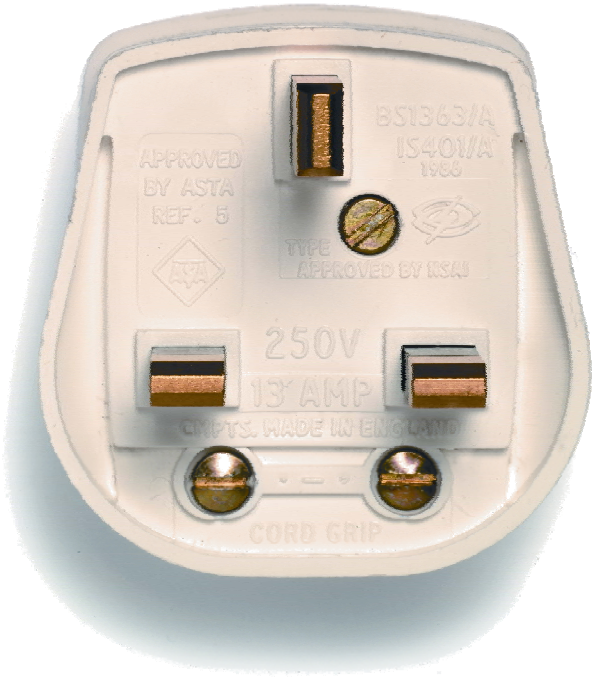
Level 3 Certificates for the Code of Practice for In-Service Inspection and Testing of Electrical Equipment (2377)

www.cityandguilds.com
June 2008
Version 3.0

Qualification handbook

Level 3 Certificate in Management of Electrical Equipment Maintenance 100/4338/X

Level 3 Certificate for the Inspection and Testing of Electrical Equipment 100/4339/1



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City & Guilds
1 Giltspur Street
London EC1A 9DD
T +44 (0)20 7294 2800
F +44 (0)20 7294 2400

www.cityandguilds.com
centresupport@cityandguilds.com

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1 About this document

Qualification title	City & Guilds qualification number	QCA / SQA accreditation number(s)	Guided Learning Hours
Level 3 Certificate in Management of Electrical Equipment Maintenance	2377-11	100/4338/X	30-35
Level 3 Certificate for the Inspection and Testing of Electrical Equipment	2377-12	100/4339/1	35

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.

2 About the qualifications

2.1 Aim of the qualifications

The qualifications described in this Qualification Handbook relate to the *IEE Code of Practice for In-Service Inspection and Testing of Electrical Equipment 3rd edition*, published by the Institution of Engineering and Technology (IET).

The qualifications are aimed at those with administrative responsibilities for the maintenance of electrical equipment and for those undertaking practical inspection and testing of electrical equipment. It also allows those with an administrative responsibility for the testing and inspection of electrical equipment to gain a qualification suitable to their job role.

The qualifications form part of the Continuous Professional Development available to the electrical sector, allowing those working in the sector to develop their skills and keep up to date with requirements of working in the industry.

Accreditation details

These qualifications are accredited by the Qualifications and Curriculum Authority at Level 3 of the National Qualifications Framework.

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

2 About the qualifications

2.2 Value statement

Centres must adhere to the *IEE Code of Practice for In-Service Inspection and Testing of Electrical Equipment 3rd edition*, published by the Institution of Engineering and Technology (IET), when delivering these qualifications.

2 About the qualifications

2.3 The structure of the qualifications

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

Full qualifications

The qualifications will be awarded to candidates on successful completion of the required units as shown below:

Unit 100 – Certificate in Management of Electrical Equipment Maintenance

Unit 200 – Certificate for the Inspection and Testing of Electrical Equipment

Each qualification consists of one unit only.

2 About the qualifications

2.4 Sources of information and assistance

Related publications

City & Guilds also provides the following documents specifically for these qualifications:

Publication	Available from
Sample test papers	City & Guilds Publication Sales stock code QP002377
Exam Success: IEE Code of Practice 2377	http://www.theiet.org/publishing/books/wir-reg/exam-success-2377.cfm

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

Website	Address	Purpose and content
City & Guilds main website	**www.cityandguilds.com**	This is the main website for finding out about the City & Guilds group, accessing qualification information and publications.
SmartScreen	**www.smartscreen.co.uk**	SmartScreen is the City & Guilds online learning support website. It gives registered subscribers access to qualification-specific support materials.
Walled Garden	**www.walled-garden.com**	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.

e-mail	Query types
learnersupport@cityandguilds.com	all learner enquiries, including • requesting a replacement certificate • information about our qualification • finding a centre.
centresupport@cityandguilds.com	all centre enquiries
walledgarden@cityandguilds.com	all enquiries relating to the Walled Garden, including • setting up an account • resetting passwords.

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.

It is expected that candidates attempting either qualification should be familiar with electrical systems and hazards of electricity in order to satisfactorily complete this qualification.

The Level 3 electrotechnical NVQ is the qualification that indicates to industry an individual is qualified. These qualifications are designed to provide expertise and focus on the IEE's *Code of Practice for In-Service Inspection and Testing of Electrical Equipment*.

Without evidence of formal qualifications, candidates must be able to demonstrate adequate prior knowledge and experience to ensure they have the potential to successfully gain the qualifications. Centres are required to conduct a practical test to evaluate the candidate's ability to undertake electrical inspection and testing in a competent manner for the inspection and testing unit/qualification (200).

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

These qualifications are not approved for use by candidates under the age of 18, 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 qualifications provide knowledge and practical skills related to the following qualifications, which candidates may progress to:

Level 3 Certificate in Electrotechnical Technology (2330)
Level 3 NVQ in Electrotechnical Services (2356)
Level 3 Certificate in the Requirements for Electrical Installations (BS7671 2008) (2382-10 and 2382-20)
Level 3 Certificate in Inspection, Testing and Certification of Electrical Installations (2391-10)
Level 3 Certificate in Design, Erection and Verification of Electrical Installations (2391-20) (formerly 2400)
Level 2 Certificate in Fundamental Inspection, Testing and Initial Verification (2392-10) Level 3 Certificate in the Building Regulations for Electrical Installations in Dwellings (2393)

4 Centre requirements

4.1 Centre, qualification and fast track approval

Centres not yet approved by City & Guilds

To offer these qualifications, 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 these qualifications, 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

There is **no** fast track approval provision for this qualification.

Existing centres wishing to offer this qualification must use the **standard** Qualification Approval Process.

4 Centre requirements

4.2 Resource requirements

Physical resources

- Portable appliance equipment
- A minimum of one Class 1 (eg iron, traditional kettle, toaster,) and one class 2 equipment (eg vacuum cleaner, double insulated electric drill) to be tested
- Standard electrician toolkit

Staff delivering the qualifications

Staff delivering these qualifications must be able to demonstrate that they meet the following occupational expertise requirements.

- be technically competent in the areas 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.
- hold the both 2377-11 and 2377-12 qualifications (management and competence in inspection and testing)
- 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 qualifications.

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 these qualifications are 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 qualifications, 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 qualifications are subject to change. The latest News are available on the website (**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.

Full certificates

Full certificates are only issued to candidates who have met the full requirements of the qualifications, as described in section 2.3 The structure of the qualifications.

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 qualifications 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

It is expected that candidates attempting either qualification should be familiar with electrical systems and hazards of electricity in order to satisfactorily complete this qualification; preferably the Level 3 electrotechnical NVQ, which indicates to industry that an individual is qualified to operate.

Without evidence of formal qualifications, candidates must be able to demonstrate adequate prior knowledge and experience to ensure they have the potential to successfully gain the qualifications.

Centres are required to conduct a practical test to evaluate the candidate's ability to undertake electrical inspection and testing in a competent manner for the inspection and testing unit (2377-200) as detailed in section 7 of this handbook.

Candidates should successfully achieve the inspection and testing qualification before undertaking the management course.

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.

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 qualifications 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.

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.

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 these qualifications 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*.

5 Course design and delivery

5.4 Learning and support resources

City & Guilds provides the *Exam Success* resource for these qualifications.

With full exam preparation including sample tests, advice from examiners, and tips on taking a multiple choice exam, this book from City & Guilds and The IEE is the ideal way to prepare for exam success.

Written by experts, this book is designed for candidates of the City & Guilds Level 3 Certificates (2377) for the *IEE Code of Practice for In-Service Inspection and Testing of Electrical Equipment 3rd edition*, published in January 2008.

This highly accessible book includes three sample tests that mirror the exam in style and content. These are followed by worked-through answers, cross referenced to the *Code of Practice*.

A section of guidance on how to answer the different types of questions that candidates will face in the exam, written by a City & Guilds Chief Examiner, makes this an invaluable resource for all candidates.

Exam Success IEE Code of Practice 2377:

- reinforces learning and understanding of course content
- gives learners focused exam practice
- answers candidates' most frequently asked questions
- offers advice and expert tips on sitting the exam
- follows the exam structure
- covers all parts of the exam content
- prepares learners for a multiple choice paper
- reflects revisions to the Code of Practice

For more information, either email learningmaterials@cityandguilds.com or call the Teaching & Learning Materials team on 020 7294 4113.

6 Relationships to other qualifications

6.1 Links to National Occupational Standards and N/SVQs

This qualification is based upon the *IEE Code of Practice for In-Service Inspection and Testing of Electrical Equipment 3rd Edition*, rather then linked to N/SVQs and National Occupational Standards, therefore detailed mapping is not provided.

6 Relationships to other qualifications

6.2 Key skills (England, Wales and Northern Ireland)

City & Guilds recognises the importance of opportunities for developing and generating evidence for the assessment of the nationally specified key Skills. However, as the intention of this qualification is to itself support technical knowledge for those employed within the industry we would suggest that the opportunities for key skills would be found in the complementary electrical qualifications at level 3.

6 Relationships to other qualifications

6.3 The wider curriculum

Candidates taking these qualifications may also have the opportunity to cover the following aspects of the wider curriculum.

Outcome No and Title	Spiritual, moral, ethical, social and cultural issues	European dimension	Environmental education	Health and safety
1.1 1. Law and scope of legislation relevant to the management of electrical equipment maintenance	✓	✓		✓
1.2 Types, use and testing of electrical equipment used for in-service inspection and testing		✓		✓
1.3 Categories, frequency and practicalities of in-service inspection and testing		✓		✓
1.4 Procedures, documentation and user responsibilities that are required for in-service inspection and testing		✓		✓
1.5 Training that is required for in-service inspection and testing		✓		✓
1.6 Instruments		✓		✓
2.1 Equipment construction				✓
2.2 Inspection		✓		✓
2.3 Combined inspection and testing		✓		✓
2.4 Use of instruments and recording of data				✓
2.5 Equipment		✓		✓

7 Assessment

7.1 Summary of assessment requirements

Unit No.	Title	Assessment Method	Where to obtain assessment materials
100	Management of Electrical Equipment Maintenance	City & Guilds GOLA Online multiple choice test The assessment covers all of the underpinning knowledge criteria.	N/A Examinations provided on GOLA (see Appendix 2 for info regarding GOLA approval)
200	Inspection and Testing of Electrical Equipment	City & Guilds GOLA Online multiple choice test The assessment covers all of the underpinning knowledge criteria. Prior to entry a practical skills test must be undertaken by the candidate o: Demonstrate an ability to inspect and test an item of Class 1 equipment and correctly complete these specified forms: V1.1 Equipment Register V1.2 Equipment Formal Visual and Combined Inspection Test Record	N/A Examinations provided on GOLA (see Appendix 2 for info regarding GOLA approval)

Grading and marking

Grading of assessments for these qualifications is pass or fail.

Sample assessments

Sample assignments are available from Publication Sales (stock code QP002377), telephone: +44 (0)20 7294 2850.

8 Test specifications

8.1 Test specifications

Note: The assessments will be based on the *IEE Code of Practice for In-Service Inspection and Testing of Electrical Equipment 3rd edition,* published by the Institution of Engineering and Technology (IET). **Candidates will need a copy for the examination.** Please refer to section 9 for the full knowledge requirements for each of the below outcomes.

Test: 2377-100 Management of Electrical Equipment Maintenance
Duration: 1 ½ hours (90 minutes), 45 questions

Outcome	Assessment Criteria	Weighting %	No. of items
1.1	Law and scope of legislation relevant to the management of electrical equipment maintenance	16	7
1.2	Types, use and testing of electrical equipment used for in-service inspection and testing	22	10
1.3	Categories, frequency and practicalities of in-service inspection and testing	27	12
1.4	Procedures, documentation and user responsibilities that are required for in-service inspection and testing	22	10
1.5	Training that is required for in-service inspection and testing	5	2
1.6	Appropriate test instruments and how they are used within in-service inspection and testing	8	4
	Total	**100**	**45**

Test: 2377-200 Inspection and Testing of Electrical Equipment
Duration: 1 hour (60 minutes), 30 questions

Outcome	Assessment Criteria	Weighting %	No. of items
2.1	Equipment construction	20	6
2.2	Inspection	20	6
2.3	Combined inspection and testing	20	6
2.4	Use of instruments and recording of data	20	6
2.5	Equipment	20	6
	Total	**100**	**30**

9 Units

9.1 About the units

Availability of units

The units for these qualifications follow.

Structure of units

The units in these qualifications are written in a standard format and comprise the following:

- title
- unit reference
- rationale
- list of learning outcomes
- statement of guided learning hours
- learning outcomes in detail expressed as underpinning knowledge

Unit 100 Management of Electrical Equipment Maintenance (2377-11)

Rationale

The aim of this unit is to enable the candidate to manage the administrative responsibilities for the maintenance of electrical equipment.

Learning outcomes

There are **six** outcomes to this unit. The candidate will be able to demonstrate knowledge of:

- Law and scope of legislation relevant to the management of electrical equipment maintenance
- Types, use and testing of electrical equipment used for in-service inspection and testing
- Categories, frequency and practicalities of in-service inspection and testing
- Procedures, documentation and user responsibilities that are required for in-service inspection and testing
- Training that is required for in-service inspection and testing
- Appropriate test instruments and how they are used within in-service inspection and testing.

Guided learning hours

It is recommended that 30-35 hours should be allocated for this unit. This may be on a full time or part time basis.

Assessment and grading

This unit will be assessed by a multiple choice test covering the underpinning knowledge of the unit.

Unit 100 Management of Electrical Equipment Maintenance (2377-11)

Outcome 1.1 Law and scope of legislation relevant to the management of electrical equipment maintenance

Underpinning knowledge

The candidate will be able to:

1 State the related requirements of

- a The Health and Safety at Work etc Act, ie duties of employers, employees, visitors to premises and the self employed
- b The Management of Health and Safety at Work Regulations, Regulation 3 (1) – Risk Assessment
- c The Provision and Use of Work Equipment Regulations
- d The Electricity at Work Regulations
- e The Workplace (Health, Safety & Welfare) Regulations

2 Identify the scope of legislation with regard to the system voltage

3 Identify those properties and premises to which the Act and regulations apply, and those which are excluded

4 State the guidance given by the Health and Safety Executive relating to electrical equipment (in particular, the guidance on procedures for isolation of supplies)

5 State the legal requirements to maintain electrical equipment in a safe condition in work premises

6 State the importance of, and reasons for, inspecting and testing electrical equipment and systems.

Unit 100 Management of Electrical Equipment Maintenance

Outcome 1.2 Types, use and testing of electrical equipment used for in-service inspection and testing

Underpinning knowledge
The candidate will be able to:

1 Classify types and construction of electrical equipment identified in the Code of Practice

2 State how the construction of electrical equipment provides protection against electric shock

3 State the specific requirements for inspection and testing of extension leads

4 State the different types of tests that may be utilised during the life of equipment

5 State what tests may be required following repairs to electrical equipment.

Unit 100 Management of Electrical Equipment Maintenance (2377-11)

Outcome 1.3 Categories, frequency and practicalities of in-service inspection and testing

Underpinning knowledge
The candidate will be able to:

1 Identify the categories of inspection and testing

2 State the factors governing the frequency of in-service inspection and testing

3 State the purpose of TABLE 7.1 Initial frequency of inspection and testing of equipment

4 Detail the visual inspection/examination requirements and note the contents of Appendix VIII

5 Detail the tests that are required for in-service inspection and testing equipment.

Unit 100 Management of Electrical Equipment Maintenance (2377-11)

Outcome 1.4 Procedures, documentation and user responsibilities that are required for in-service inspection and testing

Underpinning knowledge
The candidate will be able to:

1 State the need for the model forms in the *Code Of Practice* to provide data on the results of electrical equipment maintenance

2 State the need for equipment identifying, numbering and labelling

3 Record information, testing requirements and results

4 Interpret test results

5 Identify instrument requirements

6 State the procedure for dealing with equipment found to be faulty.

Unit 100 Management of Electrical Equipment Maintenance (2377-11)

Outcome 1.5 Training that is required for in-service inspection and testing

Underpinning knowledge

The candidate will be able to:

1 State the Electricity at Work Regulations' requirements for maintaining electrical equipment, including the need for competence when managing such maintenance

2 State the training requirements for users of equipment with regard to:

- a the safe use of equipment
- b identifying damaged equipment and flexible cables and cords, together with connecting plugs and couplers, etc

3 State the training requirements for managers to:

- a undertake risk assessment in the workplace
- b maintain records of electrical maintenance
- c interpret the results of electrical tests

4 State the training requirements for inspectors.

Unit 100 Management of Electrical Equipment Maintenance (2377-11)

Outcome 1.6 Appropriate test instruments and how they are used within in-service inspection and testing

Underpinning knowledge

The candidate will be able to:

1 List instruments that are suitable for testing electrical equipment, together with means of on-going checks of instrument accuracy

2 State types of continuity tester, indicating in each case the instrument's short circuit test current(s)

3 State means of determining equipment insulation resistance, earth leakage/touch current measurement, indicating instrument voltage and current

4 State procedures for conducting electrical tests.

Unit 200 Inspection and Testing of Electrical Equipment (2377-12)

Rationale
The aim of this unit is to enable the candidate to undertake practical inspection and testing of electrical equipment.

Learning outcomes
There are **five** outcomes to this unit. The candidate will be able to demonstrate knowledge of:

- Equipment construction
- Inspection
- Combined inspection and testing
- The use of instruments and recording of data
- Equipment

Guided learning hours
It is recommended that 35 hours should be allocated for this unit. This may be on a full time or part time basis.

Assessment and grading
This unit will be assessed by:
a multiple choice test covering the underpinning knowledge of the unit.

PLEASE NOTE: Candidates are required, before undertaking the multiple choice test, to demonstrate an ability to undertake the practical skills test to inspect and test an item of Class 1 equipment and correctly complete forms:

V1.1, Equipment register; and

V1.2 Equipment formal visual and combined inspection and test record.

Candidates may use their own instruments, in which case they bear responsibility for test results

The records must be kept by for auditing by the External Verifier.

Unit 200 Inspection and Testing of Electrical Equipment (2377-12)

Outcome 2.1 Equipment construction

Underpinning knowledge

The candidate will be able to:

1 State the different types of equipment, together with their form of construction and classification marks

2 Identify how electric shock can occur through lack of basic protection or inadequate fault protection

3 State how equipment construction provides protection against electric shock

4 State the effect of equipment flexible leads and cord sets' resistance on disconnection times under earth fault conditions

5 State the need for RCD protection for certain items of equipment.

Unit 200 Inspection and Testing of Electrical Equipment (2377-12)

Outcome 2.2 Inspection

Underpinning knowledge
The candidate will be able to:

1 State essential initial frequencies for:

   a user checks
   b formal visual inspection/examination
   c combined inspection/examination and testing

2 Identify items that the user should be competent to inspect

3 Describe what needs to be considered when carrying out a formal visual inspection with regard to:

   a suitability of equipment for the environment
   b good housekeeping
   c suitability of equipment for intended use
   d requirements for switching of equipment and disconnection of supplies
   e condition of equipment and connecting cable or cord.

Unit 200 Inspection and Testing of Electrical Equipment (2377-12)

Outcome 2.3 Combined inspection and testing

Underpinning knowledge
The candidate will be able to:

1 List the factors to be taken into account when conducting visual inspection/examination of equipment

2 State the purpose of the following tests:

- a earth continuity (earth bonding), including circumstances which would require the use of a purpose-built continuity tester
- b insulation resistance and earth leakage/touch current measurement including circumstances which would require use of a purpose-built insulation resistance tester
- c substitute/alternative leakage measurement
- d operation/load checking
- e polarity
- f where an extension lead incorporates an RCD, an electrical test should be carried out to confirm correct operation of the device
- g microwave ovens should be checked for leakage levels at appropriate intervals

3 State which tests should not be carried out

4 Describe the various types of instruments that may be used for testing electrical equipment.

Unit 200 Inspection and Testing of Electrical Equipment (2377-12)

Outcome 2.4 The use of instruments and recording of data

Underpinning knowledge

The candidate will be able to:

1 State minimum and maximum acceptable conductor and insulation resistances, together with 'leakage' and 'touch' currents

2 State the information to be recorded on an identification label

3 Recognise deteriorating equipment by interpretation of test results.

Unit 200 Inspection and Testing of Electrical Equipment (2377-12)

Outcome 2.5 Equipment

Underpinning knowledge
The candidate will be able to:

1 State the requirements for procedures to deal with damaged and faulty equipment

2 State particular considerations for appliance couplers and cord sets

3 State recommended testing procedures for microwave ovens

4 Identify particular considerations for information technology (IT) equipment having high protective conductor currents and associated testing limitations

5 State requirements for appliance flexible cables and cords and their overcurrent protection by the two standard sizes of plug fuse

6 State tests that may be required following equipment repair.

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.

Nation	Who to contact	Website
England	The Qualifications and Curriculum Authority	**www.qca.org.uk**
Scotland	The Scottish Qualifications Authority	**www.sqa.org.uk**
Wales	The Department for Education, Lifelong Learning and Skills Wales (DELLS)	**www.wales.gov.uk**
Northern Ireland	The Council for Curriculum, Examinations and Assessment	**www.ccea.org.uk**

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**). 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 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 candidates 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
England	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. Further information on funding is available on the Learning and Skills Council website at **www.lsc.gov.uk** and, for funding for a specific qualification, on the Learning Aims Database **http://providers.lsc.gov.uk/lad**.	Contact the Higher Education Funding Council for England at **www.hefce.ac.uk**.
Scotland	Colleges should contact the Scottish Further Education Funding Council, at **www.sfc.co.uk**. Training providers should contact Scottish Enterprise at **www.scottish-enterprise.com** or one of the Local Enterprise Companies.	Contact the Scottish Higher Education Funding Council at **www.shefc.ac.uk**.
Wales	Centres should contact the Centres should contact the Welsh Assembly Government **www.learning.wales.gov.uk** 0845 010 3300 – bilingual greeting, or 0845 010 4400 – Welsh language greeting	Centres should contact the Welsh Assembly Government **www.learning.wales.gov.uk** 0845 010 3300 – bilingual greeting, or 0845 010 4400 – Welsh language greeting
Northern Ireland	Please contact the Department for Employment and Learning at **www.delni.gov.uk**.	Please contact the Department for Employment and Learning at **www.delni.gov.uk**.

Published by City & Guilds
1 Giltspur Street
London
EC1A 9DD
T +44 (0)20 7294 2800
F +44 (0)20 7294 2400
www.cityandguilds.com

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