BCS PRACTITIONER CERTIFICATE IN SYSTEMS INTEGRATION
SYLLABUS

SOLUTION DEVELOPMENT PORTFOLIO

This professional award is not regulated by the following United Kingdom Regulators - Ofqual, Qualifications Wales, CCEA or SQA.
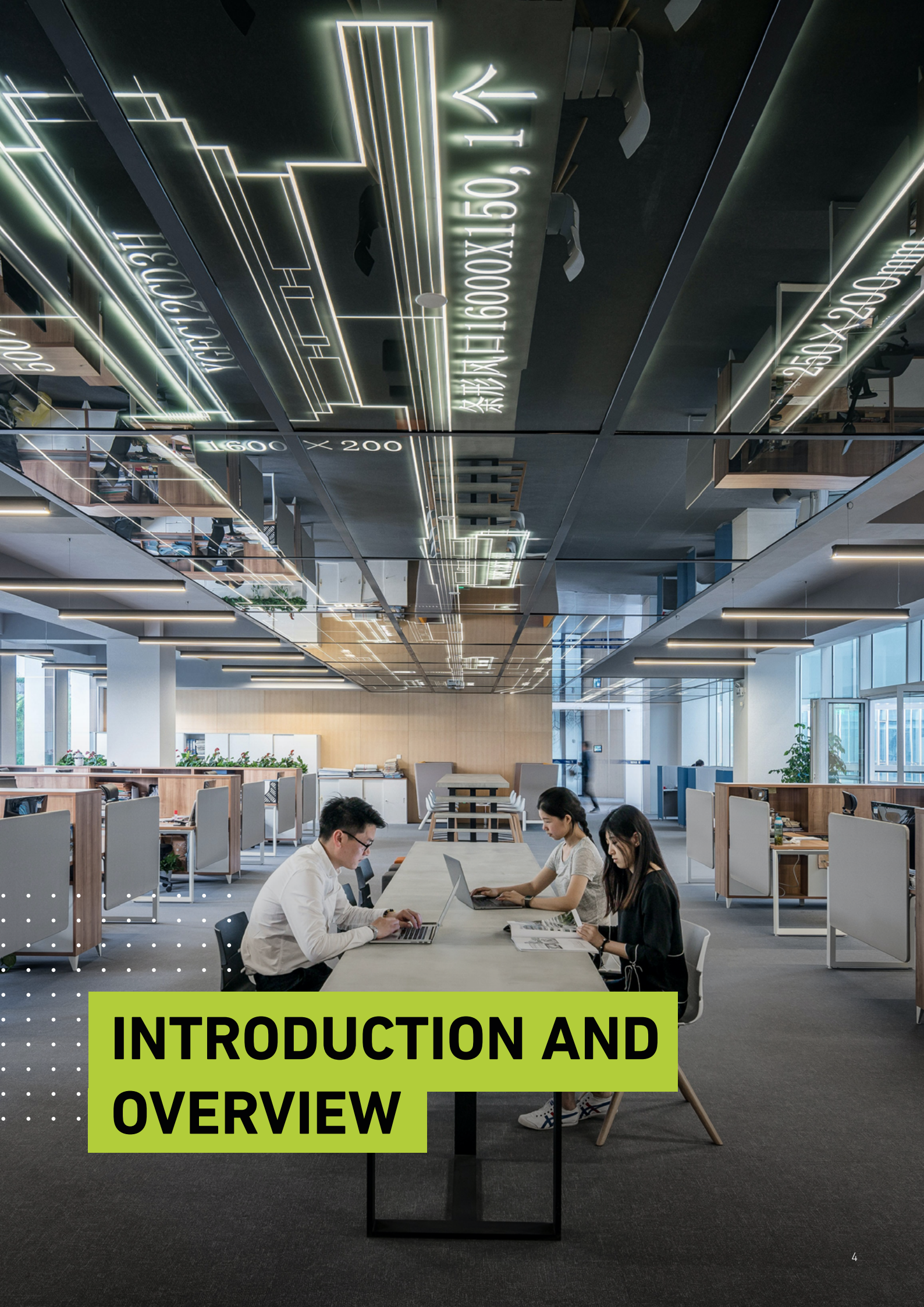
CONTENTS

INTRODUCTION AND OVERVIEW

INTRODUCTION

Integrating in IT relates to the linking of different systems and software applications to work together in a unified way. This allows for easier access to data, allowing organisations to make more informed and timely decisions.

The BCS Practitioner Certificate in Integrating Systems covers the tools and techniques to identify, select, integrate, and analyse solutions for use in an existing IT architecture. Specifically, this certificate looks at investigation techniques, integration mechanisms, and deployment methods.

This certificate is suitable for those who currently work in a related IT role and are looking to enhance their understanding of industry-standard methodologies.

The content of this certificate is suitable for a wide range of roles that interact with IT infrastructure, data, software, and applications as part of their duties. Job titles related to this role may include IT architects, devops engineer, IT projects manager, and cloud integration engineer.

LEARNING OUTCOMES

Upon completion of this certificate, candidates will be able to demonstrate a practical understanding of:

- the purpose, scope, and impact of roles related to system integration

- methods of collecting, analysing, and articulating relevant data for investigating systems

- approaches, tools, and techniques required to integrate software

- the different approaches to the deployment of systems

- the system lifecycle in relation to systems integration

QUALIFICATION SUITABILITY AND OVERVIEW

Centres must ensure that candidates have the potential and opportunity to gain the qualification successfully. It is advised that candidates hold a minimum of 3 years' experience in a related role. The candidate should also have a good standard of english and maths.

This is a practitioner certificate which will:

- assess the candidate's ability to identify, describe, and explain key concepts
- assess the candidate's ability to apply and analyse key principles, methods, and tools to specific scenarios
- enable candidates to progress in their professional development

Candidates can study for this award by attending a training course provided by a BCS accredited Training Provider or through self-study.

TOTAL QUALIFICATION TIME	GUIDED LEARNING HOURS	INDEPENDENT LEARNING	ASSESSMENT TIME
29 hours	18 hours	10 hours	60 minutes

TRAINER CRITERIA

It is recommended that to deliver this certificate effectively, trainers should possess:

- ten days of training experience or have a Train the Trainer qualification
- a minimum of 3 years of practical experience in the subject area

SFIA LEVELS

This award provides candidates with the level of knowledge highlighted within the table, enabling them to develop the skills to operate successfully at the levels of responsibility indicated.

LEVEL	LEVELS OF KNOWLEDGE	LEVELS OF SKILLS AND RESPONSIBILITY (SFIA)
K7		Set strategy, inspire and mobilise
K6	Evaluate	Initiate and influence
K5	Synthesise	Ensure and advise
K4	**Analyse**	**Enable**
K3	**Apply**	**Apply**
K2	**Understand**	**Assist**
K1	**Remember**	**Follow**

For further information regarding the SFIA Levels
SFIA*plus* | **BCS Levels**

This syllabus has been linked to the SFIA knowledge, skills and behaviours required at level 4 for an individual working in the following subject areas.

KSB01

Acquiring a proper understanding of a problem or situation by breaking it down systematically into its component parts and identifying the relationships between these parts. Selecting the appropriate method/tool to resolve the problem and reflecting critically on the result, so that what is learnt is identified and assimilated.

KSB02

Acquiring understanding and insights regarding the underlying issues in complex problems or situations through the development of abstract representations, the identification of patterns and the analysis of hypotheses.

KSC01

Technical or functional understanding of commercial off-the-shelf (COTS) applications and/or other bespoke software deployed in the organisation in order to provide system configuration, audit, technical and/or functional support.

KSC08

The frameworks and principles on which networks, systems, equipment and resources are based, both on-premises and cloud-based.

KSC16

A set of codes and syntax (supported by software tools) that enables the unambiguous translation of specified functionality into source code for the creation of computer programs.

KSC23

Testing techniques used to plan and execute software tests of all application components (functional and non-functional) to verify that the software satisfies specified requirements and to detect errors.

KSC40

The analytical comparison of IT products against specified criteria (including costs) to determine the solution that best meets the business need.

KSC97

Performing a proof of concept or prototyping exercise to demonstrate or evaluate the feasibility and potential benefits of applying a particular technological business change in order to meet a business need.

SYLLABUS

1. INTRODUCTION (10%)

1.1 **Define the role of the system integrator.**

Indicative content

a. Required skills
b. Authority

Guidance

Candidates should be able to list the characteristics for a system integrator.

1.2 **Identify the scope and design of the integration.**

Indicative content

a. Component design
b. Data design
c. Input/output design
d. Security design
e. Impact of business rules on design

Guidance

Candidates should be able to list what is required to define the scope of an integration, and differentiate an appropriate design methodology.

1.3 **Explain the impact of legacy systems and CotS solutions.**

Indicative content

a. Security
b. Cost
c. Integration
d. Scalability issues

Guidance

Candidates should be able to explain the pros and cons of legacy systems versus commercial-off-the-shelf solutions.

2. SYSTEMS INVESTIGATION (30%)

2.1 Identify fact finding approaches.

Indicative content

a. Workshops
b. Prototyping
c. Interviewing
d. Questionnaires
e. Scenario analysis

Guidance

Candidates should be able to list ways to gather requirements.

2.2 Explain the purpose of a feasibility study.

Indicative content

a. Cost-benefit analysis
b. Lean canvas
c. Operational, technical, legal and personnel concerns

Guidance

Candidates should be able explain the purpose of a feasibility study and its role in a project go/no-go evaluation.

2.3 Articulate the role of system requirements documentation.

Indicative content

a. Business need
b. Function
c. User features

Guidance

Candidates should be able to define why requirements are needed, and how to go about collecting, recording and obtaining sign-off on them.

2.4 Analyse functional vs. non-functional requirements.

Indicative content

a. Performance
b. Security
c. Usability
d. Capacity
e. Scalability
f. Maintainability
g. Access control

Guidance

Candidates should be able to define what is a functional and a non-functional requirement, to differentiate between functional and non-functional requirements, and define why they believe each requirement is functional and non-functional.

2.5 Compare data models.

Indicative content

a. Logical
b. Conceptual
c. Physical
d. Hierarchical

Guidance

Candidates should be able to identify different data models and describe where they might use a particular model.

2.6 Explain data flow and use case diagrams.

Indicative content

a. Information routing, sequence or activity
b. Interaction with systems
c. External interaction
d. UI

Guidance

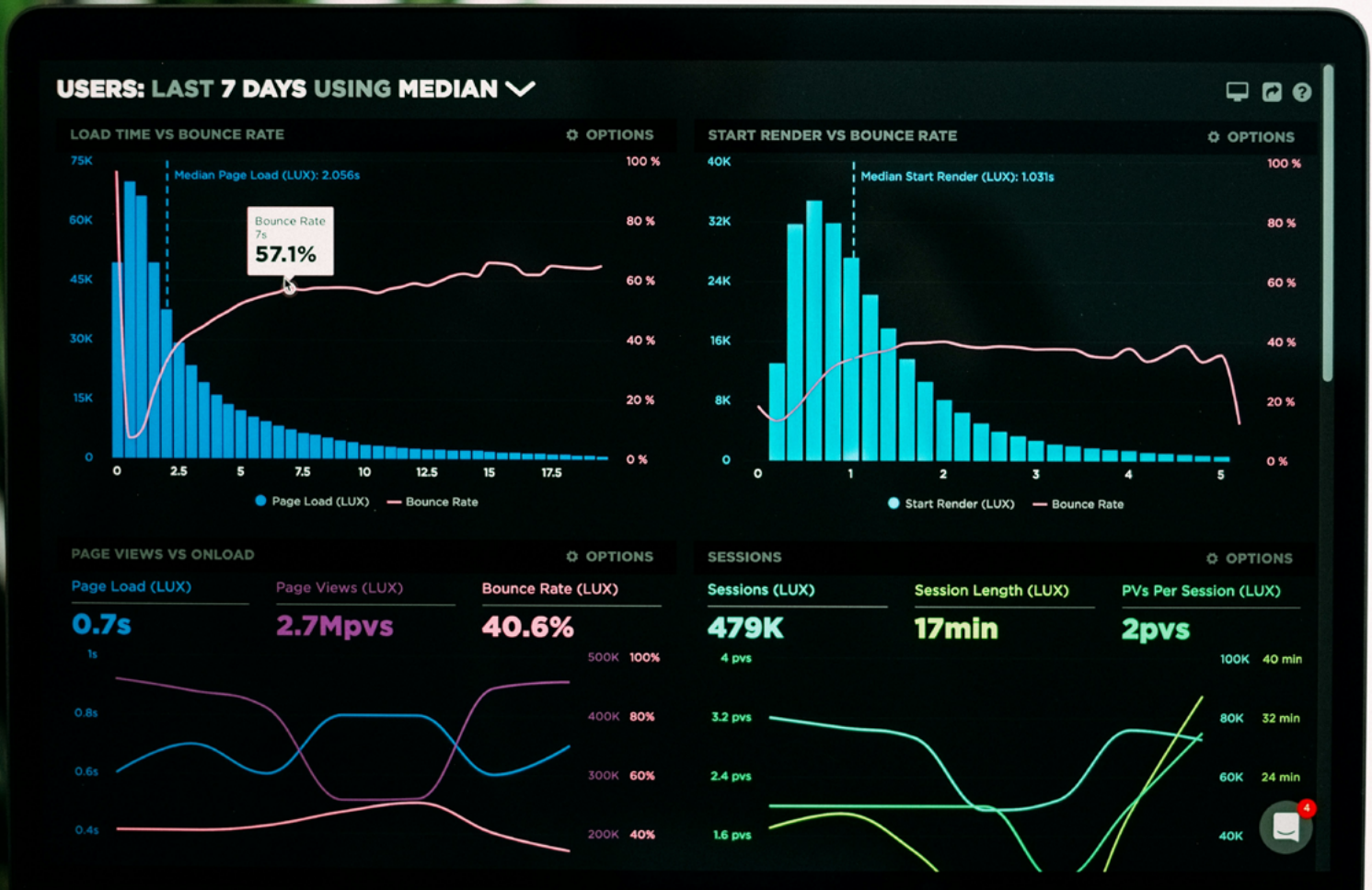Candidates should be able to identify DF and UC diagrams and describe where they might use a particular diagram.

2.7   Explain process models.

Indicative content

a.   BPMN
b.   UML
c.   Flowcharts
d.   Benefits
e.   Delineate start/end

Guidance

Candidates should be able to list and explain the difference between process models.

3. SOFTWARE INTEGRATION MECHANISMS (30%)

3.1 Explain levels of integration.

Indicative content

a. User interface
b. Processing
c. Database
d. File

Guidance

Candidates should be able to explain different integration aspects.

3.2 Compare styles of integration.

Indicative content

a. Synchronous versus asynchronous

Guidance

Candidates should be able to identify the different integrations types and suggest when to use one over another.

3.3 Categorise different protocols and languages.

Indicative content

a. HTTP
b. HTML
c. JSON
d. XML
e. SQL
f. FTP

Guidance

Candidates should be able to distinguish different protocols and describe the usage of each in a given situation.

3.4 Compare application programming interfaces.

Indicative content

a. REST
b. SOA
c. Microservices

Guidance

Candidates should be able to explain what an API is and the benefits of each type.

3.5 Analyse the use of message oriented architectures.

Indicative content

a. Message queues
b. Enterprise Service Bus
c. FIFO
d. Stack
e. One -to-many

Guidance

Candidates should be able to analyse a given scenario and select an appropriate message oriented architecture.

3.6 Explain workflow automation.

Indicative content

a. IFTT
b. Zapier
c. Kissflow
d. Workato
e. SAP Process Control

Guidance

Candidates should be able to list various types of workflow automation software and concepts.

Describe orchestration and rules engines.

Indicative content

a. Camunda
b. Temporal
c. Orkes
d. Drools
e. IBM
f. ODM
g. LogicLoop

Guidance

Candidates should be able to describe what a business rules and orchestration engine are, and list some of the common ones.

4. SYSTEM DEPLOYMENT / IMPLEMENTATION (20%)

4.1 Analyse and identify appropriate security controls.

Indicative content

a. Types:
- Physical
- Tech
- Admin
- Cloud
- Network
- UAR
- Data classification

Guidance

Candidates should be able to analyse a given scenario and identify appropriate security controls based on the information provided.

4.2 Explain different types of system implementations.

Indicative content

a. Parallel
b. Phased
c. Big bang/direct

Guidance

Candidates should be able to identify the different types of integrations.

4.3 Compare definitions of quality.

Indicative content

a. MVP
b. Fit for purpose
c. Alignment to requirements

Guidance

Candidates should be able to list the various definitions of quality, explain where they differ and why there are multiple definitions.

4.4 Explain configuration and version control.

Indicative content

a. Version control systems (VCS)
b. Configuration Management Database (CMDB).
c. Benefits.

Guidance

Candidate should be able to explain the benefits of configuraiton and version control. This includes and understanding of the tools available to facilitate effective congifuration management.

4.5 **Define deployment signoff.**

Indicative content

a. Validate testing
b. Inform stakdholder(s)
c. Post go-live support/hypercare

Guidance

Candidates should be able to define the key aspects related to deployment signoff of a product.

5. SUMMARY (10%)

5.1 **Discuss ethical, legal and Green IT design principles and constraints.**

Indicative content

a. Government regulations
b. ESG compliance
c. Code of Conduct

Guidance

Candidates should be able to identify the various regulations and requirements for ESG type issues, and the implications for or against their inclusion.

5.2 **Explain lifecycle coverage.**

Indicative content

a. Plan
b. Analyse
c. Design
d. Develop
e. Test
f. Deploy
g. Maintain

Guidance

Candidates should be able to describe the overall role of system lifecycle and its phases.

5.3 **Define the role of post-project review.**

Indicative content

a. Lessons learnt
b. Benefits delivered
c. ROI analysis

Guidance

Candidates should be able to list what is required for a post-project review (PPR) and the advantages of performing one.

EXAMINATION FORMAT

This award is assessed by completing an invigilated online exam that candidates will only be able to access at the date and time they are registered to attend.

Adjustments and/or additional time can be requested in line with the BCS reasonable adjustments policy for candidates with a disability or other special considerations, including English as a second language.

TYPE

40
MULTIPLE-CHOICE/MULTI-RESPONSE QUESTIONS

DURATION

60 MINUTES

SUPERVISED

YES
THIS AWARD WILL BE SUPERVISED

OPEN BOOK

NO
(NO MATERIALS CAN BE TAKEN INTO THE EXAMINATION ROOM)

PASS MARK

(65%)
26/40

DELIVERY

DIGITAL FORMAT ONLY

QUESTION WEIGHTING

Each major subject heading in this syllabus is assigned a percentage weighting. The purpose of this is:
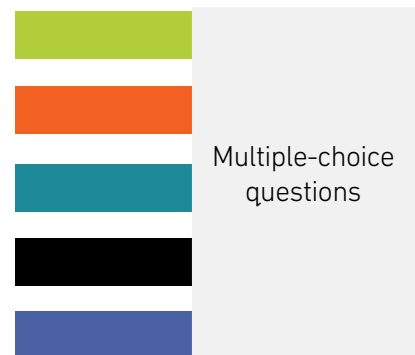
- Guidance on the proportion of content allocated to each topic area of an accredited course.

- Guidance on the proportion of questions in the exam.
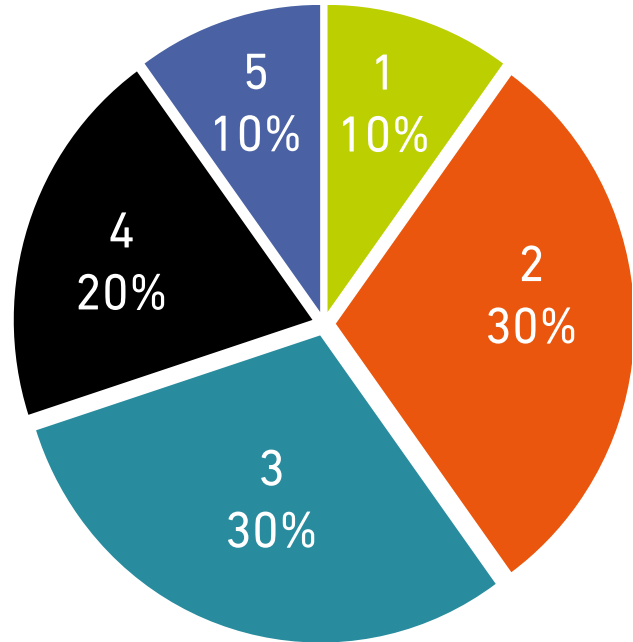
Syllabus Area

1	Introduction
2	Systems Investigation
3	Software Integration Mechanisms
4	System Deployment / Implementation
5	Summary

Question Type

Multiple-choice questions

RECOMMENDED READING

The following titles are suggested reading for anyone undertaking this award.
Candidates should be encouraged to explore other available sources.

TITLE: Digital Solutions: From inception to delivery
AUTHOR: Peter Thompson, Alex Bradley-Thompson
PUBLISHER: BCS, The Chartered Institute for IT
PUBLICATION DATE: *2025*
ISBN: *978-1-78017-6208*

TITLE: Solution Architecture Foundations
AUTHOR: Mark Lovatt
PUBLISHER: BCS, The Chartered Institute for IT
PUBLICATION DATE: *2021*
ISBN: *978-1-78017-5652*

TITLE: Off-The-Shelf IT Solutions: A practitioner's guide to selection and procurement
AUTHOR: Martin Tate
PUBLISHER: BCS, The Chartered Institute for IT
PUBLICATION DATE: *2015*
ISBN: *978-1-78017-2583*

USING
BCS BOOKS

Accredited Training Organisations may include excerpts from BCS books in the course materials. If you wish to use quotes from the books, you will need a licence from BCS. To request an appointment, please get in touch with the Head of Publishing at BCS, outlining the material you wish to copy and the use to which it will be put.

DOCUMENT 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	CHANGES MADE
Version 1.0	**Syllabus created.**
Version 1,1	**Authors updated in recommended reading and references sections.**

REFERENCES

Lovatt, M. (2021). Solution Architecture Foundations. [Swindon]: BCS, The Chartered Institute for IT.

Tate, M. (2015). Off-The-Shelf IT Solutions: A practitioner's guide to selection and procurement. [Swindon]: BCS, The Chartered Institute for IT.

Thompson, P., Bradley-Thompson, A. (2025). Digital Solutions: From inception to delivery. [Swindon]: BCS, The Chartered Institute for IT.