



Model Curriculum

QP Name: Field Technician – UPS and Inverter

QP Code: ELE/Q7201

QP Version: 4.0

NSQF Level: 4

Model Curriculum Version: 4.0

Electronics Sector Skills Council of India || 155, 2nd Floor, ESC House, Okhla Industrial Area- Phase 3, New Delhi- 110020

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Training Parameters

Sector	Electronics
Sub-Sector	Industrial Automation
Occupation	Sales and After Sales Service
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7412.0801
Minimum Educational Qualification and Experience	12th grade or equivalent Or 10th grade or equivalent with 3 years relevant experience Or Certificate-NSQF (Level-3 in relevant domain) with 3 years of relevant experience # Relevant Experience in Industrial Automation
Pre-Requisite License or Training	NA
Minimum Job Entry Age	NA
Last Reviewed On	07/10/2025
Next Review Date	07/10/2028
NSQC Approval Date	07/10/2025
QP Version	4.0
Model Curriculum Creation Date	07/10/2025
Model Curriculum Valid Up to Date	07/10/2028
Model Curriculum Version	4.0
Minimum Duration of the Course	450 Hours
Maximum Duration of the Course	450 Hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills:

- Elucidate ways to understand customer's requirement.
- Demonstrate the process of installing the UPS/Inverter.
- Demonstrate the process of repairing dysfunctional UPS/ Inverter.
- Explain the importance of following inclusive practices for all genders and PwD at work.
- Demonstrate various practices to be followed to maintain health and safety at work.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
ELE/N0061: Understand requirement of customer	60:00	30:00	30:00	00:00	120:00
Module 1: Understand customer's requirement	60:00	30:00	30:00	00:00	120:00
ELE/N7201: Install the UPS/ Inverter	30:00	75:00	45:00	00:00	150:00
Module 2: Process of installing the UPS/Inverter	30:00	75:00	45:00	00:00	150:00
ELE/N7202: Repair dysfunctional UPS/ Inverter	30:00	75:00	45:00	00:00	150:00
Module 3: Process of repairing dysfunctional UPS/ Inverter	30:00	75:00	45:00	00:00	150:00
DGT/VSQ/N0102- Employability Skills (60 Hours)	30:00	30:00	00:00	00:00	00:00
Module 4: Employability Skills (60 Hours)	30:00	00:00	00:00	00:00	30:00
Total Duration	150:00	180:00	120:00	00:00	450:00

Module Details

Module 1: Understand customer requirements

Mapped to ELE/N0061

Terminal Outcomes:

- Introduction to the roles and responsibilities of Field Technician – UPS and Inverter
- Elucidate ways how to interact with the customer prior to visit.
- Elaborate how to interact with customer at their premises.

Duration: 60:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
● Describe the roles and responsibilities of Field Technician – UPS and Inverter. ● Discuss companys policies on: customer care, warranty. ● Discuss companys code of conduct. ● Explain organisation culture and typical customer profile. ● Explain companys reporting structure. ● Discuss companys documentation policy. ● Explain companys products and recurring problems reported in consumer appliances. ● Explain basic electrical and mechanical modules of various industrial electronic products. ● Explain circuit design of the type and model of product. ● Explain etiquette to be followed at customers premises. ● Explain precautions to be taken while handling field calls and dealing with customers. ● Describe relevant reference sheets, manuals and documents to carry in the field. ● Explain significance of etiquette such as maintaining the appropriate physical distance with customer during conversation, not entering bedroom without permission.	● Role play how to make a call to customer to confirm problem and schedule the time for visit. ● Show how to exchange greetings with the customer and confirm the problem registered. ● Role play how to interacting with customer. ● Prepare a sample optimum route plan to complete daily target visits.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	

Module 2: Process of installing the UPS/ Inverter

Mapped to ELE/N7201

Terminal Outcomes:

- Demonstrate the process of undertake pre-installation site visit.
- Explain ways to check accessories.
- Describe the process of placing and wiring the UPS/Inverter.
- Elucidate ways to check functioning of the product.
- Explain the importance of completing the documentation.
- Explain the importance of interacting with supervisor/superior.
- Elucidate the importance of achieving productivity and quality as per organization's norms.

Duration: 30:00	Duration: 75:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Discuss companys policies on: incentives, delivery standards, and personnel management, call closure. • Discuss companys sales, installation and after sales support policy. • Interact with customer using CRM apps, online service forms to understand where the UPS/inverter is to be installed. • Explain the importance of the individuals role in the workflow. • Discuss reporting structure. • Discuss companys policy on products warranty and other terms and conditions. • Explain various installation site requirements (structural requirements, ventilation, etc.) • Elucidate different features and functionalities of various models. • Describe the fundamentals of electricity, electrical components and electrical schematic symbols. • Elucidate safety precautions to be taken while installing such as wearing rubber gloves, removing metals objects from the surroundings etc. • Describe manual-based procedure of installing the UPS/inverter. • Describe packaging waste disposal procedures. Explain the use of test equipment and tools such as multi-meter, oscilloscope.	• Demonstrate the process of carrying out pre-installations/masonry/electrical work to be carried out. • Show how to remove watches, rings or any other metal objects before installation procedure. • Demonstrate how to detach all bolts and shipping brackets and separate the UPS cabinet. • Show how to place the UPS at the final location, then connect the power and control wirings through the top or bottom of the cabinet. • check whether pre-installation of IOT -enabled UPS systems requirements are met. • Align the IOT -enabled UPS UPS/inverter as per the instruction manual, once necessary power and control connections are made. • Demonstrate the process of reinstalling safety shields removed during the process of installation. • Demonstrate how to align the UPS/inverter as per the instruction manual. • Demonstrate how to document the work completed on the company ERP software for tracking and future references. • Demonstrate the process of using the correct tools and equipment for installation.

- Elucidate safety rules, policies and procedures.
- Describe various quality standards to be followed.
- Elucidate operations, setting and uses of UPS/inverter and its uses.
- List various accessories and parts that have accompanied the unit.
- Elucidate features and functionalities after the installation of UPS/inverter.
- List various tools for installation like screw drivers.
- Describe appropriate settings after plugging in.

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

Module 3: Process of repairing dysfunctional UPS/ Inverter

Mapped to ELE/N7202

Terminal Outcomes:

- Explain the importance of understanding the symptoms and identify the fault.
- Describe the process of replacing dysfunctional module in the UPS/inverter unit.
- Explain ways to confirm functionality of the repaired unit.
- Elucidate the importance of achieving productivity and quality as per organization's norms.

Duration: 30:00	Duration: 75:00
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
● Describe the functionalities of the UPS/inverter and procedures to make settings. ● Explain the functioning of the appliance and its various modules. ● Describe UPS communication interface and wiring procedures. ● Describe daily, monthly and annual maintenance procedures of the equipment and battery maintenance. ● Describe battery recycling procedure. ● Explain basic electronics and electronic components (knowledge of components such as diode, transformer, LED, photo transistor, capacitor, resistor, inductor, thermistors). ● Discuss fundamentals of electricity such as ohms law. ● Explain difference between AC and DC. ● Explain ways to calculation of energy consumption of appliances. ● Elucidate domestic wiring, series and parallel connections. ● Elucidate troubleshooting knowledge with respect to UPS/inverters. ● Discuss faults such as blown fuse, dead battery, etc. ● List various components/modules of the UPS/inverter and their prices. ● Explain the operations of computers	● Demonstrate how to disconnect the power source and open the cabinet doors of the equipment. ● Demonstrate how to disconnect the battery and wait for electrolytic capacitor to discharge. ● Show how to remove protective panels since the voltage present is potentially lethal. ● Demonstrate the process of carry out basic tests such as power supply inspection, volt ampere test and earth test power supply etc. ● Demonstrate the process of removing and replacing the faulty module with a functional one. ● Demonstrate the process of reassembling the unit and making all power as well as communication wirings.
and software installed. ● Explain the operations and use of multi-meter, oscilloscope, clamp meter, screw driver.	

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

Module 4: Employability Skills (30 Hours)

Mapped to DGT/VSQ/N0101

Terminal Outcomes:

- Discuss about Employability Skills in meeting the job requirements
- Describe opportunities as an entrepreneur.

Duration: 30:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Explain constitutional values, civic rights, responsibility towards society to become a responsible citizen • Discuss 21st century skills • Explain use of basic English phrases and sentences. • Demonstrate how to communicate in a well-behaved manner • Demonstrate how to work with others • Demonstrate how to operate digital devices • Discuss the significance of Internet and Computer/ Laptops • Discuss the need for identifying business opportunities • Discuss about types of customers. • Discuss on creation of biodata • Discuss about apprenticeship and opportunities related to it.	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Computer, UPS, Scanner, Computer Tables, LCD Projector, Computer Chairs, White Board OR	
Computer Lab	

Module 5: On-the-Job Training

Mapped to Field Technician – UPS and Inverter

Mandatory Duration: 120:00	Recommended Duration: 00:00
Location: On Site	
Terminal Outcomes 1. Explain basic electrical and mechanical modules of various industrial electronic products. 2. Explain various precautions to be taken while handling field calls and dealing with customers. 3. Carry out pre-installations/masonry/electrical work to be carried out. 4. Detach all bolts and shipping brackets and separate the UPS cabinet. 5. Diagnose the fault based on customer interaction and initial inspection. 6. Reassemble the unit and make all power as well as communication wirings. 7. Demonstrate and confirm functionality of the unit with customer. 8. Perform tasks as per workplace standards, organisational policies and legislative requirements. 9. Dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques. 10. Administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock.	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Diploma/ ITI/ Certified in relevant CITS course	Electronics / Electrical	1	UPS and Inverter	1 year preferably	Electronics	

Trainer Certification	
Domain Certification	Platform Certification
"Field Technician - UPS and Inverter", "ELE/Q7201, v3.0", Minimum accepted score is 80%	Recommended that the Trainer is certified for the Field Technician - UPS & Inverter "Trainer (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2601, V2.0", with minimum score of 80%

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Diploma/ ITI/ Certified in relevant CITS course	Electronics / Electrical/ Mechanical	2	UPS and Inverter	1 year preferably	Electronics	

Assessor Certification	
Domain Certification	Platform Certification
"Field Technician - UPS and Inverter", "ELE/Q7201, v3.0", Minimum accepted score is 80%	Recommended that the Assessor is certified for the Field Technician - UPS & Inverter "Assessor (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2701, V2.0", with minimum score of 80%

Assessment Strategy

1. Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SDMS/SIP or email
- Assessment agencies send the assessment confirmation to VTP/TC looping SSC
- The assessment agency deploys the ToA certified Assessor for executing the assessment
- SSC monitors the assessment process & records

2. Testing Environment

To ensure a conducive environment for conducting a test, the trainer will:

- Confirm that the centre is available at the same address as mentioned on SDMS or SIP
- Check the duration of the training.
- Check the Assessment Start and End time to be 10 a.m. and 5 p.m. respectively
- Ensure there are 2 Assessors if the batch size is more than 30.
- Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
- Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
- Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
- Check the availability of the Lab Equipment for the particular Job Role.

3. Assessment Quality Assurance levels / Framework:

- Question papers created by the Subject Matter Experts (SME)
- Question papers created by the SME verified by the other subject Matter Experts
- Questions are mapped with NOS and PC
- Question papers are prepared considering that level 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management
- The assessor must be ToA certified and the trainer must be ToT Certified
- The assessment agency must follow the assessment guidelines to conduct the assessment

4. Types of evidence or evidence-gathering protocol:

- Time-stamped & geotagged reporting of the assessor from assessment location
- Centre photographs with signboards and scheme-specific branding
- Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
- Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. Method of verification or validation:

To verify the details submitted by the training centre, the assessor will undertake:

- A surprise visit to the assessment location
- A random audit of the batch
- A random audit of any candidate

6. Method for assessment documentation, archiving, and access

To protect the assessment papers and information, the assessor will ensure:

- Hard copies of the documents are stored

- Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage
- Soft copies of the documents & photographs of the assessment are stored on the Hard driv

References

Glossary

Term	Description
Declarative knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training .
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module . A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
ISO	International Organization for Standardization
NCO	National Occupational Standards
NOS	National Skills Qualification Committee
NSQF	National Skills Qualification Framework
OJT	On-the-Job Training
OMR	Optical Mark Recognition
PC	Performance Criteria
PwD	Persons with Disabilities
QP	Qualification Pack
SDMS	Skill Development & Management System
SIP	Skill India Portal
SME	Small and Medium Enterprises
SOP	Standard Operating Procedure
SSC	Sector Skill Council
TC	Trainer Certificate
ToA	Training of Assessors
ToT	Training of Trainers
TP	Training Provider