

# Level 2 Diploma in Electrical Power Engineering - Single & Three Phase Metering (Whole Current) (2339-14)



**Accreditation number: 500/7361/8**

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Qualification Units

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# 1 About this document

This document contains the unit titles, accreditation numbers and content for the Level 2 Diploma in Electrical Power Engineering - Single & Three Phase Metering (Whole Current).

The qualification, attesting to work-place competence, has been developed by City & Guilds in conjunction with power sector employers and the sector skills council Energy & Utility Skills (EU Skills), and is accredited on the qualifications and credit framework (QCF).

The unit accreditation numbers appear in brackets next to the title, followed by the QCF credits attached to the unit.

The structure of the qualification is made up of the following City & Guilds unit numbers:

- Group A mandatory core units (001, 002, 003, 004)
- Group B mandatory skill-based units (100, 101)
- Group C optional skill-based units (102, 103, 104, 105)

To achieve the full qualification **all** group A mandatory core units and **all** group B mandatory skill-based units must be completed, along with a minimum of **two** group C optional skill-based units.

All of the performance criteria must be evidenced. In the case of each group A mandatory core unit the requisite evidence is attained through completion of the relevant skill-based units on a minimum of **three** separate occasions.

Each unit in the qualification is delivered with ten knowledge questions and their range of acceptable answers (see this qualification's 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.

For standardisation, and where appropriate, the performance and knowledge criteria are:

- prescribed with range, scope and evidence requirements
- qualified by company policies and procedures; legislation and regulations

This qualification is delivered in line with the requirements of EU Skills' assessment strategy (captured in the main qualification handbook) and in the same fashion as a national vocational qualification (NVQ).

## Unit 001

# Working safely in the power sector (L/600/3898) 4 credits

This unit is designed to ensure that operatives working within an electrical power engineering environment apply safe working practices in accordance with company procedures and legislative requirements.

By completing this unit, you show you are competent to:

- Recognise hazards and risks
- Demonstrate understanding of a range of information sources supporting safe working practices
- Recognise the range of personal protective equipment relevant to the task being completed
- Take appropriate action in the event of emergencies
- Work safely and maintain a safe working environment
- Demonstrate an understanding of lifting techniques

### Performance Criteria

To perform effectively in this unit, you need to evidence competent performance of all the criteria through completion of the mandatory and optional skill-based units over a minimum of **three** separate occasions.

#### Outcome 1: Recognise hazards and risks

- 1.1 Identify hazards and risks and take appropriate action, **all** of the following **must** be included: Environment, Use of tools and equipment, Materials and substances, Electrical working practices

#### Outcome 2: Demonstrate understanding of a range of information sources supporting safe working practices

- 2.1 Work in accordance with approved procedures, **all** of the following **must** be included: Operating procedures, Method statements, COSHH statements, Health & Safety at Work Act
- 2.2 Identify and comply with safety signs and labels
- 2.3 Work in accordance with requirements of risk assessments

#### Outcome 3: Recognise the range of personal protective equipment relevant to the task being completed

- 3.1 Select appropriate personal protective equipment
- 3.2 Carry out agreed pre-use checks on personal protective equipment
- 3.3 Use personal protective equipment in accordance with Company instructions
- 3.4 Store personal protective equipment in accordance with agreed procedure

**Outcome 4:** Take appropriate action in the event of emergencies

- 4.1 Identify qualified first aiders or appointed person
- 4.2 Locate first aid facilities
- 4.3 Respond in line with company procedure to emergency situations eg Injury to self or others, Fire
- 4.4 Report accidents, injuries, hazardous or dangerous occurrences to appropriate personnel

**Outcome 5:** Work safely and maintain a safe working environment

- 5.1 Establish and maintain appropriate access and egress routes to working locations
- 5.2 Store resources safely, **all** of the following **must** be included:  
Tools, Equipment, Materials
- 5.3 Use resources safely and for the purpose intended, **all** of the following **must** be included  
Tools, Equipment, Materials
- 5.4 Dispose of hazardous substances/waste materials in accordance with approved company procedures

**Outcome 6:** Demonstrate an understanding of lifting techniques

- 6.1 Demonstrate acceptable lifting technique when carrying out lifting of loads on their own
- 6.2 Demonstrate acceptable lifting technique when carrying out lifting of load with **one** of the following:  
*Assistance of others, Mechanical assistance*

## Unit 002

# Working efficiently and effectively in the power sector (R/600/3899) 2 credits

This unit is designed to ensure that operatives working within an electrical power engineering environment apply effective and efficient working practices in accordance with company procedures.

By completing this unit, you show you are competent to:

- Apply appropriate planning processes whilst preparing to complete allocated tasks
- Maintain effective and efficient working practices whilst completing allocated tasks
- Recognise problems or areas for improvement and respond appropriately
- Create and maintain effective working relationships
- Contribute to own development programme

### Performance Criteria

To perform effectively in this unit, you need to evidence competent performance of all the criteria through completion of the mandatory and optional skill-based units over a minimum of **three** separate occasions.

**Outcome 1:** Apply appropriate planning processes whilst preparing to complete allocated tasks

- 1.1 Select appropriate resources and ensure suitability, **all** of the following **must** be included:  
Tools, Equipment, Materials, PPE
- 1.2 Prepare working area
- 1.3 Obtain authorisation to carry out the work

**Outcome 2:** Maintain effective and efficient working practices whilst completing allocated tasks

- 2.1 Adhere to all approved practices whilst completing allocated tasks
- 2.2 Return information sources to designated personnel on completion of activities
- 2.3 Return resources to designated locations on completion of activities

**Outcome 3:** Recognises problem or areas for improvement and respond appropriately

- 3.1 Recognise and respond to problems **or** areas for improvement within the engineering environment and report to the appropriate person. Problems relating to **two** of the following should be evidenced:  
Materials, Tools and Equipment, Information sources, People, Safety procedures, Workmanship, Time, Weather

**Outcome 4:** Create and maintain effective working relationships

- 4.1 Dress appropriately for the working activity
- 4.2 Communicate effectively with **all** of the following:  
Colleagues, Line managers, Members of the public

4.3 Resolve issues/problems amicably and through appropriate channels

**Outcome 5:** Contribute to their own development programme

5.1 Identify personal training/development needs in relation to your work activity and discuss with appropriate personnel

5.2 Review and revise personal development records

## Unit 003

# Using and Communicating Technical Information in the Power sector (R/600/3904) 3 credits

This unit is designed to ensure that operatives working within the electrical power engineering environment are able to (i) identify and interpret information contained in written, diagrammatic and pictorial sources, and (ii) produce and communicate this information to other parties.

By completing this unit, you show you are competent to:

- Recognise information sources
- Obtain information contained in information sources
- Record and communicate technical information

### Performance Criteria

To perform effectively in this unit, you need to evidence competent performance of all the criteria through completion of the mandatory and optional skill-based units over a minimum of **three** separate occasions.

#### Outcome 1: Recognise information sources

- 1.1 Identify written information sources, evidence to include **three** of the following:  
*Job instructions, Test schedules, Company information, Material specifications, Reference table/chart, Planning documentation, Operating sheets, Process specification, Risk assessments, Method statements*
- 1.2 Identify diagrammatic/pictorial information sources, evidence to include **two** of the following:  
*Detailed component drawings, General assembly drawings, Repair drawings, Wiring/circuit diagrams, Installation drawings, Approved sketches, Illustrations, Visual display screens, Modification drawings, Sub-assembly drawings, Schematic drawings, Fabrication drawings, Operational diagrams, Physical layouts, Manufacturers manuals/drawings, Photographic representations*

#### Outcome 2: Obtain information contained in information sources

- 2.1 Identify required resources to complete allocated tasks from interpretation of information sources, **all** of the following **must** be included:  
*Tools, Equipment, Materials, PPE*
- 2.2 Determine from information sources **four** of the following:  
*Dimensions, Installation process, Connections to be made, Assembly sequence, Operations required, Test points to be used, Job duration*
- 2.3 Report to the appropriate person where inconsistencies or inaccuracies in information sources are identified



**Outcome 3:** Record and communicate technical information

- 3.1 Complete/produce documentation to communicate information and/or to record activities completed; evidence to include **three** of the following: *Fully detailed sketch of work/circuits required or completed, Planning documentation, Resource requisitions, Data from completed testing activities, Risk assessment, Training records, Reporting problems/areas for improvement*

## Unit 004

# Customer Relations for working in the Power sector (D/600/3906) 2 credits

This unit is designed to ensure that operatives in the electrical power engineering environment are able to (i) communicate with customers effectively (ii) provide accurate answers and information to questions asked (iii) deal effectively with any customer concerns.

By completing this unit, you show you are competent to:

- Prepare to visit a customer's premises
- Maintain effective relations with customers

### Performance Criteria

To perform effectively in this unit, you need to evidence competent performance of all the criteria through completion of the mandatory and optional skill-based units over a minimum of **three** separate occasions.

#### Outcome 1: Prepare to visit a customer's premises

- 1.1 Determine the purpose for visiting the customer from information given
- 1.2 Identify the correct location using relevant information
- 1.3 Identify the main objectives to be achieved from the visit
- 1.4 Prepare relevant information/documentation prior to visiting the customer.

Evidence to include **three** of the following:

*Personal Company identification, Plans, Work instruction, Wayleave information, Company information, Customer/client Information*

- 1.5 Select appropriate work wear to visit customer's premises. Evidence to include **two** of the following:

*Domestic premises, Industrial/Commercial premises, Agricultural premises, Building site, Distribution/Transmission Site*

#### Outcome 2: Maintain effective relations with customers

- 2.1 Introduce and identify self to customer in a polite and courteous manner
- 2.2 Accurately and effectively describe the purpose of the visit to the customer
- 2.3 Listen attentively to the customer, responding to questions asked with accurate information
- 2.4 Agree the objectives with the customer giving all relevant information
- 2.5 Record/report information of visit in an appropriate manner (where applicable)
- 2.6 Respond to customer concerns/complaints in a sympathetic and effective manner. Evidence to include **two** of the following:

*Resolve the customers' issues on site within own level of responsibility,*

*Resolve the customers issues when outside of own responsibility by referring the matter to the appropriate person on site,*

*Report issues which cannot be resolved on site to the appropriate person/section,*

*Provide the customer with appropriate contact details of other personnel/sections if requested*

## Unit 100

# Install Single Phase Meter and Associated Equipment (New Connection) (M/600/3988) 11 credits

This unit is about installing single phase metering and associated equipment in an electrical power engineering environment. It involves completing installation activities in a rigorous and methodical manner and the following of processes and procedures to make sure that the finishes work meets the quality assurance and operating specifications set by the organisation.

By completing this unit, you show you are competent to:

- Plan to install single phase metering and associated equipment
- Prepare to install single phase metering and associated equipment
- Install single phase metering and associated equipment
- Use and communicate data and information
- Resolve problems effectively and efficiently

### Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas

**Outcome 1:** Plan for work activities to install single phase meter and associated equipment

- 1.1 Identify the correct work location using available information
- 1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations
- 1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content and sequence of tasks, personnel
- 1.4 Inform all affected parties of their intended work plan, in line with company procedures

**Outcome 2:** Prepare resources to install single phase meter and associated equipment

- 2.1 Select, inspect and wear personal protective equipment (PPE) compatible with the work plan, risk assessment and health and safety regulations
- 2.2 Apply appropriate control measures to ensure the work area is in a safe and suitable condition for work to commence in line with risk assessment requirements and Company procedures (e.g. signs/barriers, demarcation of work area, control/removal of hazards, contamination protection)
- 2.3 Identify the correct meter and associated equipment to be installed, in line with company procedures and work plan
- 2.4 Select and prepare tools and equipment compatible with the work plan, risk assessment and Company procedures
- 2.5 Check the tools and equipment are fit for purpose to carry out the identified work in line with Company procedures
- 2.6 Confirm meter details and record meter readings
- 2.7 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

### **Outcome 3:** Install single phase meter and associated equipment

- 3.1 Install the identified single phase meter and associated equipment using selected tools and equipment, in line with the work plan, risk assessment and company procedures.  
Installation must include **one** single phase single rate meter and any **one** of the following:  
*Multi rate with communication method, Two rate – with timeswitch/teleswitch with off peak or no off peak supplies, Two rate 5 terminal meter, Multi-rate meter, Two rate – key/token, with or without communication method, with or without off peak supplies,*
- 3.2 Install an isolator on at least **one** occasion, in line with work plan and company procedures
- 3.3 Carry out testing procedures on completed installations, in line with company requirements
- 3.4 Check the completed installation meets and complies with the work instructions and equipment specifications
- 3.5 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person
- 3.6 Work throughout the duration of the work in accordance with a) safe working and environmental practices b) company procedures c) health and safety regulations and d) environmental legislation,
- 3.7 Complete all required post activity documentation in line with company policy
- 3.8 Ensure all tools and equipment are stored in line with company procedures
- 3.9 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with Company and statutory procedures
- 3.10 Ensure the work area is left in a safe condition compatible with company procedures

### **Knowledge and Understanding**

To perform effectively in this unit, you need to have evidence in the following areas

#### **Outcome 4:** General

- 4.1 The main principles of health and safety and environmental legislation and regulations
- 4.2 The company reporting lines and authorisation roles and responsibilities
- 4.3 The company policies and procedures that directly impact on the work to be undertaken

#### **Outcome 5:** Work area

- 5.1 The company procedures and processes for reporting problems with tools and equipment
- 5.2 How to read and interpret procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use
- 5.3 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use
- 5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks
- 5.5 What personal protective equipment needs to worn when undertaken work activities
- 5.6 What materials and substances are dangerous and hazardous to health
- 5.7 How to maintain safe working and environmental practices throughout the duration of the work
- 5.8 How to minimise risks to self and others when undertaking work activities
- 5.9 Company work instruction, information and reporting systems and documentation
- 5.10 How to respond to the different types and categories of emergency situations that might occur
- 5.11 How to install plant and apparatus using specified principles, methods, processes and procedures
- 5.12 How to recognise and report inaccurate and incorrect work instructions and documentation

## Unit 101

# Change Single Phase Meter and Associated Equipment (A/600/3993) 11 credits

This unit is about changing single phase metering and associated equipment in an electrical power engineering environment. It includes the processes and procedures to be followed to make sure that the completed work meets the quality assurance and operating specifications set by the organisation. It also involves the wearing of personal protective equipment whilst carrying out the work.

By completing this unit, you show you are competent to:

- Plan for changing single phase metering and associated equipment
- Prepare for changing single phase metering and associated equipment
- Change single phase metering and associated equipment
- Use and communicate data and information
- Resolve problems effectively and efficiently

### Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas

**Outcome 1:** Plan for work activities to change single phase meter and associated equipment

- 1.1 Identify the correct work location using available information
- 1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations
- 1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content and sequence of tasks, personnel
- 1.4 Inform all affected parties of their intended work plan, in line with company procedures

**Outcome 2:** Prepare resources to change single phase meter and associated equipment

- 2.1 Select, inspect and wear personal protective equipment (PPE) compatible with the work plan, risk assessment and health and safety regulations
- 2.2 Apply appropriate control measures to ensure the work area is in a safe and suitable condition for work to commence in line with risk assessment requirements and Company procedures (e.g. signs/barriers, demarcation of work area, control/removal of hazards, contamination protection)
- 2.3 Identify the correct meter and associated equipment to be worked on, in line with company procedures and work plan
- 2.4 Select and prepare tools and equipment compatible with the work plan, risk assessment and Company procedures
- 2.5 Check the tools and equipment are fit for purpose to carry out the identified work in line with Company procedures
- 2.6 Confirm meter details and record meter readings
- 2.7 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

### **Outcome 3:** Change single phase meter and associated equipment

- 3.1 Remove the identified single phase meter and associated equipment using selected tools and equipment, in line with the work plan, risk assessment and company procedures. Removal must include at least **one** single phase single rate meter and any **one** of the following;  
*Multi rate with communication method, Two rate – with timeswitch/teleswitch with or without off peak supplies, Two rate 5 terminal meter, Multi-rate meter, Two rate – key/token, with/without communication method, with or without off peak supplies*
- 3.2 Replace removed meters with any **two** of the following:  
*Multi rate with communication method, Mechanical single phase meter, Electronic single phase meter, Two rate – with timeswitch/teleswitch with or without off peak supplies, Multi rate 5 terminal meter, Check meter, Multi-rate meter, Two rate – key/token, with or without communication method, with or without off peak supplies*
- 3.3 Carry out appropriate testing procedures on completed installations, in line with company procedures
- 3.4 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person
- 3.5 Work throughout the duration of the work in accordance with a) safe working and environmental practices b) company procedures c) health and safety regulations and d) environmental legislation,
- 3.6 Complete all required post activity documentation in line with company policy
- 3.7 Ensure all tools and equipment are stored in line with company procedures
- 3.8 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with Company and statutory procedures
- 3.9 Ensure the work area is left in a safe condition compatible with company procedures

### **Knowledge and Understanding**

To perform effectively in this unit, you need to have evidence in the following areas

### **Outcome 4:** General

- 4.1 The main principles of health and safety and environmental legislation and regulations
- 4.2 The reporting lines and authorisation roles and responsibilities
- 4.3 The company policies and procedures that directly impact on the work to be undertaken

### **Outcome 5:** Work area

- 5.1 The company procedures and processes for reporting problems with tools and equipment
- 5.2 How to read and interpret the, procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use
- 5.3 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use
- 5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks
- 5.5 What personal protective equipment needs to worn when undertaken work activities
- 5.6 What materials and substances are dangerous and hazardous to health
- 5.7 How to maintain safe working and environmental practices throughout the duration of the work
- 5.8 How to minimise risks to self and others when undertaking work activities
- 5.9 The procedures and documentation used for reporting problems
- 5.10 Company work instruction, information and reporting systems and documentation
- 5.11 How to respond to the different types and categories of emergency situations that might occur
- 5.12 How to replace plant and apparatus using specified principles, methods, processes and procedures

5.13 How to recognise and report inaccurate and incorrect work instructions and documentation

## Unit 102

## Install Multi Phase Meter – ‘Whole Current’ (New Connection) (J/600/4001) 15 credits

This unit is about installing multi-phase metering in an electrical power engineering environment. It involves completing installation activities in a rigorous and methodical manner and the following of processes and procedures to make sure that the finished work meets the quality assurance and operating specifications set by the organisation.

By completing this unit, you show you are competent to:

- Plan to install multi-phase metering
- Prepare to install multi-phase metering
- Install multi-phase metering
- Use and communicate data and information
- Resolve problems effectively and efficiently

### Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas

**Outcome 1:** Plan for work activities to install Multi phase meter (whole current)

- 1.1 Identify the correct work location using available information
- 1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations
- 1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content and sequence of tasks, personnel
- 1.4 Inform all affected parties of their intended work plan, in line with company procedures

**Outcome 2:** Prepare resources to install Multi phase meter (whole current)

- 2.1 Select, inspect and wear personal protective equipment (PPE) compatible with the work plan, risk assessment and health and safety regulations
- 2.2 Apply appropriate control measures to ensure the work area is in a safe and suitable condition for work to commence in line with risk assessment requirements and Company procedures (e.g. signs/barriers, demarcation of work area, control/removal of hazards, contamination protection)
- 2.3 Identify the correct meter to be installed, in line with company procedures and work plan
- 2.4 Select and prepare tools and equipment compatible with the work plan, risk assessment and Company procedures
- 2.5 Check the tools and equipment are fit for purpose to carry out the identified work in line with Company procedures
- 2.6 Confirm meter details and record meter readings
- 2.7 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures



**Outcome 3:** Install Multi phase meter (whole current)

- 3.1 Install identified multi phase meter using selected tools and equipment, in line with the work plan, risk assessment and company procedures. Installation to include **one** electronic Multi phase meter and any **one** of the following:  
*Multi phase Multi rate meter with communication method, Mechanical Multi phase meter, Mechanical Multi phase Multi rate with or without off peak supplies, Electronic Multi phase Multi-rate meter with or without off peak supplies*
- 3.2 Carry out appropriate testing procedures on completed installations, in line with company procedures
- 3.3 Check the completed installation to ensure it meets and complies with work instructions and equipment specifications
- 3.4 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person
- 3.5 Work throughout the duration of the work in accordance with a) safe working and environmental practices b) company procedures c) health and safety regulations and d) environmental legislation,
- 3.6 Complete all required post activity documentation in line with company policy
- 3.7 Ensure all tools and equipment are stored in line with company procedures
- 3.8 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with Company and statutory procedures
- 3.9 Ensure the work area is left in a safe condition compatible with company procedures

**Knowledge and Understanding**

To perform effectively in this unit, you need to have evidence in the following areas

**Outcome 4:** General

- 4.1 The main principles of health and safety and environmental legislation and regulations
- 4.2 The company reporting lines and authorisation roles and responsibilities
- 4.3 The company policies and procedures that directly impact on the work to be undertaken

**Outcome 5:** Work area

- 5.1 The company procedures and processes for reporting problems with tools and equipment
- 5.2 How to read and interpret procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use
- 5.3 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use
- 5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks
- 5.5 What personal protective equipment needs to worn when undertaken work activities
- 5.6 What materials and substances are dangerous and hazardous to health
- 5.7 How to maintain safe working and environmental practices throughout the duration of the work
- 5.8 How to minimise risks to self and others when undertaking work activities
- 5.9 Company work instruction, information and reporting systems and documentation
- 5.10 How to respond to the different types and categories of emergency situations that might occur
- 5.11 How to install plant and apparatus using specified principles, methods, processes and procedures
- 5.12 How to recognise and report inaccurate and incorrect work instructions and documentation

## Unit 103

## Change Multi Phase Meter – ‘Whole Current’ (F/600/4000) 15 credits

This unit is about changing multi-phase metering in an electrical power engineering environment. It includes the processes and procedures to be followed to make sure that the completed work meets the quality assurance and operating specifications set by the organisation. It also involves the wearing of personal protective equipment whilst carrying out the work.

By completing this unit, you show you are competent to:

- Plan for changing multi-phase metering
- Prepare for changing multi-phase metering
- Change multi-phase metering
- Use and communicate data and information
- Resolve problems effectively and efficiently

### Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas

#### **Outcome 1:** Plan for work activities to change Multi phase meter (whole current)

- 1.1 Identify the correct work location using available information
- 1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations
- 1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content and sequence of tasks, personnel
- 1.4 Inform all affected parties of their intended work plan, in line with company procedures

#### **Outcome 2:** Prepare resources to change Multi phase meter (whole current)

- 2.1 Select, inspect and wear personal protective equipment (PPE) compatible with the work plan, risk assessment and health and safety regulations
- 2.2 Apply appropriate control measures to ensure the work area is in a safe and suitable condition for work to commence in line with risk assessment requirements and Company procedures (e.g. signs/barriers, demarcation of work area, control/removal of hazards, contamination protection)
- 2.3 Identify the correct meter and associated equipment to be worked on, in line with company procedures and work plan
- 2.4 Select and prepare tools and equipment compatible with the work plan, risk assessment and Company procedures
- 2.5 Check the tools and equipment are fit for purpose to carry out the identified work in line with Company procedures
- 2.6 Confirm meter details and record meter readings
- 2.7 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

### **Outcome 3:** Change Multi phase meter (whole current)

- 3.1 Remove the identified single phase meter and associated equipment using selected tools and equipment, in line with the work plan, risk assessment and company procedures. Removal must include **one** Multi phase single rate meter and any **one** of the following;  
*Multi phase Mechanical meter with or without timeswitch/teleswitch, Electronic Multi phase meter, Multi rate meter with communication method.*
- 3.2 Follow job instructions and company procedures to **replace** the removed meters with any **two** of the following;  
*Multi phase Multi rate meter with communication method, Mechanical Multi phase meter, Mechanical Multi phase Multi rate with or without off peak supplies, Electronic Multi phase Multi-rate meter with or without off peak supplies*
- 3.3 Carry out appropriate testing procedures on completed installations, in line with company procedures
- 3.4 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person
- 3.5 Work throughout the duration of the work in accordance with a) safe working and environmental practices b) company procedures c) health and safety regulations and d) environmental legislation,
- 3.6 Complete all required post activity documentation in line with company policy
- 3.7 Ensure all tools and equipment are stored in line with company procedures
- 3.8 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with Company and statutory procedures
- 3.9 Ensure the work area is left in a safe condition compatible with company procedures

### **Knowledge and Understanding**

To perform effectively in this unit, you need to have evidence in the following areas

#### **Outcome 4:** General

- 4.1 The main principles of health and safety and environmental legislation and regulations
- 4.2 The reporting lines and authorisation roles and responsibilities
- 4.3 The company policies and procedures that directly impact on the work to be undertaken

#### **Outcome 5:** Work area

- 5.1 The company procedures and processes for reporting problems with tools and equipment
- 5.2 How to read and interpret the, procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use
- 5.3 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use
- 5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks
- 5.5 What personal protective equipment needs to worn when undertaken work activities
- 5.6 What materials and substances are dangerous and hazardous to health
- 5.7 How to maintain safe working and environmental practices throughout the duration of the work
- 5.8 How to minimise risks to self and others when undertaking work activities
- 5.9 The procedures and documentation used for reporting problems
- 5.10 Company work instruction, information and reporting systems and documentation
- 5.11 How to respond to the different types and categories of emergency situations that might occur
- 5.12 How to replace plant and apparatus using specified principles, methods, processes and procedures
- 5.13 How to recognise and report inaccurate and incorrect work instructions and documentation

## Unit 104

# Install Single Phase Meter and Associated Equipment on Multi phase cut-out 'Whole Current' (New Connection) (M/600/4008) 10 credits

This unit is about installing single phase metering and associated equipment on multi-phase cut-out 'whole current' in an electrical power engineering environment. It involves completing installation activities in a rigorous and methodical manner and the following of processes and procedures to make sure that the finished work meets the quality assurance and operating specifications set by the organisation.

By completing this unit, you show you are competent to:

- Plan to install single phase metering and associated equipment on multi-phase cut-out 'whole current'
- Prepare to install single phase metering and associated equipment on multi-phase cut-out 'whole current'
- Install single phase metering and associated equipment on multi-phase cut-out 'whole current'
- Use and communicate data and information
- Resolve problems effectively and efficiently

### Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas

**Outcome 1:** Plan for work activities to install single phase meter and associated equipment on Multi phase cut-outs

- 1.1 Identify the correct work location using available information
- 1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations
- 1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content and sequence of tasks, personnel
- 1.4 Inform all affected parties of their intended work plan, in line with company procedures

**Outcome 2:** Prepare resources to install single phase meter and associated equipment on Multi phase cut-outs

- 2.1 Select, inspect and wear personal protective equipment (PPE) compatible with the work plan, risk assessment and health and safety regulations
- 2.2 Apply appropriate control measures to ensure the work area is in a safe and suitable condition for work to commence in line with risk assessment requirements and Company procedures (e.g. signs/barriers, demarcation of work area, control/removal of hazards, contamination protection)
- 2.3 Identify the correct meter to be installed, in line with company procedures and work plan
- 2.4 Select and prepare tools and equipment compatible with the work plan, risk assessment and Company procedures
- 2.5 Check the tools and equipment are fit for purpose to carry out the identified work in line with Company procedures

- 2.6 Confirm meter details and record meter readings
- 2.7 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

**Outcome 3:** Install single phase meter and associated equipment on Multi phase cut-outs

- 3.1 Install identified single multi phase meter and associated equipment on multi phase cut outs using selected tools and equipment, in line with the work plan, risk assessment and company procedures. Installation to include **one** single phase single rate meter and any **one** of the following;  
*Multi rate with communication method, Two rate – with timeswitch/teleswitch with or without off peak supplies, Multi rate 5 terminal meter, Multi-rate meter, Two rate – key/token, with or without communication method, with or without off peak supplies,*
- 3.2 Install an isolator on at least **one** occasion, in line with company precedures and work plan
- 3.3 Carry out company required testing procedures on completed installations, in line with company procedures
- 3.4 Check the installation meets and complies with the work instructions and equipment specifications
- 3.5 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person
- 3.6 Work throughout the duration of the work in accordance with a) safe working and environmental practices b) company procedures c) health and safety regulations and d) environmental legislation,
- 3.7 Complete all required post activity documentation in line with company policy
- 3.8 Ensure all tools and equipment are stored in line with company procedures
- 3.9 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with Company and statutory procedures
- 3.10 Ensure the work area is left in a safe condition compatible with company procedures

**Knowledge and Understanding**

To perform effectively in this unit, you need to have evidence in the following areas

**Outcome 4:** General

- 4.1 The main principles of health and safety and environmental legislation and regulations
- 4.2 The company reporting lines and authorisation roles and responsibilities
- 4.3 The company policies and procedures that directly impact on the work to be undertaken

**Outcome 5:** Work area

- 5.1 The company procedures and processes for reporting problems with tools and equipment
- 5.2 How to read and interpret procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use
- 5.3 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use
- 5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks
- 5.5 What personal protective equipment needs to worn when undertaken work activities
- 5.6 What materials and substances are dangerous and hazardous to health
- 5.7 How to maintain safe working and environmental practices throughout the duration of the work
- 5.8 How to minimise risks to self and others when undertaking work activities
- 5.9 Company work instruction, information and reporting systems and documentation
- 5.10 How to respond to the different types and categories of emergency situations that might occur

- 5.11 How to install plant and apparatus using specified principles, methods, processes and procedures
- 5.12 How to recognise and report inaccurate and incorrect work instructions and documentation

## Unit 105

# Change Single Phase Meter and Associated Equipment on Multi phase cut-outs – ‘Whole Current’ (T/600/4009) 10 credits

This unit is about changing single-phase metering and associated equipment on multi-phase cut-outs in an electrical power engineering environment. It includes the processes and procedures to be followed to make sure that the completed work meets the quality assurance and operating specifications set by the organisation. It also involves the wearing of personal protective equipment whilst carrying out the work.

By completing this unit, you show you are competent to:

- Plan for changing single-phase metering and associated equipment on multi-phase cut-outs
- Prepare for changing single-phase metering and associated equipment on multi-phase cut-outs
- Change single-phase metering and associated equipment on multi-phase cut-outs
- Use and communicate data and information
- Resolve problems effectively and efficiently

### Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas

**Outcome 1:** Plan for work activities to change single phase meter and associated equipment on Multi phase cut-outs

- 1.1 Identify the correct work location using available information
- 1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations
- 1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content and sequence of tasks, personnel
- 1.4 Inform all affected parties of their intended work plan, in line with company procedures

**Outcome 2:** Prepare resources to change single phase meter and associated equipment on Multi phase cut-outs

- 2.1 Select, inspect and wear personal protective equipment (PPE) compatible with the work plan, risk assessment and health and safety regulations
- 2.2 Apply appropriate control measures to ensure the work area is in a safe and suitable condition for work to commence in line with risk assessment requirements and Company procedures (e.g. signs/barriers, demarcation of work area, control/removal of hazards, contamination protection)
- 2.3 Identify the correct meter and associated equipment to be worked on, in line with company procedures and work plan
- 2.4 Select and prepare tools and equipment compatible with the work plan, risk assessment and Company procedures
- 2.5 Check the tools and equipment are fit for purpose to carry out the identified work in line with Company procedures
- 2.6 Confirm meter details and record meter readings

- 2.7 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

**Outcome 3:** Change single phase meter and associated equipment on Multi phase cut-outs

- 3.1 Remove the identified single phase meter and associated equipment using selected tools and equipment, in line with the work plan, risk assessment and company procedures. Removal must include ONE single phase single rate meter and any **ONE** of the following; *Multi rate with communication method, Two rate – with timeswitch / teleswitch with or without off peak supplies, Multi rate 5 terminal meter, Multi-rate meter, Two rate – key / token, with or without communication method, with or without off peak supplies*
- 3.2 **Replace** removed meters in line with company procedures and work plan with any **TWO** of the following:  
*Multi rate with communication method, Mechanical single phase meter, Electronic single phase meter, Multi rate – with timeswitch / teleswitch with or without off peak supplies, Multi rate 5 terminal meter, Check meter, Multi-rate meter, Multi rate – key / token, with or without communication method, with or without off peak supplies.*
- 3.3 Carry out appropriate testing procedures on completed installations, in line with company procedures
- 3.4 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person
- 3.5 Work throughout the duration of the work in accordance with a) safe working and environmental practices b) company procedures c) health and safety regulations and d) environmental legislation,
- 3.6 Complete all required post activity documentation in line with company policy
- 3.7 Ensure all tools and equipment are stored in line with company procedures
- 3.8 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with Company and statutory procedures
- 3.9 Ensure the work area is left in a safe condition compatible with company procedures

**Knowledge and Understanding**

To perform effectively in this unit, you need to have evidence in the following areas

**Outcome 4:** General

- 4.1 The main principles of health and safety and environmental legislation and regulations
- 4.2 The reporting lines and authorisation roles and responsibilities
- 4.3 The company policies and procedures that directly impact on the work to be undertaken

**Outcome 5:** Work area

- 5.1 The company procedures and processes for reporting problems with tools and equipment
- 5.2 How to read and interpret the, procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use
- 5.3 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use
- 5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks
- 5.5 What personal protective equipment needs to worn when undertaken work activities
- 5.6 What materials and substances are dangerous and hazardous to health
- 5.7 How to maintain safe working and environmental practices throughout the duration of the work
- 5.8 How to minimise risks to self and others when undertaking work activities



- 5.9 The procedures and documentation used for reporting problems
- 5.10 Company work instruction, information and reporting systems and documentation
- 5.11 How to respond to the different types and categories of emergency situations that might occur
- 5.12 How to replace plant and apparatus using specified principles, methods, processes and procedures
- 5.13 How to recognise and report inaccurate and incorrect work instructions and documentation

## Useful contacts

| Type                          | Contact  | Query   |
|-------------------------------|--|---|
| UK learners                   | T: +44 (0)20 7294 2800<br>E: learnersupport@cityandguilds.com  | <ul style="list-style-type: none"> <li>• General qualification information</li> </ul>   |
| International learners        | T: +44 (0)20 7294 2885<br>F: +44 (0)20 7294 2413<br>E: intcg@cityandguilds.com   | <ul style="list-style-type: none"> <li>• General qualification information</li> </ul>   |
| Centres                       | T: +44 (0)20 7294 2787<br>F: +44 (0)20 7294 2413<br>E: centresupport@cityandguilds.com                                       | <ul style="list-style-type: none"> <li>• Exam entries</li> <li>• Registrations/enrolment</li> <li>• Certificates</li> <li>• Invoices</li> <li>• Missing or late exam materials</li> <li>• Nominal roll reports</li> <li>• Results</li> </ul>                              |
| Single subject qualifications | T: +44 (0)20 7294 8080<br>F: +44 (0)20 7294 2413<br>F: +44 (0)20 7294 2404 (BB forms)<br>E: singlesubjects@cityandguilds.com | <ul style="list-style-type: none"> <li>• Exam entries</li> <li>• Results</li> <li>• Certification</li> <li>• Missing or late exam materials</li> <li>• Incorrect exam papers</li> <li>• Forms request (BB, results entry)</li> <li>• Exam date and time change</li> </ul> |
| International awards          | T: +44 (0)20 7294 2885<br>F: +44 (0)20 7294 2413<br>E: intops@cityandguilds.com  | <ul style="list-style-type: none"> <li>• Results</li> <li>• Entries</li> <li>• Enrolments</li> <li>• Invoices</li> <li>• Missing or late exam materials</li> <li>• Nominal roll reports</li> </ul>  |
| Walled Garden                 | T: +44 (0)20 7294 2840<br>F: +44 (0)20 7294 2405<br>E: walledgarden@cityandguilds.com  | <ul style="list-style-type: none"> <li>• Re-issue of password or username</li> <li>• Technical problems</li> <li>• Entries</li> <li>• Results</li> <li>• GOLA</li> <li>• Navigation</li> <li>• User/menu option problems</li> </ul>                                       |
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