

Level 4 Award in Risk Assessment in Cyber Security (3660-06)

September 2019 Version 1.0

Qualification Handbook

Qualification at a glance

Subject area	IT Professional
City & Guilds number	3660
Age group approved	16+
Entry requirements	Centres must ensure that any pre-requisites stated in this Handbook are met.
Assessment	Online multiple choice test
Qualification grade scale	Pass
Approvals	Approval application required. Please see www.cityandguilds.com for details.
Registration and certification	Registration and certification of this qualification is through the Walled Garden, and is subject to end dates.

Title and level	GLH	TQT	City & Guilds qualification number	Ofqual accreditation number
Level 4 Award in Risk Assessment in Cyber Security	30	73	3660-06	TBC

Version and date	Change detail	Section
1.0 September 2019	Document created	

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1 Introduction

This document tells you what you need to do to deliver the qualifications:

Area	Description
Who is the qualification for?	This qualification is designed to support learners who are on the Risk Analyst pathway of the Level 4 Cyber Security Technologist apprenticeship, forming a mandatory qualification in that pathway.
What does the qualification cover?	<p>This qualification provides learners with the knowledge and understanding of the principles of cyber security threat intelligence and assessment, risk assessment, risk assessment methods, the components of a risk assessment and principles of risk management. These principles are essential components of an effective cyber security approach within an organisation.</p> <p>Learners will explore:</p> <ul style="list-style-type: none"> • threat assessment • risk assessment • risk management
What opportunities for progression are there?	<p>On achieving this qualification the learner will have completed a section of the knowledge element as part of their apprenticeship journey on the Risk Analyst pathway:</p> <p>Risk Analyst pathway</p> <ul style="list-style-type: none"> • Level 4 Certificate in Cyber Security Introduction (3660-01) • Level 4 Award in Risk Assessment in Cyber Security (3660-06) • Level 4 Certificate in Governance, Law, Regulation and Standards in Cyber Security (3660-07)
Who did we develop the qualification with?	It was developed in collaboration with employers, sector experts and training providers using the Apprenticeship Standard and Occupational Brief as the baseline. These were created by The Tech Partnership and their Employer Groups for the specific areas. The qualification embodies the required learning for an apprentice to have the opportunity to successfully gain the relevant knowledge for their chosen career path in cyber security.

Is it part of an apprenticeship
framework or initiative?

Yes – Level 4 Cyber Security Technologist (9660-12/13)

Structure

Learners must complete the single unit 406 to gain this qualification.

Total Qualification Time

Total Qualification Time (TQT) is the number of notional hours which represents an estimate of the total amount of time that could reasonably be expected for a learner to achieve and demonstrate the achievement of the level of attainment necessary for the award of a qualification.

TQT is comprised of the following two elements:

- The number of hours which an awarding organisation has assigned to a qualification for Guided Learning, and
- An estimate of the number of hours a learner will reasonably be likely to spend in preparation, study or any other form of participation in education or training, including assessment, which takes place as directed by - but, unlike Guided Learning, not under the immediate guidance or supervision of - a lecturer, supervisor, tutor or other, appropriate provider of education or training

Title and level	GLH	TQT
Level 4 Award in Risk Assessment in Cyber Security	30	73

2 Centre requirements

Approval

To offer this qualification, new centres will need to gain both centre and qualification approval. Please refer to the *City & Guilds Centre Manual* for further information.

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualification before designing a course programme.

Resource requirements

Resources

Please see the individual unit information for any resources required.

Centre staffing

Staff delivering this qualification must be able to demonstrate that they meet the following occupational expertise requirements. They should:

- be occupationally competent or technically knowledgeable in the area[s] for which they are delivering training and/or have experience of providing training. This knowledge must be to the same level as the training being delivered
- have recent relevant experience in the specific area they will be assessing
- have credible experience of providing training

Centre staff may undertake more than one role, e.g. tutor and assessor or internal verifier, but cannot internally verify their own assessments.

Learner entry requirements

City & Guilds does not set entry requirements for this qualification. However, centres must ensure that candidates have the potential and opportunity to gain the qualification successfully and that they have the full engagement of the employer for the full programme.

Age restrictions

City & Guilds cannot accept any registrations for candidates under 16 as these qualifications are not approved for under 16s.

3 Delivering the qualification

Initial assessment and induction

An initial assessment of each candidate should be made before the start of their programme to identify:

- if the learner has any specific training needs
- support and guidance they may need when working towards their qualifications
- any units they have already completed, or credit they have accumulated which is relevant to the qualifications
- the appropriate type and level of qualification

We recommend that centres provide an induction programme so the candidate fully understands the requirements of the qualification, their responsibilities as a candidate, and the responsibilities of the centre. This information can be recorded on a learning contract.

Support materials

The following resources are available for this qualification:

- Practice exam available both paper-based and on-screen

4 Assessment

Summary of assessment methods

Candidates must:

- successfully complete one evolve test for the mandatory unit

Available assessments/assignments:

City & Guilds has written the following assessments to use with this qualification:

- Evolve tests

Assessment Types			
Unit	Title	Assessment method	Where to obtain assessment materials
406	Risk Assessment in Cyber Security	Multiple choice questions – online Evolve Test	Please see www.cityandguilds.com

Assessment strategy

Test specifications

The way the knowledge is covered by each test is laid out in the table below:

Assessment type: Multiple choice online test

Assessment conditions: Invigilated examination conditions

Number of questions: 20

Duration: 30 minutes

Pass mark: 14/20 (70%)

Grading: Pass/Fail

Test: 406 Risk Assessment in Cyber Security

Learning Outcome	Topic	Number of questions	Weighting
1 Describe threat assessment	1.1 Threat intelligence	4	40%
	1.2 Threat actors	4	
2 Describe the Principles of Risk Assessment	2.1 Principles of Risk Assessment	6	30%

3 Describe the Principles of Risk Management	3.1 Components of risk management	3	30%
	3.2 Risk management within an organisation	3	
Total		20	

Recognition of prior learning (RPL)

Recognition of prior learning means using a person's previous experience or qualifications which have already been achieved to contribute to a new qualification.

RPL is not allowed for this qualification.

5 Administration

Quality assurance

Internal quality assurance

Registered centres must have effective quality assurance systems to ensure optimum delivery and assessment of qualifications. Quality assurance includes initial centre registration by City & Guilds and the centre's own internal procedures for monitoring quality. Centres are responsible for internal quality assurance and City & Guilds is responsible for external quality assurance.

Standards and rigorous quality assurance are maintained by the use of:

- internal quality assurance
- City & Guilds external moderation

In order to carry out the quality assurance role, Internal Quality Assurers must have appropriate teaching and vocational knowledge and expertise.

Access arrangements and special consideration

We have taken note of the provisions of equalities legislation in developing and administering this specification.

We follow the guidelines in the Joint Council for Qualifications (JCQ) document: Regulations and Guidance Relating to Candidates who are Eligible for Adjustments in Examination GCSE, GCE, GNVQ, AEA, Entry Level, Basic Skills & Key Skills Access Arrangements and Special Consideration. This is published on the JCQ website: http://www.jcq.org.uk/access_arrangements/

Access arrangements

We can make arrangements so that learners with disabilities, special educational needs and temporary injuries can access the assessment. These arrangements must be made before the examination. For example, we can produce a Braille paper for a learner with visual impairment.

Special consideration

We can give special consideration to learners who have had a temporary illness, injury or indisposition at the time of the examination. Where we do this, it is given after the examination.

Applications for either access arrangements or special consideration should be submitted to City & Guilds by the Examinations Officer at the centre.

Language of examinations

We will provide this specification in English only.

Other issues

European Dimension

City & Guilds has taken account of the 1988 Resolution of the Council of the European Community in preparing this specification and associated specimen units.

Environmental Education

City & Guilds has taken account of the 1988 Resolution of the Council of the European Community and the Report Environmental Responsibility: An Agenda for Further and Higher Education 1993 in preparing this specification and associated specimen units.

Avoidance of bias

City & Guilds has taken great care in the preparation of this specification and specimen units to avoid bias of any kind.

6 Units

Availability of units

The unit information can be found in this document.

Structure of the units

These units each have the following:

- City & Guilds reference number
- Title
- Level
- Guided learning hours (GLH)
- Learning outcomes

Centres must deliver the full breadth of the range. Specialist equipment or commodities may not be available to all centres, so centres should ensure that their delivery covers their use.

Unit 406 Risk Assessment in Cyber Security

Level:	4 Award
GLH:	30
TQT:	73

What is this unit about?

This unit provides learners with the knowledge and understanding of the principles of cyber security threat intelligence and assessment, risk assessment, risk assessment methods, the components of a risk assessment and principles of risk management. These principles are essential components of an effective cyber security approach within an organisation.

Learners will explore:

- threat assessment
- risk assessment
- risk management

This unit is a mandatory unit for apprentices completing the 'Risk Analyst' pathway of the Level 4 Cyber Security Technologist apprenticeship.

This unit is assessed through a multiple-choice test, taken online.

Learning outcomes

In this unit, learners will be able to

1. Describe threat assessment
 2. Describe the Principles of Risk Assessment
 3. Describe the Principles of Risk Management
-

Learning outcome

1. Describe threat assessment

Topics

- 1.1 Threat intelligence
- 1.2 Threat actors

Depth

The learner will be able to explain threat intelligence and threat modelling and how these are used to inform threat assessments and to exercise security controls within an organisation.

They will understand the component parts of the threat intelligence life-cycle and be able to explore how each are used – and how threat sources and threat modelling together can create an effective, robust and efficient life-cycle framework.

Topic 1.1

The learner will be able to describe the threat intelligence life-cycle:

- Direction
- Collection
- Processing
- Analysis and production
- Dissemination
- Feedback

The learner will be able to describe and evaluate the sources of information about the current threat landscape:

- Computer Emergency Response Team (CERTS) – national bodies
- National Cyber Security Centre (NCSC):
 - Cyber Security Information Sharing Partnership (CiSP)
- Warning, Advice and Reporting Points (WARPS) – community based initiatives
- Private threat intelligence companies
- Open Source Intelligence (OSINT)
- Dark Web
- Deep Web

Topic 1.2

The learner will be able to describe threat sponsors and threat actors in initiating cyber-attacks, their capabilities, tactics, techniques and procedures (TTP):

- Cyber criminals
- Organised crime
- Hacktivists
- State-sponsored
- Trusted insider
- Script kiddies/ Lone wolf
- Techniques, such as:
 - Worm e.g. Stuxnet, Blackworm
 - Ransomware e.g. Wannacry
 - Hash tagging e.g. #OpKillingBay
 - Whaling
 - Phishing
 - Denial of Service/ Distributed Denial of Service

The learner will be able to describe their motivations:

- sabotage
- espionage
- financial gain
- publicity
- thrill seeking

Learning outcome

2. Describe the Principles of Risk Assessment

Topic

2.1 Principles of Risk Assessment

Depth

Topic 2.1

The learner will be able to describe the principles of risk assessment and common risk assessment methodologies. They will be able to explain the concepts of the main methodologies:

Principles:

- Asset identification – defining scope, what you want to protect
- Business impact assessment against CIA
- Threat assessment
- Vulnerability assessment:
 - Vulnerability testing
 - Penetration testing
 - Certification organisations:
 - CREST
 - Cyber Scheme
 - Tiger Scheme
 - Team based attack exercises
- Risk identification
- Prioritising risks
- Risk evaluation:
 - Quantitative
 - Qualitative
 - Prioritisation
 - Likelihood

Standards:

- ISO/IEC 27005 Risk Management
- ISO/IEC 31000 Risk Management

Methodologies, such as:

- NIST SP 800-30 Risk Management
- NIST SP 800-37 Risk Assessment
- IRAM2
- OCTAVE

Learning outcome

3. Describe the Principles of Risk Management

Topics

3.1 Components of risk management

3.2 Risk management within an organisation

Depth

Topic 3.1

The learner will be able to describe components of risk management:

- Risk appetite and tolerance
- Risk policy
- Threat assessment
- Risk assessment
- Risk register
- Identify actions to be taken to address risks
- Risk treatment plan:
 - Tolerate/Accept
 - Treat/Mitigate
 - Terminate/Avoid
 - Transfer
- Monitor and report

Topic 3.2

The learner will be able to describe risk management within an organisation:

- Risk owner
- Levels of risk management control:
 - Deter
 - Detect and React
 - Protect and Defend
 - Physical and procedural controls
- Human factors
- Culture
- Stakeholder engagement
- Trade-off between risk, cost and impact on the business
- Procedures to handle insufficiently mitigated risks
- Across people, processes, technology

Supporting Information

Guidance for delivery

This is the second unit apprentices will take when they are on the 'risk analyst' pathway for the Cyber Security apprenticeship – this is now an opportunity to 'dive deeper' into the learning outlined in 3660-01 Cyber Security Introduction

Apprentices should be able to work through risk assessment methodologies in detail, to understand their purpose, benefits, limitations, practices and techniques – and to understand why and how to apply these in different contexts. It is likely that, dependent on the organisation the apprentice works in, one or two specific risk assessment methodologies will be emphasised – but it remains important that they are able to understand the others and compare their relative merits. It is important that learners are aware that not all risks can be prevented and that organisations make informed risk decisions based on likelihood, impact and cost.

Suggested learning resources

Websites

<https://csrc.nist.gov/publications/detail/sp/800-30/rev-1/final>

<https://www.bcs.org>

<http://www.crest-approved.org>

<https://www.iisp.org>

<https://www.ncsc.gov.uk>

<https://apmg-international.com/our-services/certifications>

<https://www.isc2.org/>

<https://www.isaca.org>

<https://www.thecyberscheme.org/>

<https://www.tigerscheme.org/>

<https://www.securityforum.org/>

7 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the Centres and Training Providers homepage on www.cityandguilds.com.

Centre Manual - Supporting Customer Excellence contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve 'approved centre' status, or to offer a particular qualification, as well as updates and good practice exemplars for City & Guilds assessment and policy issues.

Specifically, the document includes sections on:

- The centre and qualification approval process
- Assessment, internal quality assurance and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Management systems
- Maintaining records
- Assessment
- Internal quality assurance
- External quality assurance.

Our Quality Assurance Requirements encompasses all of the relevant requirements of key regulatory documents such as:

- SQA Awarding Body Criteria (2007)
- NVQ Code of Practice (2006)

and sets out the criteria that centres should adhere to pre and post centre and qualification approval.

Access to Assessment & Qualifications provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **centre homepage** section of the City & Guilds website also contains useful information on such things as:

- **Walled Garden:** how to register and certificate candidates on line
- **Events:** dates and information on the latest Centre events
- **Online assessment:** how to register for e-assessments.

Centre Guide – Delivering International Qualifications contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve 'approved centre' status, or to offer a particular qualification.

Specifically, the document includes sections on:

- The centre and qualification approval process and forms

- Assessment, verification and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Frequently asked questions.

Linking to this document from web pages

We regularly update the name of documents on our website, therefore in order to prevent broken links we recommend that you link to our web page that the document resides upon, rather than linking to the document itself.

8 Useful contacts

UK learners

General qualification information

E: learnersupport@cityandguilds.com

International learners

General qualification information

E: intcg@cityandguilds.com

Centres

Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results

E: centresupport@cityandguilds.com

Single subject qualifications

Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change

E: singlesubjects@cityandguilds.com

International awards

Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports

E: intops@cityandguilds.com

Walled Garden

Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems

E: walledgarden@cityandguilds.com

Employer

Employer solutions including, Employer Recognition: Endorsement, Accreditation and Quality Mark, Consultancy, Mapping and Specialist Training Delivery

E: business@cityandguilds.com

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City & Guilds

5-6 Giltspur House

London EC1A 9DE

www.cityandguilds.com