

Level 2 Diplomas in Electrical Power Engineering - Distribution (2339)

Qualification handbook for centres

Level 2 Diploma in Electrical Power Engineering – Substation Plant (2339-21) 600/1671/1

Level 2 Diploma in Electrical Power Engineering – Underground Cables (2339-22) 600/1672/3

Level 2 Diploma in Electrical Power Engineering – Overhead Lines (2339-23) 600/1673/5



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Level 2 & 3 Diplomas in Electrical Power Engineering - Distribution

Qualification handbook for centres

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| Qualification title | Number | OfQual ref. |
|---|---------------|--------------------|
| Level 2 Diploma Electrical Power Engineering – Substation Plant | 2339-21 | 600/1671/1 |
| Level 2 Diploma Electrical Power Engineering – Underground Cables | 2339-22 | 600/1672/3 |
| Level 2 Diploma Electrical Power Engineering – Overhead Lines | 2339-23 | 600/1673/5 |

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1 Introduction to the qualifications

This document contains the information that centres need to offer the following qualification[s]:

| Qualification titles and levels | City & Guilds qualification numbers | Ofqual accreditation numbers |
|---|--|-------------------------------------|
| Level 2 Diploma Electrical Power Engineering – Substation Plant | 2339-21 | 600/1671/1 |
| Level 2 Diploma Electrical Power Engineering – Underground Cables | 2339-22 | 600/1672/3 |
| Level 2 Diploma Electrical Power Engineering – Overhead Lines | 2339-23 | 600/1673/5 |

City & Guilds is proud to introduce the new electrical power engineering competency qualifications, which have been developed in close conjunction with power sector employers and the sector skills council Energy & Utility Skills.

These new qualifications, which replace the incumbent Electricity NVQs, have been designed to allow power sector employees the opportunity to accumulate the evidence of skills, knowledge and understanding from the work place necessary to demonstrate whole job competency within their role against the industry standards / units of accreditation.

There are four sub-sectors within the City & Guilds electrical power engineering structure: (i) distribution (ii) metering (iii) transmission and (iv) generation. This handbook relates solely to the suite of qualifications for the distribution sub-sector (the other sub-sectors can be found on the City and Guilds website).

The distribution sub-sector is made up of level 2 & 3 qualifications covering job roles related to substation plant, underground cables and overhead lines. All of the units within the distribution qualifications have been mapped to their relevant national occupational standard and successful completion of the units and/or qualifications demonstrates competence as determined by power sector employers.

These qualifications are the latest competency requirements of the level 2 apprenticeship frameworks for the power sector.

1.1 Qualification structure

Below is a summary of the minimum requirements for each qualification. For the full qualification structure and unit content, please consult each qualification's associated unit document.

1. To achieve the **Level 2 Diploma in Electrical Power Engineering – Substation Plant**, learners must achieve a minimum of 19 credits from the mandatory units and a minimum of 34 credits from the optional units available.
2. To achieve the **Level 2 Diploma in Electrical Power Engineering – Underground Cables**, learners must achieve a minimum of 15 credits from the mandatory units and a minimum of 22 credits from the optional units available.

3. To achieve the **Level 2 Diploma in Electrical Power Engineering – Overhead Lines**, learners must achieve a minimum of 19 credits from the mandatory units and a minimum of 34 credits from the optional units available.

There is also a top-up route (2339-90) that allows candidates to achieve individual units outside of the full qualifications. The full qualification is still achievable through appropriate rules of combination with this route.

1.2 Opportunities for progression

On completion of the level 2 qualifications candidates may be able to progress onto level 3 and thereafter onto appropriate supervisory / management qualifications.

1.3 Qualification support materials

City & Guilds also provides the following publications and resources specifically for these qualifications:

| Description | How to access |
|---------------------------------------|--|
| Candidate Evidence Workbooks | www.cityandguilds.com |
| Unit handbooks for each qualification | www.cityandguilds.com |
| Quick guide | www.cityandguilds.com |
| Questions & Answers | www.cityandguilds.com |
| Generic recording books | www.cityandguilds.com |

2 Centre requirements

This section outlines the approval processes for Centres to offer Electrical Power Engineering qualifications and any resources that Centres will need in place to offer the qualifications including qualification-specific requirements for Centre staff.

Centres already offering City & Guilds qualifications in this subject area

Active centres approved to offer the qualifications Level 2 and/or Level 3 Electricity System Technology Engineering (2353 42/43) may apply for approval for the entire suite of 2339 distribution qualifications using the **fast track approval form**, available from the **2339 and 2353 webpages at www.cityandguilds.com**

Where any details at the centre have changed (for example assessor and internal verifier details) these must be notified to the relevant regional office.

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.

2.1 Resource requirements

Physical resources and site agreements

Any centre wishing to deliver these qualifications must have access to the appropriate plant, apparatus and equipment that will enable candidates to obtain the required evidence to achieve the unit and /or diploma.

For this reason it is likely that centres will be either specialist providers or partnered with power sector companies.

On their approval visit the external verifier will confirm that centres have the required physical resources with which to deliver the diplomas.

Human resources

In line with the sector skills council Energy & Utility's assessment strategy, all **assessors, internal verifiers** and **external verifiers** involved in the delivery of Power sector qualifications must:

- Demonstrate a high level of interpersonal and communication skills, comparable with at least the Key Skills and Core Skills (Communication) identified within "Develop productive working relationships with colleagues" (MSC D1)
- Have up-to-date knowledge of current practice and emerging issues within their industry and be aware there may be differences between the four UK countries
- Have a thorough understanding of the National Occupational Standards / assessment units for the qualifications they are assessing or verifying and be able to interpret them and offer advice on assessment-related matters
- Show experience and working knowledge of the assessment and verification processes relating to the context in which they are working
- Demonstrate they have relevant and credible technical and/or industrial experience not more than 5 years old - at a level relevant to their role and the award

- Show they are able to act as an emissary of the awarding body and be able to facilitate consistency across centres
- Have - or working towards being qualified - Assessor or Verifier units of competence (A or V units or D units) or TQFE or TQSE for assessment or verification in Scotland
- Demonstrate a commitment to continuing professional development and to keeping abreast of the changing environment and practices in their industry
- Demonstrate they have relevant and credible technical and/or industrial experience within the industry appropriate to these contexts – overhead, underground or substation.

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

Continuing Professional Development (CPD)

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

2.2 Candidate entry requirements

There are no restrictions on entry to the diplomas, although it is expected that candidates will be already engaged within the industry. Candidates should not be registered if they hold from City & Guilds or another awarding body a qualification of a similar level and within the same content area as the relevant diplomas.

Age restrictions

These Electrical Power Engineering qualifications are **not** approved for use by candidates under the age of 16, and City & Guilds cannot accept any registrations for candidates in this age group.

3 Units

Availability of units

All of the units for the diplomas can be found on the 2339 webpage on the City & Guilds website **www.cityandguilds.com** under their respective qualification titles.

They are also on The Register of Regulated Qualifications: **<http://register.ofqual.gov.uk/Unit>**

4 Assessment

4.1 Summary of assessment methods

This section is broken down into the following assessment sub-sections:

- (i) General – provides the overall approach to assessment in the diplomas
- (ii) Work-place assessment – description of what is required of the assessment
- (iii) Simulation – the criteria and minimum requirements pertaining to this form of assessment
- (iv) Realistic working environments – the activities and criteria relating to this form of assessment
- (v) Witness testimony – sector skills council's guidance on this form a evidence
- (vi) Knowledge & understanding – guidance on the approach to assessing these criteria

(i) General

These new qualifications are accredited as competence-based qualifications and require the overwhelming majority of evidence to be collected from the workplace. The assessment methods therefore have not deviated from the previous NVQ, where evidence to meet the requirements of the standards was gathered by the candidate from the work-place and compiled into a portfolio of evidence, which was validated by the approved assessor and internal verifier and subject to City & Guilds' external verification.

The diplomas have been designed to offer choices and progression which recognise candidate competence in working within the three main occupational contexts overhead line work, underground cable work and sub-station work. There is significant inter-location variation in the specific items of plant, apparatus and equipment with which candidates must interact within each of these contexts. Both candidates and assessors therefore must have a detailed knowledge of the specific operational characteristics of the plant, apparatus and equipment with which they work in order to be able to demonstrate, through its use, their achievement of occupational competence as demanded by the units of assessment.

Details of the scope and range of the unit are provided with each unit. In addition to visits from external verifiers, all centres will be required to submit details of assessment planning arrangements and assessment recording forms and systems - these details must include the planned use and design of simulations that meet the requirements on this type of assessment provided below. The external verifier will determine whether or not these are of an acceptable rigour to ensure satisfactory implementation and recording of assessment. The visits to a centre by an external verifier will be planned in advance.

The following approaches to external quality control are not mandatory as part of the assessment strategy:

- **Use of independent assessors (moving the candidate):** The requirement for workplace evidence means that it would be inappropriate and logistically uneconomic to make use of an assessment system in which candidates were required to attend a different location or assessment centre.
- **Use of independent assessors (moving the assessor):** Candidates for the Electrical Power Engineering diplomas will typically be in low numbers per centre and widely

scattered across the UK. Under these circumstances, the mandatory use of peripatetic assessors would be very costly and offer little added value.

- **Use of independent assessment methods (open written response assessment):** Due to the variation of plant, apparatus and equipment this type of assessment would remove the flexibility to assess knowledge at a local level.

(ii) Work place assessment

It is expected that all evidence of candidate performance will be drawn from workplace practice. This evidence must show candidates meet the performance criteria consistently in their work, over a period of time. The evidence will also materialise from different workplace situations and be varied in nature - work products, records, discussions as well as observation of, and commentaries on, candidate behaviour.

All of the performance and knowledge criteria for each unit must be evidenced, along with the prescribed scope, range and performance requirements.

It is recommended that effective use be made of available opportunities for evidence collection in line with the following principles:

- Evidence must be valid and genuinely produced by or about the candidate
- Evidence from a range of sources will normally be preferable to repeated examples of evidence from a single source - sole use of one type of evidence will need to be justified
- Assessors should pay due regard to the cost-effectiveness of using varied sources of evidence when planning assessments with a candidate

(iii) Simulation

The sector skills council (EU Skills) defines simulated activities as those which are carried out without the environment, resources or equipment found within the workplace and involve acting or other scenarios which are not 'real' work tasks. EU Skills has not identified any specific areas in the distribution diplomas that warrant assessment through simulation, however, in the extremely rare instance where it is felt that simulation is required this is only acceptable in relation to those few instances which display one or more of the following characteristics (details of planned simulation must be submitted for approval by centres to their external verifier):

- where health and safety could be compromised by seeking workplace evidence
- where the behaviour or situation under which assessment occurs happens infrequently in the workplace
- where the electricity network, plant or apparatus needs to be placed in an unacceptable operating state to allow for assessment to take place.
- In all cases where the use of evidence from simulations is permitted, this is clearly detailed in the element or unit concerned.

Where simulation is used the environment must be set up to mirror the features of an electricity distribution environment in all of the following aspects:

- nature of the plant, apparatus and equipment
- ambient noise, light and temperature levels
- handling characteristics of materials used
- presence, actions and capabilities of other personnel

Where simulation is used the simulated activity must be designed to mirror the same activity carried out in an electricity distribution environment:

- The urgency with which the activity must be carried out and the time needed to complete it
- The number and sequence of actions needed to complete the activity
- The skills needed to carry out the activity
- The nature and availability of resources needed to carry out the activity

- Access to references and sources of advice and assistance that could be needed if problems arise
- The type of documentation to be completed
- The standards to which the activity must be carried out, including any practices and procedures which require to be followed
- The outcomes which the activity will produce.
- Centre proposals for the use of simulation should be approved by the Awarding Body in advance of being used and may be rejected if they fail to comply with the characteristics listed above.

(iv) Realistic working environments (RWE):

The SSC has provided the following contexts for illustration where assessment in a RWE might be used:

- Where demonstration of emergency shutdown and related safety procedures would be **dangerous and/or disruptive** to plant/environment/individuals; **too costly** such as total plant shutdown or dealing with spillage of dangerous substances; where **issues of confidentiality** restrict access to real work opportunities
- Demonstrating specific aspects of the operation which rarely or never occur because of effective quality assurance systems
- The capacity to integrate disparate knowledge to cope with unforeseen events and to solve problems
- Aspects of working relationships and communications for which no opportunity has presented for the use of naturally occurring workplace evidence of candidate performance

Although it is expected that candidates provide all evidence from the work place, the SSC has identified the following types of activities as being potentially suitable for assessment through RWE (these **details of planned simulation must be submitted for approval by centres to their external verifier**):

1. Planning and preparing for emergency response
2. Isolation of the fault and contingency action
3. Fault diagnosis and problem causation

The following conditions for assessment in a RWE **must** be met:

- Assessments must be carried out under realistic work pressures that are found in the normal industry workplace
- Assessments must be carried out in conditions and facilities which are typical of those encountered in the normal industry workplace
- The range of materials, equipment and tools that candidates use must be up-to date and be of the type routinely found in the normal industry workplace environments.
- All work carried out should be completed in a way, and to a timescale, that is acceptable in the normal industry workplace
- Candidates must interact with the range of personnel and contractors found in the normal industry workplace
- Candidates must be expected to achieve a volume of work comparable to that expected in the normal work situation being replicated
- Candidates must be given workplace responsibilities that will enable them to meet the requirements of the National Occupational Standards / units of assessment
- Candidates must show their productivity reflects that found in the work situation being replicated
- The RWE must take into account legislation, regulations, codes of practice, etc, which pertain to the regulated environment
- The RWE must be managed as a real work situation

(v) Witness testimony:

Witness testimony

The SSC supports the use of witness testimony as a natural and efficient way of **contributing** to a candidate's source of evidence of competence. Nonetheless, the quality of this type of evidence will be affected by knowledge the witness has about the qualification requirements and their own competence in the occupational role.

As a minimum, witnesses should be:

- Fully briefed and clear about the purpose and use of the testimony
- Able to demonstrate they have the necessary expertise in the occupational area for which they are providing testimony

Witnesses should be:

- Occupationally competent in the functions covered by the units to which they are contributing. This competence will have been gained by working within the energy and utilities sector.
- Maintaining their occupational competence by engaging in continuing professional development activities to keep up-to-date with developments and changes taking place within the energy and utilities sector.
- Working currently, or within the last year, in a post directly related to the qualification units they are witnessing.
- Familiar with the national occupational standards / units of assessment and be able to interpret current working practices and technologies within the area of work.

Have had an appropriate induction to the Energy & Utility Skills national occupational standards, the awarding body, and assessment centre requirements and have ongoing support by way of access to updating and other issues connected with the qualifications.

(vi) Knowledge & understanding

The requirement to prove competency is through skills, knowledge and understanding and as such all of the units within the distribution diplomas contain knowledge and understanding criteria that must be evidenced to achieve the full qualification.

Evidencing the knowledge and understanding - the criteria of which are qualified by company policies and procedures; legislation and regulations – can come through natural performance, professional discussion or oral questioning. All knowledge and understanding assessment methods must be recorded along with the candidate's answers and/or outcomes - where a component of knowledge and understanding is common across more than one unit, there is no need to assess it independently in relation to each unit.

To support standardisation each unit has ten suggested knowledge questions and a range of acceptable answers (see the relevant questions and answers document for further details). These questions must be evidenced through either natural performance or professional discussion. In the context of the skill-based units these questions may provide evidence against the knowledge and understanding criteria, which have been lifted directly from the relevant national occupational standard. Where there are gaps, further oral questioning or observation will be required to confirm the criteria has been met. Centres may devise their own questions in place of those provided, but they must be agreed with their External Verifier.

The use of questioning to probe candidate competence in relation to rare or dangerous occurrences should be undertaken only when the use of realistic simulations to address the same competence cannot practically be applied. In all cases, simulation accompanied by oral questioning should be preferred to questioning alone. The use of oral rather than written questioning is

recommended to allow assessors the flexibility to investigate those aspects of a candidate's knowledge and understanding alongside evaluation of other forms of evidence.

4.2 Recording forms

Candidates and centres may decide to use a paper-based or electronic method of recording evidence - City & Guilds endorses several e-Portfolio systems. Further details are available at: www.cityandguilds.com/eportfolios.

Candidate evidence books are supplied with the distribution diplomas should centres require to use these. Centres may devise or customise alternative forms, which must be approved for use by the external verifier, before they are used by candidates and assessors at the centre - amendable (MS Word) versions of generic forms are available on the City & Guilds website.

4.3 Accreditation of prior learning and experience (APEL)

Accreditation of Prior Learning (APL) and Accreditation of Prior Experience and Learning (APEL) recognise the contribution a person's previous experience could contribute to a qualification.

As these qualifications are specifically related to the Power sector it is not expected that candidates will present with APEL. However, and in line with the sector skills council Energy & Utility Skills' assessment strategy, City & Guilds supports the use of other qualifications as valuable contributions to evidence of competence.

Where APEL is sought the centre must first confirm this with the external verifier or seek their advice where there is uncertainty.

For candidates registered on the 2353 NVQ for more than one year prior to September 2009 City & Guilds recommends they complete their NVQs and do not transfer to the new diplomas.

For candidates transferring from the NVQ to the qualification the onus will be on the centres to ensure a thorough mapping exercise has taken place between the two sets of standards to ensure all of the performance criteria have been met. The results of this mapping must be confirmed with the external verifier before any units / qualifications can be claimed.

5 Course design and delivery

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(s). This is sometimes referred to as diagnostic testing.
- any units the candidate has already completed, or credit they have accumulated which is relevant to the qualification(s) they are about to begin.

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.

Typically, the phases of learning will incorporate (i) core engineering skills and knowledge; (ii) specific unit skills and knowledge (iii) on-site consolidation followed by (iv) assessment.

Further guidance about initial assessment and induction, as well as a learning contract that centres may use, are available on the City & Guilds website **www.cityandguilds.com**

Appendix 1 Relationships to other qualifications

Links to other qualifications and frameworks

City & Guilds has identified at a unit level the mapping between the 2339 and the 2353 NVQ. This unit-level mapping (provided below) is 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. Where there is no evidence of mapping, this indicates a new unit at the title level, although the underlying performance criteria may have some overlap.

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, units within the 2339 qualification may be similar in content to units in the NQF 2353 NVQ qualification which the candidate may have already undertaken and this may present opportunities for APL.

Centres must consult with their external verifier if there are any areas of uncertainty.

Mapping: Level 2 Substation Plant (2339-11)

| Unit number in 2339-11 | Unit number in 2353 |
|------------------------|---------------------|
| | |
| 1 | 750 |
| 2 | 755 |
| 3 | - |
| 4 | - |
| 5 | 759/760 |
| 6 | 757 |
| 7 | - |
| 8 | 764 |
| 9 | 765 |
| 10 | 769 |
| 11 | - |
| 12 | - |
| 13 | 764 |
| 14 | 765 |
| 15 | 769 |
| 16 | - |
| 17 | 770 |
| 18 | - |

Mapping Level 2 Underground Cables (2339-12)

| # 2339 | # in 2353 |
|--------|-----------|
| | |
| 1 | 750 |
| 2 | 755 |
| 3 | - |
| 4 | - |
| 5 | 459/760 |
| 6 | 757 |
| 19 | - |
| 20 | 758 |
| 21 | - |
| 22 | - |
| 23 | - |
| 24 | - |
| 25 | - |
| 26 | - |
| 27 | - |
| 28 | - |
| 29 | - |
| 30 | - |
| 31 | 762 |
| 32 | - |
| 33 | - |
| 34 | - |
| 35 | - |

Mapping Level 2 Overhead Lines (2339-13)

| # in 2339 | # in 2353 |
|-----------|-----------|
| | |
| 1 | 750 |
| 2 | 755 |
| 3 | - |
| 4 | - |
| 6 | 757 |
| 36 | 759/760 |
| 37 | 756 |
| 38 | 756 |
| 39 | 766 |
| 40 | 767 |
| 41 | - |
| 42 | - |
| 43 | - |
| 44 | - |
| 45 | - |
| 46 | 770 |
| 47 | - |
| 48 | - |
| 49 | 766 |
| 50 | 767 |
| 51 | 768 |
| 52 | - |

Mapping Level 3 Substation Plant (2339-31)

| # in 2339 | # in 2353 |
|-----------|-----------|
| | |
| 53 | 799 |
| 54 | 771 |
| 55 | 798 |
| 56 | 784/785 |
| 57 | 794 |
| 58 | |
| 59 | |
| 60 | |
| 61 | |
| 62 | |
| 63 | 794 |
| 64 | 784/785 |

Mapping Level 3 Underground Cables (2339-32)

| # in 2339 | # in 2353 |
|-----------|-----------|
| | |
| 53 | 799 |
| 54 | 771 |
| 55 | 798 |
| 56 | 784/785 |
| 65 | |
| 66 | |
| 67 | |
| 68 | 792 |
| 64 | 784/785 |

Mapping Level 3 Overhead Lines (2339-33)

| # in 2339 | # in 2353 |
|-----------|-----------|
| | |
| 53 | 799 |
| 54 | 771 |
| 55 | 798 |
| 69 | 784/785 |
| 70 | 795 |
| 71 | |
| 72 | |
| 73 | |
| 74 | 783 |
| 75 | 793 |
| 64 | 784/785 |
| 76 | 793 |
| 77 | |
| 78 | 782 |

Key/Essential Skills (England, Wales and Northern Ireland)

Key Skills signposting

These qualifications include 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 these qualifications 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, Key Skills at the same level as these qualifications.

Essential Skills (Northern Ireland only)

If these qualifications are being delivered alongside the Essential Skills Northern Ireland qualifications, the Key Skills signposts can be used to illustrate the relevance of these skills to candidates.

Essential Skills portfolio evidence must be based on an approved vocational or generic Action Based Activity; these can be downloaded from www.cityandguilds.com/essentialskillsni.

Functional Skills (England only)

The Key Skills qualifications are expected to be phased out in England from 2010, and will be largely replaced by the Functional Skills awards. More information about these qualifications is available from www.cityandguilds.com/functionalskills.

The units have been mapped to the relevant national occupational standard (NOS), which in turn have been signposted to Key Skills and Workplace Core Skills (Scotland) by the sector skills council. 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 will need to be separately assessed and must meet the relevant standard defined in the QCA document '*Key skills qualifications standards and guidance*' (available from www.cityandguilds.com/keyskills).

Key to acronyms in the tables:

- EPUS - reference for EU Skills NOS
- SEMTA – reference for SEMTA NOS
- ICS – reference for Institute of Customer Service NOS

| 2339-11 | Unit Title | Underlying NOS | Key Skills | | | | | | Workplace Core Skills | | | | |
|---------|---|-------------------|------------|----|-----|-----|-----|-----|-----------------------|---|-----|----|-----|
| Unit # | | | C | AN | ICT | WO | PS | IL | C | N | ITC | WO | PS |
| 1 | Working Safely in the power sector | Semta-Y1/103/8664 | 1/2 | / | / | 2 | / | / | 1/2 | / | / | 4 | / |
| 2 | Working Efficiently and effectively in the power sector | Semta-R/103/8666 | 1/2 | / | / | 2 | 1/2 | 1/2 | 1/2 | / | / | 4 | 1/2 |
| 3 | Using and communicating technical information in the power sector | Semta-L/103/8666 | 1/2 | / | / | 1/2 | / | / | 1/2 | / | / | 4 | / |
| 4 | Customer relations for working in the power sector | ICS 22 | 1 | 1 | / | 2 | 1 | / | 1 | 1 | / | / | / |
| 5 | Movement of Cable, Plant and Apparatus | EPUS 16 | 1 | 1 | / | / | / | / | 4 | 4 | / | / | / |
| 6 | Access, Egress and Movement in Substations | EPUS 12 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 7 | Electrical and Functional Testing of Fitting Plant and Apparatus | EPUS 10 | 1 | / | / | 1 | / | / | 4 | / | / | / | 4 |
| 8 | Install Distribution Substation Plant and Apparatus | EPUS 3 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 9 | Dismantle Distribution Substation Plant and Apparatus | EPUS 5 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 10 | Maintain Distribution Substation Plant and Apparatus | EPUS 6 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 11 | Inspection and Maintenance of Battery Systems | EPUS 7 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 12 | Substation Earthing Installation and Testing | EPUS 36 | 1 | / | / | / | / | / | 4 | / | / | / | 4 |
| 13 | Install Primary / EHV Substation Plant and Apparatus | EPUS 3 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 14 | Dismantle Primary / EHV Substation Plant and Apparatus | EPUS 5 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 15 | Maintain Primary / EHV Substation Plant and Apparatus | EPUS 6 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 16 | Fault Repair of Distribution and HV Substation Plant/ Apparatus | EPUS 38 | 1 | / | / | / | / | / | 4 | / | / | / | / |
| 17 | Inspection of Substation Plant and Apparatus | EPUS 7 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 18 | Maintain Compressed Air Systems | EPUS 6 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |

| 2339-12 | Unit Title | Underlying NOS | Key Skills | | | | | | Workplace Core Skills | | | | |
|---------|---|-------------------|------------|----|-----|-----|-----|-----|-----------------------|---|-----|----|-----|
| Unit # | | | C | AN | ICT | WO | PS | IL | C | N | ITC | WO | PS |
| 1 | Working Safely in the power sector | Semta-Y1/103/8664 | 1/2 | / | / | 2 | / | / | 1/2 | / | / | 4 | / |
| 2 | Working Efficiently and effectively in the power sector | Semta-R/103/8666 | 1/2 | / | / | 2 | 1/2 | 1/2 | 1/2 | / | / | 4 | 1/2 |
| 3 | Using and communicating technical information in the power sector | Semta-L/103/8666 | 1/2 | / | / | 1/2 | / | / | 1/2 | / | / | 4 | / |
| 4 | Customer relations for working in the power sector | ICS 22 | 1 | 1 | / | 2 | 1 | / | 1 | 1 | / | / | / |
| 19 | Location and Identification of Underground Utility Services | EPUS 44 | 1 | / | / | / | / | / | 4 | / | / | / | 4 |
| 20 | Access and Egress and Movement within the Working Area | EPUS 12 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 21 | Service Jointing on Low Voltage Underground Cables | EPUS 9 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 22 | Jointing and Termination of Low Voltage Mains Underground Cables | EPUS 9 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 23 | Jointing and Termination of High Voltage (Up to 25kv) Underground Cables | EPUS 9 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 24 | Over 25kV XLPE Jointing and Terminations | EPUS 9 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 25 | Over 25kV Paper Insulated Jointing and Terminations (Non-Pressurised) | EPUS 9 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 26 | Over 25kV Paper Insulated Jointing and Terminations (Pressurised) | EPUS 9 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 27 | Electrical Testing of Underground Cables and Apparatus | EPUS 10 | 1 | / | / | 1 | / | / | 4 | / | / | / | 4 |
| 28 | Repairs to Faulted or Damaged LV Service and Mains Cables (Non-Diagnosis) | EPUS 38 | 1 | / | / | / | / | / | 4 | / | / | / | / |
| 29 | Carry out Excavation Activities on Underground Cables | EPUS 43 | 1 | / | / | / | / | / | 4 | / | / | / | 4 |

| | | | | | | | | | | | | | |
|----|---|---------|---|---|---|---|---|---|---|---|---|---|---|
| 30 | Inspect the Installation of Underground Cables | EPUS 7 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 31 | Install Underground Cables | EPUS 3 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 32 | Carry out Jointing on Pilot/ Telephone Cables | EPUS 9 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 33 | Carry out Jointing on Low Voltage Concentric Cables | EPUS 9 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 34 | Carry out Jointing on Low Voltage Consac Cables | EPUS 9 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 5 | Movement of Cable, Plant and Apparatus | EPUS 16 | 1 | 1 | / | / | / | / | 4 | 4 | / | / | / |
| 35 | Repairs to Faulted or Damaged HV Cables (Non-Diagnosis) | EPUS 38 | 1 | / | / | / | / | / | 4 | / | / | / | / |
| 6 | Access, Egress and Movement in Substations | EPUS 12 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |

| 2339-13 | Unit Title | Underlying NOS | Key Skills | | | | | | Workplace Core Skills | | | | |
|---------|--|-------------------|------------|----|-----|-----|-----|-----|-----------------------|---|-----|----|-----|
| Unit # | | | C | AN | ICT | WO | PS | IL | C | N | ITC | WO | PS |
| 1 | Working Safely in the power sector | Semta-Y1/103/8664 | 1/2 | / | / | 2 | / | / | 1/2 | / | / | 4 | / |
| 2 | Working Efficiently and effectively in the power sector | Semta-R/103/8666 | 1/2 | / | / | 2 | 1/2 | 1/2 | 1/2 | / | / | 4 | 1/2 |
| 3 | Using and communicating technical information in the power sector | Semta-L/103/8666 | 1/2 | / | / | 1/2 | / | / | 1/2 | / | / | 4 | / |
| 4 | Customer relations for working in the power sector | ICS 22 | 1 | 1 | / | 2 | 1 | / | 1 | 1 | / | / | / |
| 36 | Movement of Overhead Line Plant and Apparatus | EPUS 16 | 1 | 1 | / | / | / | / | 4 | 4 | / | / | / |
| 37 | Access/Egress and Work on Wood Pole Structures | EPUS 12 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 38 | Access/Egress and Work on Steel Tower Structures | EPUS 12 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 39 | Install Steelwork, Fittings and Conductors on Wood Pole Structures | EPUS 3 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 40 | Dismantle Steelwork, Fittings and Conductors on Wood Pole Structures | EPUS 5 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 41 | Install and Configure Apparatus on Wood Pole Structures | EPUS 11 | 2 | 2 | / | / | / | / | 4 | 4 | / | 4 | 4 |
| 42 | Excavate and Install Wood Poles and Stays | EPUS 43 | 1 | / | / | / | / | / | 4 | / | / | / | 4 |
| 43 | Electrical Testing of Overhead Line Distribution Equipment | EPUS 10 | 1 | / | / | 1 | / | / | 4 | / | / | / | 4 |
| 44 | Fault Repair of Overhead Line Distribution Assets | EPUS 38 | 1 | / | / | / | / | / | 4 | / | / | / | / |
| 45 | Live Low Voltage Distribution Work | EPUS 41 | 1 | / | / | / | / | / | 4 | / | / | / | 4 |
| 46 | Inspection of Overhead Line Wood Pole Networks | EPUS 7 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 47 | Earthing of Overhead Line Conductors on Steel Tower Structures | EPUS 36 | 1 | / | / | / | / | / | 4 | / | / | / | 4 |
| 48 | Install /Replace Fittings on Steel Tower Structures | EPUS 3 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 49 | Install EHV Conductors on Steel Tower Structures | EPUS 3 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 50 | Dismantle EHV Conductors on Steel Tower Structures | EPUS 5 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |

| | | | | | | | | | | | | | |
|----|--|---------|---|---|---|---|---|---|---|---|---|---|---|
| 51 | Maintain Apparatus on Steel Tower Structures | EPUS 6 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 52 | Jointing of Overhead Line EHV Conductors | EPUS 9 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 5 | Access, Egress and Movement in Substations | EPUS 12 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |

| 2339 - 31 | Unit Title | Underlying NOS | Key Skills | | | | | | Workplace Core Skills | | | | |
|-----------|---|-------------------|------------|----|-----|----|----|----|-----------------------|---|-----|----|----|
| Unit # | | | C | AN | ICT | WO | PS | IL | C | N | ITC | WO | PS |
| 53 | Organise the Use of Resources | Semta-ECSNo/4.14 | 2 | / | / | / | 1 | / | 2 | / | / | / | 1 |
| 54 | Control of Working Parties | epus045 | 2 | / | / | 3 | / | / | 5 | / | / | 5 | 5 |
| 55 | Produce, Communicate and Record Technical Information | Semta -ECSNo/1.14 | 2 | / | / | / | 3 | / | H | / | / | / | H |
| 56 | Low Voltage Substation Switching Operations | EPUS 8 | 1 | / | / | 2 | / | / | 4 | / | / | / | 4 |
| 57 | Diagnostic Testing and Fault Finding | EPUS 14 | 2 | / | / | / | 3 | / | 4 | / | / | / | 4 |
| 58 | Protection Testing on Over-current and Earth Fault Schemes | EPUS 10 | 1 | / | / | 1 | / | / | 4 | / | / | / | 4 |
| 59 | Pressure Testing of HV Distribution Equipment | EPUS 10 | 1 | / | / | 1 | / | / | 4 | / | / | / | 4 |
| 60 | Install and Maintain Supervisory Control And Data Acquisition Systems | EPUS 3 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 61 | Install Protective Relays and Metering Equipment | EPUS 3 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 62 | Install HV VT / CT Metering Equipment | EPUS 3 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 63 | Diagnose Faults on Compressed Air Systems | EPUS 14 | 2 | / | / | / | 3 | / | 4 | / | / | / | 4 |
| 64 | HV Switching Operations | EPUS 8 | 1 | / | / | 2 | / | / | 4 | / | / | / | 4 |

| 2339 - 32 | Unit Title | Underlying NOS | Key Skills | | | | | | Workplace Core Skills | | | | |
|-----------|---|-------------------|------------|----|-----|----|----|----|-----------------------|---|-----|----|----|
| Unit # | | | C | AN | ICT | WO | PS | IL | C | N | ITC | WO | PS |
| 53 | Organise the Use of Resources | Semta-ECSNo/4.14 | 2 | / | / | / | 1 | / | 2 | / | / | / | 1 |
| 54 | Control of Working Parties | EPUS 045 | 2 | / | / | 3 | / | / | 5 | / | / | 5 | 5 |
| 55 | Produce, Communicate and Record Technical Information | Semta -ECSNo/1.14 | 2 | / | / | / | 3 | / | H | / | / | / | H |
| 56 | Low Voltage Substation Switching Operations | EPUS 8 | 1 | / | / | 2 | / | / | 4 | / | / | / | 4 |
| 65 | LV Cable Fault Location and Diagnosis | EPUS 14 | 2 | / | / | / | 3 | / | 4 | / | / | / | 4 |
| 66 | Fibre Optic Fusion Splicing and Terminations | EPUS 9 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 67 | Phasing out of HV Cables | EPUS 39 | 1 | / | / | / | / | / | 4 | / | / | / | 4 |
| 68 | Inspect and Maintain Oil and Gas Filled Cable Systems | EPUS 7 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 64 | HV Switching Operations | EPUS 8 | 1 | / | / | 2 | / | / | 4 | / | / | / | 4 |

| 2339 - 33 | Unit Title | Underlying NOS | Key Skills | | | | | | Workplace Core Skills | | | | |
|-----------|---|--------------------|------------|----|-----|----|----|----|-----------------------|---|-----|----|----|
| Unit # | | | C | AN | ICT | WO | PS | IL | C | N | ITC | WO | PS |
| 53 | Organise the Use of Resources | Semta-ECSNo/4.14 | 2 | / | / | / | 1 | / | 2 | / | / | / | 1 |
| 54 | Control of Working Parties | epus045 | 2 | / | / | 3 | / | / | 5 | / | / | 5 | 5 |
| 55 | Produce, Communicate and Record Technical Information | Semta - ECSNo/1.14 | 2 | / | / | / | 3 | / | H | / | / | / | H |
| 69 | Low Voltage Overhead Line Switching Operations | EPUS 8 | 1 | / | / | 2 | / | / | 4 | / | / | / | 4 |
| 70 | Overhead Line Fault Diagnosis | EPUS 14 | 2 | / | / | / | 3 | / | 4 | / | / | / | 4 |
| 71 | Live Line Operations using Insulated Rods | EPUS 41 | 1 | / | / | / | / | / | 4 | / | / | / | 4 |
| 72 | Hotstick Operations | EPUS 41 | 1 | / | / | / | / | / | 4 | / | / | / | 4 |
| 73 | Hotglove Operations | EPUS 41 | 1 | / | / | / | / | / | 4 | / | / | / | 4 |
| 74 | Install and Configure Overhead Line Apparatus on Steel Tower Structures | EPUS 3 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 75 | Fault Repair of Overhead Line Apparatus on Steel Tower Structures | EPUS 38 | 1 | / | / | / | / | / | 4 | / | / | / | / |
| 64 | HV Switching Operations | EPUS 8 | 1 | / | / | 2 | / | / | 4 | / | / | / | 4 |
| 76 | Inspection of Overhead Line Steel Tower Networks | EPUS 7 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |
| 77 | Complex Earthing of Overhead Line Circuits | EPUS 36 | 1 | / | / | / | / | / | 4 | / | / | / | 4 |
| 78 | Erection of Steel Tower Structures | EPUS 3 | 1 | / | / | 2 | / | / | 4 | / | / | 4 | 4 |

Appendix 2 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:

- Regulatory Arrangements for the Qualifications and Credit Framework (2008)
- 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 such 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.

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 | F: +44 (0)20 7294 2413 F: +44 (0)20 7294 2404 (BB forms) 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, Mapping, Accreditation, Development Skills, Consultancy | T: +44 (0)121 503 8993 E: business@cityandguilds.com |
| Publications Logbooks, Centre documents, Forms, Free literature | F: +44 (0)20 7294 2413 |

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If you have a complaint, or any suggestions for improvement about any of the services that we provide, email:

feedbackandcomplaints@cityandguilds.com

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