

SIAS Qualification Specification

SIAS Level 3 Award in Carbon Capture and Storage Safety

Qualification Number: 610/7169/9

Operational Start Date: 7th March 2026

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Version History

This is a live document and as such will be updated when required. It is the responsibility of the approved centre to ensure the most up-to-date version of the Qualification Specification is in use.

Version	Date	Comments
1.0	07/03/2026	First published

Introduction

Welcome to SIAS

SIAS is an Awarding Organisation regulated in England by the Office of Qualifications and Examinations Regulation (Ofqual) and in Northern Ireland by the Council for Curriculum, Examination and Assessment Regulation (CCEA Regulation).

We exist to drive positive change, and across STEM industries globally, we empower learners to achieve their full potential.

As the leading Awarding Organisation for the technical science, manufacturing, engineering and low carbon sectors, we are disrupting through innovative and collaborative approaches.

Our mission is to deliver transformational experiences and solutions that support the skills agenda.

Feedback

Customer experience and feedback is very important to us. We're always open to suggestions when it comes to enhancing and improving our services. If you have any comments or feedback on our services or products, please contact our team at info@siasuk.com or call us on 01925 515211.

About this Specification

This document has been developed to provide information for learners and centres undertaking, delivering or quality assuring this qualification.

Centre Recognition and Qualification Approval

To deliver this qualification, the centre must be recognised by SIAS.

Recognised centres must apply for approval for each qualification they intend to offer. Qualification approval must be obtained prior to conducting any learner assessments.

For details of our centre recognition and qualification approval process, visit our website or contact us at info@siasuk.com.

About this Qualification

Key Facts

Qualification Title	SIAS Level 3 Award in Carbon Capture and Storage Safety
Qualification Number	610/7169/9
Guided Learning Hours (GLH)	16
Total Qualification Time (TQT)	20
Assessment Methods	Multiple Choice Question Examination
Operational Start Date	7 th March 2026
Review Date	28 th February 2029
Operational End Date	-
Certification End Date	-
Regulation	This qualification is regulated by Ofqual

Qualification Objective

The SIAS Level 3 Award in Carbon Capture and Storage Safety has been mapped to the Carbon Capture Skills Framework and provides learners with the knowledge and understanding required to safely operate, monitor, and manage carbon capture and storage (CCS) processes. The qualification covers the principles of hazards, risks, and control measures; CO₂ properties and process hazards; geological storage integrity; process safety management; emergency response; and the legal and regulatory frameworks governing CCS operations. Learners will develop the applied knowledge necessary to support safe, compliant, and efficient operation of CCS facilities.

Entry Requirements

This qualification is available for learners aged 16+.

Learners are expected to have a fundamental knowledge of health and safety before taking this qualification. Learners should also have a basic understanding of English and mathematics.

Centres should take reasonable steps to ensure learners are able to complete this qualification, for example by carrying out an initial assessment to confirm they can work at the appropriate level.

Recognition of Prior Learning

Recognition of Prior Learning (RPL) is the process of recognising previous, informal or experiential learning so that the learner avoids having to repeat learning or assessment within a new qualification. SIAS supports the use of RPL and centres must work to the principles included in the SIAS RPL Policy which is available on the SIAS website. This policy should be reviewed alongside this guide and all other relevant SIAS qualification documentation.

Qualification Structure

To achieve the SIAS Level 3 Award in Carbon Capture and Storage Safety learners must achieve the following:

- One mandatory unit contained in the table below.

Ofqual Unit reference	Unit title	Level	GLH	TQT
L/651/9903	Carbon Capture, Storage and Process Safety Fundamentals	2	16	20
TOTAL		2	16	20

Total Qualification Time (TQT) and Guided Learning Hours (GLH)

Note: Values for Total Qualification Time, including Guided Learning Hours, are calculated by considering the different activities that learners would typically complete to achieve and demonstrate the learning outcomes of a qualification. They do not include activities which are required by a learner's teacher based on the requirements of an individual learner and/or cohort. Individual learners' requirements and individual teaching styles mean there will be variation in the actual time taken to complete a qualification. Values for Total Qualification Time, including Guided Learning, are estimates.

Some examples of activities which can contribute to Total Qualification Time include:

- independent and unsupervised research/learning
- unsupervised compilation of a portfolio of work experience
- unsupervised e-learning
- unsupervised e-assessment
- unsupervised coursework
- watching a pre-recorded podcast or webinar
- unsupervised work-based learning
- all guided learning.

Some examples of activities which can contribute to Guided Learning include:

- classroom-based learning supervised by a teacher
- work-based learning supervised by a teacher
- live webinar or telephone tutorial with a teacher in real time
- e-learning supervised by a teacher in real time
- all forms of assessment which take place under the immediate guidance or supervision of a lecturer, supervisor, tutor or other appropriate provider of education or training, including where the assessment is competence-based and may be turned into a learning opportunity.

Grading

This qualification is assessed as a pass/fail.

Delivery and Assessment

Geographical Coverage

This qualification is regulated in England.

Use of Language

All learners must be assessed in English unless the qualification specification states that another language will be accepted.

Progression Opportunities

Upon successfully completing this qualification, learners may progress into further development and training in Carbon Capture and Storage.

Assessment Guidance

All SIAS assessments will be accessible and produce results that are valid, reliable, transparent and fair.

Centres should have systems in place to verify a learner is ready to undertake their assessment.

Centres must ensure that no part of the assessment of a learner including internal quality assurance and invigilation, is conducted by anyone with a personal interest in the assessment outcome.

The SIAS Level 3 Award in Carbon Capture and Storage Safety contains 1 mandatory knowledge unit.

Unit No.	Unit title
1	Carbon Capture, Storage and Process Safety Fundamentals

This unit is assessed as follows:

Unit	Set by	Marked by	Assessment Method	Pass Requirement	Grading
Unit 1	SIAS	SIAS	MCQ examination. Duration: 50 minutes Number of questions: 30	70%	Pass/Fail
Overall Award	SIAS	SIAS	One MCQ examination	Unit 1 must be passed	Pass/Fail

Multiple-choice Question Examinations

The multiple-choice question examination set out in the table above is externally set and marked by SIAS. This assessment is available paper-based or online through the SIAS XAMS platform.

The multiple-choice question examination must be undertaken in controlled conditions. This means:

- learners must complete the assessment unaided
- books and other training aids must not be accessed by the learners
- all assessments must be invigilated to maintain authenticity and security.

ID requirements

It is the responsibility of the centre to have systems in place to ensure that the person taking an assessment is the person they are claiming to be. All centres are therefore required to ensure that each learner's identification is checked before they undertake the assessment.

SIAS recommends the following as proof of a learner's identity:

- a valid passport (any nationality)
- a photocard driving licence
- another photographic ID card, e.g. employee ID card, student ID card, travel card etc.

Centre Requirements

All SIAS centres must be approved by SIAS to deliver the qualification(s) they wish to offer. This is to ensure centres have the processes and resources in place to deliver the qualification(s). Further information can be found in the SIAS Centre Handbook.

When a centre applies to offer a qualification, they will need to provide evidence that they have sufficient resources and infrastructure in place for delivery of that qualification:

- evidence of staff competence and knowledge
- details of available resources.

For the SIAS Level 3 Award in Carbon Capture and Storage Safety, centres are responsible for ensuring that their trainers are:

- occupationally competent and knowledgeable in the role they are carrying out
- have current experience of training as appropriate to the role they are carrying out
- have access to appropriate training and support.

Information regarding the induction and continuing professional development must be made available to SIAS by centres through the external quality assurance process.

Tutor/Trainer requirements

For the SIAS Level 3 Award in Carbon Capture and Storage Safety tutors/trainers are required to demonstrate they:

- have relevant occupational knowledge and competence
- hold a recognised education and training qualification or have equivalent training experience
- have completed recent, relevant CPD activities for the subject area.

Evidence includes:

- CV and relevant occupational qualifications and experience.
- Up-to-date CPD record including certification from any courses attended.

SIAS recommends as best practice for tutors/trainers to hold or be working towards a relevant education and training qualification. This includes:

- Level 3 Award in Education and Training or equivalent including Preparing to Teach in the Lifelong Sector (PTLLS), L4 Certificate in Education and Training, L5 Diploma in Education and Training, CertEd/PGCE.

Where this is not the case, SIAS will look at alternative sources of evidence for training competence, such as professional qualifications, relevant work experience or internal training records. For further guidance, please contact us.

Continuing Professional Development (CPD)

Centres are expected to support their staff, ensuring that their subject knowledge remains current and is up to date with best practice.

Quality Assurance Guidance

All SIAS qualifications require centres to have in place a robust mechanism for the quality assurance of training delivery and invigilated assessment arrangements.

External Quality Assurance

External quality assurance will be undertaken by SIAS. Centres will be required to provide documentation and other evidence to support this process upon request. Please refer to our Centre Handbook for further details.

Equality and Diversity

Delivery of SIAS qualifications must comply with equality and diversity legislation. Learners should not experience any barriers to achievement in respect of:

- Age

- Disability
- Gender
- Gender reassignment
- Marriage and civil partnerships
- Pregnancy and maternity
- Race
- Religion and belief
- Sexual orientation.

Reasonable Adjustments and Special Considerations

Reasonable adjustments and special considerations are made in assessments for learners with disabilities, specific needs or other extenuating circumstances to ensure they are not disadvantaged in any way. Requests for reasonable adjustments and special considerations must be made according to the SIAS Reasonable Adjustments and Special Consideration Policy

Health and Safety

SIAS are committed to ensuring the safety and wellbeing of learners. Due to the nature of some of the sectors SIAS work in, there can be a high level of risk which we expect centres to manage effectively. Centres must take appropriate measures to assess and manage these risks and implement procedures so that qualifications are delivered safely, minimising risks to learners and those involved in the assessment process as much as possible. Working environments must comply with all required health and safety standards.

Qualification Content

Unit 1: Carbon Capture, Storage and Process Safety Fundamentals

Unit Reference	L/651/9903	
Level	3	
GLH	16	
Aim	This unit aims to provide learners with an understanding of the principles, hazards, and operational considerations associated with carbon capture, CO ₂ transport, and storage. Learners will develop knowledge of process safety management, geological storage integrity, monitoring systems, and the legal and regulatory frameworks governing CCS operations, enabling safe and compliant operation within CCS facilities.	
Assessment Methodology	Multiple-Choice Question Examination	
Learning Outcomes	Assessment Criteria	
<i>The learner will:</i>	<i>The learner can:</i>	
1. Understand hazards, risks, and control measures in CCS operations.	1.1	Identify the difference between hazards and risks in CCS operations.
	1.2	Identify common hazards associated with carbon capture and storage.
	1.3	Recognise control measures and mitigation strategies used in CCS operations.
2. Know the properties of CO ₂ , the risks they present, and safety considerations.	2.1	Identify key chemical and physical properties of CO ₂ .
	2.2	Identify risks associated with CO ₂ dispersion.
	2.3	Recognise how the chemical and physical properties of CO ₂ influence CCS operations.
3. Understand reliable systems for monitoring integrity, incident response, and waste management in CCS operations.	3.1	Identify risks to the integrity of CCS pipelines and plant equipment.
	3.2	Select appropriate mitigation and monitoring controls for material integrity and corrosion risks.
	3.3	Identify subsurface and storage integrity risks and the monitoring approaches used to detect loss of containment.
	3.4	Identify integrity risks associated with buffer storage and interim storage systems and the principal design and operational controls.

	3.5	Identify leak detection and monitoring systems used across CCS pipelines and storage sites.
	3.6	Recognise emergency response protocols following suspected release.
	3.7	Identify waste management requirements for capture chemicals and CO ₂ -rich effluents.
4. Understand key process safety and operational considerations for CCS.	4.1	Recognise core principles of process safety management relevant to CCS operations.
	4.2	Identify key operational arrangements used to prevent, investigate, and manage incidents in CCS operations.
	4.3	Recognise how climate resilience and extreme weather risks affect CCS facilities.
5. Understand the legal and regulatory framework governing CCS operations.	5.1	Identify key UK legislation applicable to CCS operations.
	5.2	Identify the approval requirements for CCS infrastructure.
	5.3	Identify Monitoring, Reporting, and Verification (MRV) requirements relevant to CCS activities and how ISO standards support good practice.
	5.4	Identify the key roles of UK regulators and authorities across licencing and environmental regulation.
	5.5	Outline long-term stewardship responsibilities for CO ₂ - storage sites.
	5.6	Identify relevant international conventions and frameworks affecting CCS and the implications for cross-border CO ₂ - transport and storage.
6. Know key process operations and monitoring systems used in CCS.	6.1	Identify the purpose and key design considerations for CO ₂ systems.
	6.2	Identify safety-critical operations for CO ₂ storage.
	6.3	Identify digital monitoring, control and verification systems used in CCS.

Resources

SIAS provides the following additional resources for this qualification:

- Centre Qualification Guide
- Qualification Learner Logbook
- Sample Assessment Material
- Externally Set Assessments

Please see below examples of sample assessment questions:

Sample Question 1

In CCS safety management, risk is best described as:

- A. the likelihood and consequence of a hazard causing harm.
- B. the presence of a hazardous substance within a system.
- C. a deviation from normal operating conditions.
- D. the regulatory approval of a hazardous activity.

Sample Question 2

What is the **main** aim of process safety management?

- A. To ensure equipment operates at maximum efficiency at all times.
- B. To reduce documentation.
- C. To prevent major incidents through systematic risk control.
- D. To reduce operational costs through simplified procedures.

Further Information

For information about SIAS and general enquiries please see our website: www.siasuk.com
or contact:

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