefits and limitations of the 'on time' delivery approach adopted by most companies. (K4)

10.11 Analyse the cost of delay in development projects, and judge how to balance this with cost of capacity and the necessity of slack. (K5)

10.12 Appreciate the opportunity offered by flow optimisation to eliminate delays and increase delivery speed. (K3)

10.13 Judge where to search for waste and when to invest in removing blocks or delays. (K5)

- Delay or queues
- Partially done work
- Extra features
- Relearning and hand-offs
- Task-switching
- Defects

10.14 Judge how to optimise flow at scale, including understanding the specific waste activities that occur when coordinating multiple teams and individuals. (K5)

## Levels of Knowledge

This course will provide candidates with the levels of difficulty / knowledge highlighted within the following table, enabling them to develop the skills to operate at the levels of responsibility indicated.

The levels of knowledge and SFIA levels are explained at [www.bcs.org/levels](http://www.bcs.org/levels) .

Level	Levels of Knowledge	Levels of Skill and Responsibility (SFIA)
<b>K7</b>		Set strategy, inspire and mobilise
<b>K6</b>	Evaluate	Initiate and influence
<b>K5</b>	Synthesise	Ensure and advise
<b>K4</b>	Analyse	Enable
<b>K3</b>	Apply	Apply
<b>K2</b>	Understand	Assist
<b>K1</b>	Remember	Follow

## Format of the Examination

Type	Scenario based written examination consisting of 9 questions
Duration	Three hours. Candidates are entitled to an additional 45 minutes if they are sitting the exam in a language that is not their native/official language
Pre-requisites	Accredited training is strongly recommended but is not a pre-requisite. A period of self-study / work based learning is required which is 75 hours if accompanied by an accredited training course or 100 hours without course attendance. Self-study / work based learning materials are available by contacting BCS.
Invigilated	Yes
Open Book	No
Pass Mark	54/90 (60%)
Calculators	Calculators cannot be used during this examination
Delivery	Paper based examination

## Trainer Criteria

Criteria:	<ul style="list-style-type: none"> <li>• Hold the BCS Practitioner Certificate for Agile</li> <li>• Have 10 days training experience or a train the trainer qualification.</li> <li>• Have a minimum of 3 years practical agile experience</li> </ul>
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## Classroom Size

Trainer to candidate ratio	1:12
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