

# Level 3 Advanced Diploma for Software developers (7266-23)

Qualification handbook

500/1732/9

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[www.cityandguilds.com](http://www.cityandguilds.com)  
September 2007  
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# 1 About this document

This document contains the information that centres need to offer the following diploma

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## **Level 3 Advanced Diploma for Software Developers 7266-23**

<b>QCA accreditation number</b>	<b>500/1732/9</b>
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This document includes details and guidance on:

- centre resource requirements
- candidate entry requirements
- information about links with, and progression to, other qualifications
- qualification standards and specifications
- assessment requirements

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## 2 About the qualification

### 2.1 Aim of the qualification

This qualification was developed to keep pace with the fast changing information technology sector and for candidates who

- do not have access to an N/SVQ
- wish to develop the skills required to plan for, investigate and document customer requirements and produce a requirements definition for the implementation of an Information Technology solution
- want career progression within the Information and Communication Technology (ICT) industry
- wish to develop the skills learnt from NVQs and other qualifications
- require evidence towards the underpinning knowledge of the N/SVQ
- wish to undertake an Advanced Apprenticeship, using the underpinning knowledge gained from this Vocationally Related Qualification.

#### **Accreditation details**

This qualification is accredited by the Qualifications and Curriculum Authority at Level 3 of the NQF.

For further details about accreditation, national qualification frameworks and level descriptors please refer to Appendix 1.

The aims of this qualification are to:

- meet the needs of candidates who work or want to work as software developers, computer games designers or be prepared for their first management position within a team of software designers in the ICT sector
- allow candidates to learn, develop and practise the skills required for employment and/or career progression in the sector
- contribute to the knowledge and understanding of the related level 3 N/SVQs for ICT Professionals, whilst containing additional skills and knowledge which go beyond the scope of the NOS. See the N/SVQ Relationship mapping in 6.1 for further details.
- contribute to skills and/or knowledge towards the National Curriculum for ICT Key Stage 4 whilst also providing additional skills and knowledge. See the Mapping in 6.3 for further details.
- replace the City & Guilds Level 3 Advanced Diploma for IT Practitioners (Software Development) which expired on 31/08/2007.
- serve as a technical certificate, part of the Advanced Apprenticeship framework
- provide valuable accreditation of skills and/or knowledge for candidates not following N/SVQ and Apprenticeship programmes, without requiring or proving occupational competence.

## 2 About the qualification

### 2.2 The structure of the qualification

This section provides information about the structure of the qualification and unit combinations required for the qualification.

#### Full qualifications

The qualification will be awarded to candidates on successful completion of the assessments for two core units, plus one optional unit from the choice as shown below:

QCA unit reference	City & Guilds unit number	Unit title
<b>F/500/7064</b>	<b>301</b>	<b>Develop designs and test software components – (core unit)</b>
L/501/0176	046	Designing and creating advanced web sites
R/501/0177	047	Designing and creating relational databases
F/500/7517	048	Creating and designing websites using web animation and web graphics
J/500/7065	302	Develop software using C++
Y/500/6759	303	Develop software using COBOL
F/500/7145	304	Develop software using Visual Basic
R/500/7067	305	Develop software using Java
<b>A/500/7144</b>	<b>306</b>	<b>Requirements analysis and systems specification (core unit)</b>
L/500/6631	307	Develop software using Visual Basic.net
R/500/6632	308	Develop software using C#
Y/500/7068	310	Develop software using Structured Query Language (SQL)

#### Certificates of unit credit

Certificates of unit credit (CUC) will be issued to candidates for each successfully completed unit, even if the full qualification is not attempted.

Candidates who do complete a full qualification will receive, in addition to their full certificate/diploma, a CUC for each unit achieved.

## 2 About the qualification

### 2.3 Sources of information and assistance

#### Related publications

City & Guilds also provides the following documents specifically for this qualification:

Publication	Available from
Sample test papers	<a href="http://www.cityandguilds.com/e-quals07">www.cityandguilds.com/e-quals07</a>
Assignment guide for centres	<a href="http://www.cityandguilds.com/e-quals07">www.cityandguilds.com/e-quals07</a>
Assignment guide for candidates	<a href="http://www.cityandguilds.com/e-quals07">www.cityandguilds.com/e-quals07</a>
Information for centres	<a href="http://www.cityandguilds.com/e-quals07">www.cityandguilds.com/e-quals07</a>
Information for employers	<a href="http://www.cityandguilds.com/e-quals07">www.cityandguilds.com/e-quals07</a>
Information for learners	<a href="http://www.cityandguilds.com/e-quals07">www.cityandguilds.com/e-quals07</a>
Qualification handbook (SP-7266-23)	<a href="http://www.cityandguilds.com/e-quals07">www.cityandguilds.com/e-quals07</a>

#### Other essential City & Guilds documents

There are other City & Guilds documents which contain general information on City & Guilds qualifications:

- **Providing City & Guilds qualifications – a guide to centre and qualification approval** 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.
- **Ensuring quality** contains updates on City & Guilds assessment and policy issues.
- **Centre toolkit** contains additional information on *Providing City & Guilds qualifications*, in a CD-ROM, which links to the internet for access to the latest documents, reference materials and templates. The *Centre Toolkit* is sent to centres when they receive approved centre status. It is also available from to order at an additional cost.
- **Online catalogue** contains details of general regulations, registration and certification procedures and fees. This information is also available online.

For the latest updates on our publications and details of how to obtain them and other City & Guilds resources, please refer to the City & Guilds website.

## City & Guilds websites

<b>Website</b>	<b>Address</b>	<b>Purpose and content</b>
City & Guilds main website	<a href="http://www.cityandguilds.com">www.cityandguilds.com</a>	This is the main website for finding out about the City & Guilds group, accessing qualification information and publications.
SmartScreen	<a href="http://www.smartscreen.co.uk">www.smartscreen.co.uk</a>	SmartScreen is the City & Guilds online learning support website. It gives registered subscribers access to qualification-specific support materials.
Walled Garden	<a href="http://www.walled-garden.com">www.walled-garden.com</a>	The Walled Garden is a qualification administration portal for approved centres, enabling them to register candidates and claim certification online.

## Contacting City & Guilds by e-mail

The following e-mail addresses give direct access to our Customer Relations team.

<b>e-mail</b>	<b>Query types</b>
<a href="mailto:learnersupport@cityandguilds.com">learnersupport@cityandguilds.com</a>	all learner enquiries, including <ul style="list-style-type: none"><li>• requesting a replacement certificate</li><li>• information about our qualification</li><li>• finding a centre.</li></ul>
<a href="mailto:centresupport@cityandguilds.com">centresupport@cityandguilds.com</a>	all centre enquiries
<a href="mailto:walledgarden@cityandguilds.com">walledgarden@cityandguilds.com</a>	all enquiries relating to the Walled Garden, including <ul style="list-style-type: none"><li>• setting up an account</li><li>• resetting passwords.</li></ul>

## 3 Candidate entry and progression

### Candidate entry requirements

Candidates should not be entered for a qualification of the same type, content and level as that of a qualification they already hold.

There are no formal entry requirements for candidates undertaking this qualification. However, centres must ensure that candidates have the potential and opportunity to successfully gain the qualification.

Please see section 5 of this document, Course design and delivery, which offers guidance on initial assessment.

### Age restrictions

This qualification is not approved for use by candidates under the age of 16, and City & Guilds cannot accept any registrations for candidates in this age group. Centres and candidates should be fully aware of minimum age requirements in their home nation and any implications for completing assessments.

### Progression

The qualification provides knowledge and practical skills related to the NVQ Level 3 for ICT Professionals.

On completion of this qualification, candidates may progress into employment or to the following City & Guilds qualifications:

- Level 3 Advanced Diploma for Software Developers (7266-23)
- Level 3 Advanced Diploma for IT Professionals (7266-25)
- City & Guilds level 3 NVQ for ICT Professionals (4324-03).

### Apprenticeship frameworks

The Level 3 Advanced Diploma for Software Developers has been approved by e-skills UK, the Sector Skills Council for IT, Telecoms and Contact Centres, as a technical certificate for the Advanced Apprenticeship in IT Services and Development..

This qualification supports the Employment rights and responsibilities (EER) of the apprenticeship framework.

Full details of the requirements of the apprenticeship framework for the IT Services and Development are available from:

<b>Name of SSC</b>	<b>e-skills UK</b>
<b>Address</b>	<b>1 Castle Lane London SW1E 6DR</b>
<b>Telephone</b>	<b>020 7963 8920</b>
<b>Fax</b>	<b>020 7492 9138</b>
<b>e-mail</b>	<b>info@e-skills.com</b>
<b>URL</b>	<b>www.e-skills.com</b>

## 4 Centre requirements

### 4.1 Centre, qualification and fast track approval

#### Centres not yet approved by City & Guilds

To offer this qualification, new centres will need to gain both **centre and qualification approval**. Please refer to Appendix 2 for further information.

#### Existing City & Guilds centres

To offer this qualification, centres already approved to deliver City & Guilds qualifications will need to gain **qualification approval**. Please refer to Appendix 2 for further information.

#### Centres already offering City & Guilds qualifications in this subject area

Centres approved to offer the Level 3 Advanced Diploma for IT Practitioners (Software Development), 7262-23, and who have been active within the 2006-2007 academic year, will receive automatic approval to offer this qualification, this process will be coordinated internally by City & Guilds.

Centres that are approved to offer the NVQ for IT Professionals (4324-03) at level 3 may apply to offer the new qualification using the fast track form

- providing there have been no changes to the way the qualifications are delivered, and
- if they meet all of the approval criteria specified in the fast track form guidance notes.

Fast track approval is available for 12 months from the launch of the qualification. After this time, the qualification is subject to the **standard** Qualification Approval Process. It is the centre's responsibility to check that fast track approval is still current at the time of application.

## 4 Centre requirements

### 4.2 Resource requirements

#### Physical resources

Centres must provide access to sufficient equipment in the centre or workplace to ensure candidates have the opportunity to cover all of the practical activities.

#### Human resources

To meet the quality assurance criteria for this qualification, the centre must ensure that the following internal roles are undertaken:

- quality assurance co-ordinator
- trainer / tutor
- assessor
- internal verifier/moderator
- examinations secretary
- invigilator.

#### Staff delivering the qualifications

Staff delivering this qualification must be able to demonstrate that they are technically competent in the area for which they are delivering training and/ or have experience of providing training. This knowledge must be at least to the same level as the training being delivered.

Centre staff may undertake more than one role eg tutor and assessor or internal verifier, but must never internally verify their own assessments.

#### Trainer / tutors must

- be occupationally knowledgeable in the area for which they are delivering training. This knowledge must be at least to the same level as the training being delivered.
- have credible experience of providing training.

#### Assessors internal verifiers

While the Assessor/Verifier (A/V) units are valued as qualifications for centre staff, they are not currently a requirement for the qualification.

**Please note:** Centre staff may undertake more than one role eg tutor and assessor but must never internally verify their own assessments.

#### Continuing professional development (CPD)

Centres are expected to support their staff in ensuring that their knowledge of the occupational area and of best practice in delivery, mentoring, training, assessment and verification remains current, and takes account of any national or legislative developments.



## 4 Centre requirements

### 4.3 Registration and certification

#### Administration

Full details of City & Guilds' administrative procedures for this qualification is provided in the *Online Catalogue*. This information includes details on:

- registration procedures
- enrolment numbers
- fees
- entry for examinations
- claiming certification.

Centres should be aware of time constraints regarding the registration and certification periods for the qualification, as specified in the City & Guilds *Online Catalogue*.

Centres should follow all administrative guidance carefully, particularly noting that fees, registration and certification end dates for the qualification are subject to change. The latest News are available on the website ([www.cityandguilds.com](http://www.cityandguilds.com)).

#### Regulations for the conduct of examinations

Regulations for the conduct of examinations for online and written examinations are given in *Providing City & Guilds qualifications - a guide to centre and qualification approval* and in the *Online Catalogue*. Centres should ensure they are familiar with all requirements prior to offering assessments.

#### Retaining assessment records

Centres must retain copies of candidate assessment records for at least three years after certification.

#### Notification of results

After completion of assessment, candidates will receive, via their centre, a 'notification of candidate results', giving details of how they performed. It is not a certificate of achievement.

#### Certificate of unit credit (CUC)

A certificate of unit credit records the successful completion of a unit. Centres can apply for CUCs on behalf of a candidate at any time after they have achieved the unit. They do not need to wait until the full programme of study has been completed.

#### Full certificates

Full certificates are only issued to candidates who have met the full requirements of the qualification, as described in section 2.2, 'The structure of the qualification'.

## 4 Centre requirements

### 4.4 Quality assurance

This information is a summary of quality assurance requirements.

*Providing City & Guilds qualifications* and in the *Centre toolkit* provide full details and guidance on:

- internal quality assurance
- external quality assurance
- roles and responsibilities of quality assurance staff.

#### **Internal quality assurance**

Approved centres must have effective quality assurance systems to ensure optimum delivery and assessment of qualifications.

Quality assurance includes initial centre approval, qualification approval 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.

#### **External quality assurance**

External quality assurance for the qualification will be provided by City & Guilds external verification process.

External verifiers are appointed by City & Guilds to approve centres, and to monitor the assessment and internal quality assurance carried out by centres. External verification is carried out to ensure that assessment is valid and reliable, and that there is good assessment practice in centres.

To carry out their quality assurance role, external verifiers must have appropriate occupational and verifying knowledge and expertise. City & Guilds external verifiers attend training and development designed to keep them up-to-date, facilitate standardisation between verifiers and share good practice.

City & Guilds External Verifiers use electronically scannable report forms designed to provide an objective risk analysis of individual centre assessment and verification practice.

#### **External verifiers:**

The role of the external verifier is to:

- provide advice and support to centre staff
- ensure the quality and consistency of assessments within and between centres by the use of systematic sampling
- regularly visit centres to ensure they continue to meet the centre and qualification approval criteria
- provide feedback to centres and to City & Guilds.

## 5 Course design and delivery

### 5.1 Initial assessment and induction

Centres will need to make an initial assessment of each candidate prior to the start of their programme to ensure they are entered for an appropriate type and level of qualification.

The initial assessment should identify any specific training needs the candidate has, and the support and guidance they may require when working towards their qualification. This is sometimes referred to as diagnostic testing.

City & Guilds recommends that centres provide an induction programme to ensure the candidate fully understands the requirements of the qualification they will work towards, their responsibilities as a candidate, and the responsibilities of the centre. It may be helpful to record the information on a learning contract.

Further guidance about initial assessment and induction, as well as a learning contract that centres may use, are available in the *Centre toolkit*.

## 5 Course design and delivery

### 5.2 Recommended delivery strategies

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

Centres may design course programmes of study in any way that

- best meets the needs and capabilities of their candidates
- which satisfies the requirements of the qualification.

In particular, staff should consider the skills and knowledge related to the national occupational standards.

City & Guilds recommends that centres address the wider curriculum, where appropriate, when designing and delivering the course. Centres should also consider links to the National Occupational Standards, Key/Core Skills and other related qualifications. Relationship tables are provided section 6 Relationships to other qualifications to assist centres with the design and delivery of the qualification.

Centres may wish to include topics as part of the course programme which will not be assessed through the qualification.

For further information to assist with the planning and development of the programme, please refer to the City & Guilds Smartscreen portal at [www.smartscreen.co.uk](http://www.smartscreen.co.uk).

## 5 Course design and delivery

### 5.3 Data protection, confidentiality and legal requirements

#### Data protection and confidentiality

Data protection and confidentiality must not be overlooked when planning the delivery of this qualification.

Centres offering this qualification may need to provide City & Guilds with personal data for staff and candidates. Guidance on data protection and the obligations of City & Guilds and centres are explained in *Providing City & Guilds qualifications*.

#### Protecting identity

It is extremely important to protect the identity of the individuals encountered by candidates in the work setting, eg customers and clients.

Confidential information must not be included in candidate portfolios or assessment records. Confidential information should remain in its usual location, and a reference should be made to it in the portfolio or assessment records.

#### Images of minors being used as evidence

If videos or photographs of minors (those under 18) are used as the medium to present evidence as part of the qualification, **both centre and candidate** have responsibilities for meeting child protection legislation.

It is the responsibility of the centre to inform the candidate of the

- need to obtain permission from the minor's parent/guardian prior to collecting the evidence
- reasons and restrictions for using photographs or video recordings as evidence
- period of time for which the photographs or video recordings may be kept
- obligation to keep photographs or video recordings secure from unauthorised access
- secure electronic storage requirements of photographs or video recordings
- associated child protection legislation.

## 5 Course design and delivery

### 5.4 Learning and support resources

City & Guilds will provide the following learning and support resources which will be posted on our website.

<b>Resource</b>	<b>How to access</b>
SmartScreen	<a href="http://www.smartscreen.co.uk">www.smartscreen.co.uk</a>
Candidate assessment guide	<a href="http://www.cityandguilds.com/e-quals07">www.cityandguilds.com/e-quals07</a>
Assessors' guide to assignments	<a href="http://www.cityandguilds.com/e-quals07">www.cityandguilds.com/e-quals07</a>
Sample assessments	<a href="http://www.cityandguilds.com/e-quals07">www.cityandguilds.com/e-quals07</a>

## 6 Relationships to other qualifications

### 6.1 Links to National Occupational Standards and N/SVQs

City & Guilds has identified the connections to linked NVQs and National Occupational Standards. This mapping is provided as guidance and suggests areas of overlap and commonality between the qualifications. It does not imply that candidates completing units in one qualification are automatically covering all of the content of the qualifications listed in the mapping.

Centres are responsible for checking the different requirements of all qualifications they are delivering and ensuring that candidates meet requirements of all units/qualifications. For example, a qualification may provide knowledge towards an N/SVQ, but centres are responsible for ensuring that the candidate has met all of the knowledge requirements specified in the N/SVQ standards.

This qualification has connections to the

- Level 3 NVQ for ICT Professionals
- Level 3 Advanced Diploma for IT Professionals
- Level 4 Higher Professional Diploma for IT Practitioners

#### Relationship between the Vocational Qualification and Level 3 NVQ for ICT Professionals

This qualification	Outcome	Level 3 NVQ for IT Professionals (4324)
Unit Number/Title		Related units
046 Designing and creating advanced web sites	1, 2, 3, 4, 5	IT Users N/SVQ (iTQ) Level 3:
	1, 2, 3, 4	301 Make selective use of IT 3
	1, 2, 3, 4, 5	302 Operate a computer 3
	1, 2, 3, 4, 5	311 Website software 3
	2, 3, 4	316 General uses of IT 3
	1, 2, 3, 4, 5	317 Use IT systems 3
	1, 2, 3, 4, 5	319 Use IT software 3
047 Designing and creating relational databases	1, 2, 3, 4, 5	320 Purposes for using IT 3
	1, 2, 3, 4, 5, 6	IT Users N/SVQ (iTQ) Level 3:
	1, 2, 3, 4, 5, 6	301 Make selective use of IT 3
	1, 2, 3, 4, 5, 6	302 Operate a computer 3
	1, 2, 3, 4, 5, 6	310 Database software 3
	1, 2, 3, 4, 5, 6	316 General uses of IT 3
	1, 2, 3, 4, 5, 6	317 Use IT systems 3
	1, 2, 3, 4, 5, 6	319 Use IT software 3
1, 2, 3, 4, 5, 6	320 Purposes for using IT 3	

<b>This qualification</b>	<b>Outcome</b>	<b>Level 3 NVQ for IT Professionals (4324)</b>
<b>Unit Number/Title</b>		<b>Related units</b>
048 Creating and designing web sites using web animation and web graphics	1, 2, 3, 4, 5 1, 2, 3, 4 1, 2, 3, 4, 5 1, 2, 3, 4, 5 2, 3, 4 1, 2, 3, 4, 5 1, 2, 3, 4, 5	IT Users N/SVQ (ITQ) Level 3: 301 Make selective use of IT 3 302 Operate a computer 3 311 Website software 3 316 General uses of IT 3 317 Use IT systems 3 319 Use IT software 3 320 Purposes for using IT 3
301 Develop designs and test software components	1,2,3,4  5,6 7	312 Software development – design 3 319 Testing ICT systems 3 301 Health and Safety in ICT and Contact Centres 3
302 Develop software using C++	1,2,3,4,5,6,7	311 Software development – component creation 3
303 Develop software using COBOL	1,2,3,4,5	311 Software development – component creation 3
304 Develop software using Visual Basic	1,2,3,4,5, 6	311 Software development – component creation 3
305 Develop software using Java	1,2,3,4,5	311 Software development – component creation 3
306 Requirements analysis and systems specification	1,2,5  3,4	306 Investigating and defining requirements 3 304 Data analysis and data structure design 3
307 Develop software using VisualBasic.net	1,2,3,4,5,6	311 Software development – component creation 3
308 Develop software using C#	1, 2, 3, 4, 5, 6	311 Software development – component creation 3
310 Develop software using Structured Query Language (SQL)	1,2 3,4,5,6	326 Database software 3 319 Testing ICT systems 3



## 6 Relationships to other qualifications

### 6.2 Relationship to previous versions of the qualification

City & Guilds has identified the connections to qualifications previously offered by City & Guilds in this subject area.

This mapping is provided as guidance and suggests areas of overlap and commonality between the qualifications. It does not imply that candidates completing units in one qualification are automatically covering all of the content of the qualifications listed in the mapping.

This qualification has connections to the Level 3 Advanced Diploma for IT Practitioners (Software Development) 7262-23

#### **Relationship between the Vocational Qualification and Level 3 Advanced Diploma for IT Practitioners (Software Development)**

<b>This qualification</b>	<b>Level 3 Advanced Diploma for IT Practitioners (Software Development) (7262)</b>
<b>Unit Number/Title</b>	<b>Related units</b>
046 Designing and creating advanced web sites	309 Website design
047 Designing and creating relational databases	311 Relational databases
301 Develop designs and test software components	306 Create designs for software 308 System testing
302 Develop software using C++	302 Develop software using C++
303 Develop software using COBOL	7261-241 Programming in COBOL 3
304 Develop software using Visual Basic	304 Develop software using Visual Basic
305 Develop software using Java	305 Develop software using Java
306 Requirements analysis and systems specification	307 Requirements analysis and systems specification
307 Develop software using VisualBasic.net	324 Develop software components using Visual Basic.net
310 Develop software using Structured Query Language (SQL)	312 SQL (Structured Query Language)

## 6 Relationships to other qualifications

### 6.3 Key skills (England, Wales and Northern Ireland)

This qualification includes opportunities to develop and practise many of the underlying skills and techniques described in Part A of the standard for each key skills qualification. Where candidates are working towards any key skills alongside this qualification they will need to be registered with City & Guilds for the key skills qualifications.

It should not be assumed that candidates will necessarily be competent in, or able to produce evidence for, the key skills at the same level as this qualification.

The 'signposts' below identify the **potential** for key skills portfolio evidence gathering that can be naturally incorporated into the completion of each unit. Any key skills evidence needs to be separately assessed and must meet the relevant standard defined in the QCA document '*Key skills qualifications standards and guidance*'.

If this qualification is being delivered alongside an Essential Skills Communication and/or Application of Number programme in **Northern Ireland**, it is good practice to emphasise the relevance of these skills to candidates when completing their Action-Based Activities.

Unit number/ and title	Communication	Application of Number	Information Technology
046 Designing and creating advanced web sites	C2.2, C2.3		IT3.1, IT3.2, IT3.3
047 Designing and creating relational databases	C3.2		
048 Creating and designing web sites using web animation and web graphics	C3.2		IT3.1, IT3.2, IT3.3
301 Develop designs and test software components	C1.3, C3.2, C3.3	N1.1	
302 Develop software using C++	C1.3, C3.2	N1.1	
303 Develop software using COBOL	C1.3, C3.2	N1.1	
304 Develop software using Visual Basic	C1.3, C3.2	N1.1	
305 Develop software using Java	C1.3, C3.2	N1.1	
306 Requirements analysis and systems specification	C3.2, C3.3		
307 Develop software using VisualBasic.net	C1.3, C3.2	N1.1	
308 Develop software using C#	C1.3, C3.2	N1.1	
310 Develop software using Structured Query Language (SQL)	C1.3, C3.2	N1.1	

<b>Unit number/and title</b>	<b>Problem Solving</b>	<b>Improving own learning and performance</b>	<b>Working With Others</b>
046 Designing and creating advanced web sites	PS2.1, PS2.2, PS2.3		
047 Designing and creating relational databases	PS3.1, PS3.2, PS3.3	LP3.1, LP3.2, LP3.3	
048 Creating and designing web sites using web animation and web graphics	PS2.1, PS2.2, PS2.3		
301 Develop designs and test software components	PS3.1, PS3.2, PS3.3	LP3.1, LP3.2, LP3.3	
302 Develop software using C++	PS3.1, PS3.2, PS3.3	LP3.1, LP3.2, LP3.3	
303 Develop software using COBOL	PS3.1, PS3.2, PS3.3	LP3.1, LP3.2, LP3.3	
304 Develop software using Visual Basic	PS3.1, PS3.2, PS3.3	LP3.1, LP3.2, LP3.3	
305 Develop software using Java	PS3.1, PS3.2, PS3.3	LP3.1, LP3.2, LP3.3	
306 Requirements analysis and systems specification	PS3.1, PS3.2, PS3.3	LP3.1, LP3.2, LP3.3	WWO3.1, WWO3.2, WWO3.3
307 Develop software using VisualBasic.net	PS3.1, PS3.2, PS3.3	LP3.1, LP3.2, LP3.3	
308 Develop software using C#	PS3.1, PS3.2, PS3.3	LP3.1, LP3.2, LP3.3	
310 Develop software using Structured Query Language (SQL)	PS3.1, PS3.2, PS3.3	LP3.1, LP3.2, LP3.3	

## 6 Relationships to other qualifications

### 6.4 The wider curriculum

Candidates taking this qualification may also have the opportunity to cover the following aspects of the wider curriculum.

<b>Unit No and Title</b>	<b>Spiritual, moral, ethical, social and cultural issues</b>	<b>European dimension</b>	<b>Environmental education</b>	<b>Health and safety</b>
046 Designing and creating advanced web sites	✓	✓		✓
047 Designing and creating relational databases	✓	✓		✓
048 Creating and designing web sites using web animation and web graphics	✓	✓		✓
301 Develop designs and test software components	✓	✓		✓
302 Develop software using C++	✓	✓		✓
303 Develop software using COBOL	✓	✓		✓
304 Develop software using Visual Basic	✓	✓		✓
305 Develop software using Java	✓	✓		✓
306 Requirements analysis and systems specification	✓	✓		✓
307 Develop software using VisualBasic.net	✓	✓		✓
308 Develop software using C#	✓	✓		✓

<b>Unit No and Title</b>	<b>Spiritual, moral, ethical, social and cultural issues</b>	<b>European dimension</b>	<b>Environmental education</b>	<b>Health and safety</b>
310 Develop software using Structured Query Language (SQL)	✓	✓		✓

## 7 Assessment

### 7.1 Summary of assessment requirements

For this qualification, candidates will be required to complete **one** assignment and **one** on-line multiple-choice test for units 301-305 and 307-308, units 046 -048, 306 and 310 are assessed by assignment only.

City & Guilds provides the following assessments:

- Online, on-demand testing using multiple choice questions
- Assignments versions A, B, C (stock code SP-7266- IA)
- A sample synoptic assignment can be downloaded from the SmartScreen section of the City & Guilds website.

#### Time constraints

All assignments must be completed and assessed within the learner's period of registration. Centres should advise learners of any internal timescales for the completion and marking of individual assignments.

#### Grading and marking

All multiple-choice on-line tests are graded pass/fail. Assignments will be graded pass, credit or distinction.

Detailed marking and grading criteria are provided in the Assessors' Guide for each assignment, these are available to download from the City & Guilds website at [www.cityandguilds.com/e-quals07](http://www.cityandguilds.com/e-quals07). These Assessors' Guides are password protected. Existing centres will be able to get the password, from their nearest City & Guilds Regional Office or the City & Guilds Contact Centre, when they send an email from a recognised centre email address. New centres will be given the password when they receive approval from City & Guilds to run the award.

All assignments are internally marked and graded.

#### Sample assessments

Sample assignments are available from our Smartscreen portal at [www.smartscreen.co.uk](http://www.smartscreen.co.uk).

## 8 Test specifications

### 8.1 Test specifications

The test specifications for this qualification are below:

**Test 351:** Unit 301 Develop designs and test software components

**Duration:** 1 hour

<b>Outcome number</b>	<b>Outcome</b>	<b>No of questions</b>
01	Explain the concepts of software design	5
02	Use diagrammatical representation for design	8
03	Specify data types and data structures	8
04	Develop a software design specification	5
05	Plan for software testing	5
06	Record and analyse test results	5
07	Identify Health and Safety Requirements	4
	<b>Total</b>	<b>40</b>

**Test 352:** Unit 302 Develop software using C++

**Duration:** 1 hour

<b>Outcome number</b>	<b>Outcome</b>	<b>No of questions</b>
01	Interpret program specifications to develop software	2
02	Develop software components	13
03	Use functions	7
04	Save and retrieve data from disk	4
05	Use Object Orientated Programming (OOP)	7
06	Test software using change control	5
07	Produce documentation	2
	<b>Total</b>	<b>40</b>

**Test 353:** Unit 303 Develop software using COBOL

**Duration:** 1 hour

<b>Outcome number</b>	<b>Outcome</b>	<b>No of questions</b>
1	Interpret program specifications to develop software	4
2	Develop code for implementation	14
3	Manage files for input and output	12
4	Test software	8
5	Produce documentation	2
<b>Total</b>		<b>40</b>

**Test 354:** Unit 304 Develop software using Visual Basic

**Duration:** 1 hour

<b>Outcome number</b>	<b>Outcome</b>	<b>No of questions</b>
01	Interpret program specifications to develop software	3
02	Use components to create a Graphical User Interface (GUI)	8
03	Use built in database management features	6
04	Develop code for implementation	12
05	Test software	9
06	Produce documentation	2
<b>Total</b>		<b>40</b>



**Test 355:** Unit 305 Develop software using Java  
**Duration:** 1 hour

<b>Outcome number</b>	<b>Outcome</b>	<b>No of questions</b>
01	Interpret program specifications to develop software	4
02	Create classes	9
03	Develop code for implementation	16
04	Test software using change control	9
05	Produce documentation	2
<b>Total</b>		<b>40</b>

**Test 357:** Unit 307 Develop software using Visual Basic.net  
**Duration:** 45 mins

<b>Outcome number</b>	<b>Outcome</b>	<b>No of questions</b>
01	Interpret program specifications to develop software	2
02	Create a Graphical User Interface (GUI)	6
03	Use built-in database management facilities	6
04	Develop code for implementation	10
05	Test software	5
06	Produce documentation	1
<b>Total</b>		<b>30</b>

**Test 358:** Unit 308 Develop software using C#  
**Duration:** 45 mins

<b>Outcome number</b>	<b>Outcome</b>	<b>No of questions</b>
01	Interpret program specifications to develop software	2
02	Use components to create a Graphical User Interface (GUI)	6
03	Use built-in database management facilities	7
04	Develop code for implementation	7
05	Test software	7
06	Produce documentation	1
<b>Total</b>		<b>30</b>

## **9 Units**

### 9.1 About the units

#### **Availability of units**

The units for this qualification are available to download from the City & Guilds website at [www.cityandguilds.com/e-quals07](http://www.cityandguilds.com/e-quals07).

#### **Structure of units**

The units in this qualification are written in a standard format and comprise the following:

- title
- unit reference
- rationale
- list of learning outcomes
- statement of guided learning hours
- connections with other qualifications, eg NVQs, key skills
- assessment details
- learning outcomes in detail expressed as practical skills and/ or underpinning knowledge

## Appendix 1      Accreditation, national frameworks and qualification level descriptors

Please visit the following websites to find information on accreditation, national frameworks and qualification level descriptors in each country.

<b>Nation</b>	<b>Who to contact</b>	<b>Website</b>
<b>England</b>	The Qualifications and Curriculum Authority	<a href="http://www.qca.org.uk">www.qca.org.uk</a>
<b>Scotland</b>	The Scottish Qualifications Authority	<a href="http://www.sqa.org.uk">www.sqa.org.uk</a>
<b>Wales</b>	The Department for Education, Lifelong Learning and Skills Wales (DELLS)	<a href="http://www.wales.gov.uk">www.wales.gov.uk</a>
<b>Northern Ireland</b>	The Council for Curriculum, Examinations and Assessment	<a href="http://www.ccea.org.uk">www.ccea.org.uk</a>

## Appendix 2      Obtaining centre and qualification approval

Only approved organisations can offer City & Guilds qualifications. Organisations approved by City & Guilds are referred to as **centres**.

Centres must meet a set of quality criteria including:

- provision of adequate physical and human resources
- clear management information systems
- effective assessment and quality assurance procedures including candidate support and reliable recording systems.

An organisation that has not previously offered City & Guilds qualifications must apply for approval to become a centre. This is known as the **centre approval process (CAP)**. Centres also need approval to offer a specific qualification. This is known as the **qualification approval process (QAP)**, (previously known as scheme approval). In order to offer this qualification, organisations which are not already City & Guilds centres must apply for centre and qualification approval at the same time. Existing City & Guilds centres will only need to apply for qualification approval for the particular qualification.

Full details of the procedures and forms for applying for centre and qualification approval are given in *Providing City & Guilds qualifications - a guide to centre and qualification approval*, which is also available on the City & Guilds centre toolkit, or downloadable from the City & Guilds website.

Regional / national offices will support new centres and appoint a Quality Systems Consultant to guide the centre through the approval process. They will also provide details of the fees applicable for approvals.

Assessments must not be undertaken until qualification approval has been obtained.

City & Guilds reserves the right to withdraw qualification or centre approval for reasons of debt, malpractice or non-compliance with City & Guilds' policies, regulations, requirements, procedures and guidelines, or for any reason that may be detrimental to the maintenance of authentic, reliable and valid qualifications or that may prejudice the name of City & Guilds. Further details of the reasons for suspension and withdrawal of approval, procedures and timescales, are contained in *Providing City & Guilds qualifications*.

### **Approval for global online assessment (GOLA)**

In addition to obtaining centre and qualification approval, centres are also required to set up a GOLA profile in order to offer online examinations to candidates. Setting up a GOLA profile is a simple process that need only be completed once by the centre.

Details of how to set up the profile and GOLA technical requirements are available on the City & Guilds website ([www.cityandguilds.com/e-assessment](http://www.cityandguilds.com/e-assessment)). The GOLA section of the website also has details of the GOLA helpline for technical queries and downloads for centres and candidates about GOLA examinations.

Centres should also refer to *Providing City & Guilds qualifications - a guide to centre and qualification approval* for further information on GOLA.

## Appendix 3 Summary of City & Guilds assessment policies

### Health and safety

The requirement to follow safe working practices is an integral part of all City & Guilds qualifications and assessments, and it is the responsibility of centres to ensure that all relevant health and safety requirements are in place before candidates start practical assessments.

Should a candidate fail to follow health and safety practice and procedures during an assessment, the assessment must be stopped. The candidate should be informed that they have not reached the standard required to successfully pass the assessment and told the reason why. Candidates may retake the assessment at a later date, at the discretion of the centre. In case of any doubt, guidance should be sought from the external verifier.

### Equal opportunities

It is a requirement of centre approval that centres have an equal opportunities policy (see *Providing City & Guilds qualifications*).

The regulatory authorities require City & Guilds to monitor centres to ensure that equal opportunity policies are being followed.

The City & Guilds equal opportunities policy is set out on the City & Guilds website, in *Providing City & Guilds qualifications*, in the *Online Catalogue*, and is also available from the City & Guilds Customer Relations department.

Access to qualifications on the National Qualifications Framework is open to all, irrespective of gender, race, creed, age or special needs. The centre co-ordinator should ensure that no candidate is subject to unfair discrimination on any ground in relation to access to assessment and the fairness of the assessment.

### Access to assessment

Qualifications on the National Qualifications Framework are open to all, irrespective of gender, race, creed, age or special needs. The centre co-ordinator should ensure that no candidate is subject to unfair discrimination on any ground in relation to access to assessment and the fairness of the assessment.

City & Guilds' *Access to assessment and qualifications guidance and regulations* document is available on the City & Guilds website. It 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.

Access arrangements are pre-assessment adjustments primarily based on history of need and provision, for instance the provision of a reader for a visually impaired candidate.

Special consideration refers to post-examination adjustments to reflect temporary illness, injury or indisposition at the time of the assessment.

## **Appeals**

Centres must have their own, auditable, appeals procedure that must be explained to candidates during their induction. Appeals must be fully documented by the quality assurance co-ordinator and made available to the external verifier and/or City & Guilds.

Further information on appeals is given in *Providing City & Guilds qualifications*. There is also information on appeals for centres and learners on the City & Guilds website or available from the Customer Relations department.

## Appendix 4 Funding

City & Guilds does not provide details on funding as this may vary between regions.

Centres should contact the appropriate funding body to check eligibility for funding and any regional/national arrangements which may apply to the centre or candidates.

For funding regulatory purposes, candidates should not be entered for a qualification of the same type, level and content as that of a qualification they already hold.

Please see the table below for where to find out more about the funding arrangements.

Nation	Who to contact	For higher level qualifications
<b>England</b>	<p>The Learning and Skills Council (LSC) is responsible for funding and planning education and training for over 16-year-olds. Each year the LSC publishes guidance on funding methodology and rates. There is separate guidance for further education and work-based learning.</p> <p>Further information on funding is available on the Learning and Skills Council website at <b>www.lsc.gov.uk</b> and, for funding for a specific qualification, on the Learning Aims Database <b>http://providers.lsc.gov.uk/lad</b>.</p>	<p>Contact the Higher Education Funding Council for England at <b>www.hefce.ac.uk</b>.</p>
<b>Scotland</b>	<p>Colleges should contact the Scottish Further Education Funding Council, at <b>www.sfc.co.uk</b>. Training providers should contact Scottish Enterprise at <b>www.scottish-enterprise.com</b> or one of the Local Enterprise Companies.</p>	<p>Contact the Scottish Higher Education Funding Council at <b>www.shefc.ac.uk</b>.</p>
<b>Wales</b>	<p>Centres should contact the Department for Education, Lifelong Learning and Skills (DELLS): <b>www.wales.gov.uk</b></p>	<p>Centres should contact the Department for Education, Lifelong Learning and Skills (DELLS): <b>www.new.wales.gov.uk</b></p>
<b>Northern Ireland</b>	<p>Please contact the Department for Employment and Learning at <b>www.delni.gov.uk</b>.</p>	<p>Please contact the Department for Employment and Learning at <b>www.delni.gov.uk</b>.</p>

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