Model Curriculum

QP Name: Assistant Electrician

QP Code: CON/Q0602

Version: 4.0

NSQF Level: 3

Model Curriculum Version: 4.0

Construction Skill Development Council of India|| CPB-201 and 202, Tower 4B, DLF Corporate Park, Mehrauli-Gurgaon Rd, DLF Phase 3, Gurugram, Haryana, 122002

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Training Parameters

Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Construction Electrical Works
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7411.0100
Minimum Educational Qualification and Experience	10th grade pass OR 9th grade pass with 1-year relevant experience OR 8th grade pass with 2-year relevant experience OR 5th grade pass with 5-year relevant experience OR Previous relevant qualification of NSQF Level 2 (Helper Electrician) with 3-year relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	27/01/2025
Next Review Date	30/04/2028
NSQC Approval Date	08/05/2025
QP Version	4.0
Model Curriculum Creation Date	27/01/2025
Model Curriculum Valid Up to Date	30/04/2028
Model Curriculum Version	4.0
Minimum Duration of the Course	390 Hours
Maximum Duration of the Course	390 Hours

Program Overview

This section summarises 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 to:

- Explain how to select and use the hand, power tools and electrical devices relevant to construction electrical works.
- Demonstrate how to install temporary lighting arrangements at construction sites.
- Show how to install LV electrical wiring at permanent structures.
- Demonstrate how to assemble, install, and maintain temporary LV electrical panels (distribution boards) at the construction site.
- Explain the importance of working effectively in a team to deliver desired results at the workplace.
- Elucidate ways to plan and organize work to meet expected outcomes.
- Elucidate ways to work according to personal health, safety and environment protocols at the construction site.
- Discuss the applicable employability skills.

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
CON/N0602: Handle hand and power tools relevant to construction electrical works NOS Version- 5.0 NSQF Level- 3	**20:00**	**35:00**	**05:00**	**00:00**	**60:00**
Module 1: Introduction to the Role of an Assistant Electrician	05:00	00:00	00:00	00:00	05:00
Module 2: Handling Construction Hand and Power Tools	15:00	35:00	05:00	00:00	55:00
CON/N0603: Install temporary lighting arrangements at construction sites NOS Version- 5.0 NSQF Level- 3	**15:00**	**35:00**	**10:00**	**00:00**	**60:00**
Module 3: Installing temporary lighting	15:00	35:00	10:00	00:00	60:00
CON/N0604: Assist in LV (low voltage) electrical wiring at permanent structures NOS Version- 5.0 NSQF Level- 3	**20:00**	**35:00**	**05:00**	**00:00**	**60:00**
Module 4: Assisting in LV (low voltage) electrical wiring at permanent structures	20:00	35:00	05:00	00:00	60:00

CON/N0605: Assemble, install and maintain temporary LV electrical panels (distribution boards) at the construction site NOS Version- 5.0 NSQF Level- 3	**20:00**	**60:00**	**10:00**	**00:00**	**90:00**
Module 5: Assembling, installing and maintaining temporary LV electrical panels	20:00	40:00	00:00	00:00	60:00
CON/N9001: Work according to personal health, safety and environment protocols at the construction site NOS Version- 3.0 NSQF Level- 4	**05:00**	**25:00**	**00:00**	**00:00**	**30:00**
Module 6: Follow safety norms as defined by the organization, adopt healthy and safe work practices	05:00	25:00	00:00	00:00	30:00
CON/N8001: Work effectively in a team to deliver desired results at the workplace NOS Version- 3.0 NSQF Level- 4	**05:00**	**25:00**	**00:00**	**00:00**	**30:00**
Module 7: Work according to personal health, safety and environment protocols at the construction site	05:00	25:00	0:00	00:00	30:00
CON/N8002: Plan and organize work to meet expected outcomes NOS Version- 4.0 NSQF Level- 4	**05:00**	**25:00**	**00:00**	**00:00**	**30:00**
Module 8: Plan and organize work to meet expected outcomes	05:00	25:00	0:00	00:00	30:00
DGT/VSQ/N0101: Employability Skills (30 Hours) NOS Version- 1.0 NSQF Level- 2	**30:00**	**00:00**	**00:00**	**00:00**	**30:00**
Module 9: Employability Skills	30:00	00:00	00:00	00:00	30:00
Total Duration	**120:00**	**240:00**	**30:00**	**00:00**	**390:00**

Module Details

Module 1: Introduction to the Role of an Assistant Electrician

Mapped to CON/N0602, v5.0

Terminal Outcomes:

- Discuss the job role of an Assistant Electrician.

Duration: 05:00	**Duration**: 00:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the size and scope of the Construction industry and its sub-sectors. • Discuss the role and responsibilities of an Assistant Electrician. • Identify various employment opportunities for an Assistant Electrician.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 2: Handling Construction Hand and Power Tools

Mapped to CON/N0602, v5.0

Terminal Outcomes:

- Demonstrate how to handle hand/power tools for construction electrical works.

Duration: 15:00	**Duration: 35:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the basic principle of electrical current flow and the fundamental concept of alternate and direct current, voltage, resistance, temperature, cross-section of conductors, etc. • Explain Ampere's law, Ohm's law, and electromagnetic field. • Explain the application of a tester, multimeter, digital ammeter etc. • Discuss the use of various electrical hand and power tools such as pliers, crimping tools, electrical drill machines, cutting machines etc. during the electrical wiring of the house/ building. • Explain the type of electrical devices like starters, relays and circuit breakers, their power ratings, working principles and use in circuits. • Describe features of switches, fuses, resistors and various circuit-protecting devices and their use in electrical circuits and connections. • Discuss the electrical measuring/ testing tools and devices such as voltage testers, earth testers, multimeters, digital ammeters, meggers, tong testers, etc.	• Demonstrate how to check the proper and safe working of hand and power tools. • Show how to perform fitting of conduits, cables wiring, fixing of electrical fixtures, electrical connection termination at power outlets, etc. using hand and power tools. • Demonstrate measuring size and dimension of wires, and conduits as per electrical installation/ maintenance work requirements using measuring instruments • Show how to interpret wiring symbols, SLDs, manufacturer's guidelines and electrical specifications • Demonstrate basic inspections of electrical circuits/ wiring using electrical devices like an ammeter, voltmeter, meggers, multi-meter, tong tester, earth tester, etc. • Show how to install electrical components like starters, circuit breakers, relays, etc. • Demonstrate maintenance of electrical tools, and devices post-use as per manufacturer's guidelines.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Pliers, Screw Drivers (Set), Crimping Tools, Wire Strippers, Neon Tester, Ammeter, Voltmeter, Wattmeter, Ohmmeter, Digital Multimeter, Megger, Tong Tester, Measuring Tape, Spirit Level Marking Tools, Drilling Machine, Cutting Machine, Chasing Machine, Electrical Socket (Set), Tungsten Bulb/ CFL/FSL Bulb, Halogen Lamp, Wall Socket, Simple Switchboard, Mains Breaker Switch, Earth Leakage Circuit Breaker (ELCB), Miniature Circuit Breaker (MCB), Helmet, Face Shield, Safety Goggles, Safety Shoes, Safety Belt, Insulated Rubber Gloves, Ear Plugs, Particle Masks, Reflective Jackets, Safety Message Boards, Fire Extinguishers, Sand Buckets, Circuit Tester, Clamp Meter, Continuity Tester, Wire Strippers, Pilers, Wire connectors, crimping tool and terminal block, Threading dies,Pipe clamp and Electric pipe threader)	

Module 3: Installing Temporary Lighting

Mapped to CON/N0603, v5.0

Terminal Outcomes:

- Demonstrate how to install temporary lighting arrangements at construction sites.
- Show how to maintain the installed lighting arrangement.

Duration: 15:00	**Duration: 35:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the interpretation of Single line diagrams (SLD) /schematics /electrical wiring diagrams for the requirements and specifications of temporary lighting arrangement at the construction site. • Describe types of cables based on insulation, phase and their use as per power rating. • Explain types of conduits and fixtures such as switches, and sockets, their selection method and respective uses in electrical works. • Describe types of safety equipment commonly used for the protection of LV wiring circuits and their area of application. • Explain standard/ safe practices of cable laying at construction sites such as through underground conduits, and poles. • Describe types of light units, their wattage and their respective use in construction sites. • Elucidate standard practices for fixing lights and their respective accessories. • Explain the type of faults associated with lighting arrangements. • Explain the type of tests to be undertaken in lighting units and their accessories such as voltage test, leakage test, power interruption/ continuity test etc. • Determine the standard conditions for storing and stacking electrical units, materials, fixtures, tools and devices. • Describe the safe procedure of erection and dismantling of temporary scaffolding, ladders or working platforms.	• Demonstrate visual checks on electrical fixtures and materials related to lighting for their usability as per specified acceptance criteria • Show how to select cables, lights and electrical fixtures depending on electrical load requirement • Demonstrate laying of cables through underground and overhead as per the requirement as per SLD/ schematics/ electrical wiring diagram • Show joining of cable in 'straight through joint' methods using PVC tapes or other safe methods • Demonstrate termination of LV cables as per standard practice • Demonstrate the method of tagging electrical cables, and underground electrical conduits by standard method • Show repairing of electrical lighting arrangements. • Demonstrate methods of tracing out short circuits, and power interruptions/ continuity using appropriate electrical devices • Demonstrate the preventive maintenance of diesel generators.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	

Tools, Equipment and Other Requirements
Pliers, Screw Drivers (Set), Crimping Tools, Wire Strippers, Neon Tester, Ammeter, Voltmeter, Wattmeter, Ohmmeter, Digital Multimeter, Megger, Tong Tester, Measuring Tape, Spirit Level, Marking Tools, Drilling Machine, Cutting Machine, Chasing Machine, Electrical Socket (Set), Tungsten Bulb/ CFL/FSL Bulb, Halogen Lamp, Wall Socket, Simple Switchboard, Mains Breaker Switch, Earth Leakage Circuit Breaker (ELCB), Miniature Circuit Breaker (MCB), Helmet, Face Shield, Safety Goggles, Safety Shoes, Safety Belt, Insulated Rubber Gloves, Ear Plugs, Particle Masks, Reflective Jackets, Safety Message Boards, Fire Extinguishers, Sand Buckets

Module 4: Assisting in LV Electrical Wiring at Permanent Structures

Mapped to CON/N0604, v5.0

Terminal Outcomes:

- Explain how to assist in LV electrical wiring work in permanent structures

Duration: 20:00	**Duration: 35:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the type of electrical hazards associated with domestic wiring work, a consequence of faulty/ improper wiring works and standard safety control measures. • Describe types of safety equipment commonly used for the protection of domestic wiring circuits and their area of application. • Explain the type of electrical materials and fixtures such as conduits, raceways, brackets, etc., used for domestic wiring works and their required acceptance criteria for use. • Describe standard conduit laying and fixing procedures through brick and concrete structures. • Explain standard practices of cable/ wire laying through conduits and tests to be done to ensure there is no breakage/ leakage from the wire. • Explain the electrical earthing procedure in domestic wiring and its importance • Describe the material, tools and equipment used for electrical earthing works. • Explain the test to be performed in domestic electrical wiring works using appropriate measuring devices.	• Demonstrate visual checks on electrical fixtures and materials related to domestic wiring such as conduits, raceways, and wires to ascertain their usability as per specified acceptance criteria. • Demonstrate the use of measuring instruments and cutting tools such as measuring tapes, markers, and cutters to cut and bend conduits • Demonstrate use of hand and power tools for cutting drilling works for proper fixing of conduits and raceways as per wiring drawing. • Show how to interpret the single-phase LV wiring diagram • Demonstrate the method of termination of electrical wires/cables. • Show how to perform electrical tests like voltage drop, continuity of current flow and resistance in insulations. • Demonstrate handling and storing of electrical fixtures and materials used for domestic wiring. • Show how to install the earthing components.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Pliers, Screw Drivers (Set), Crimping Tools, Wire Strippers, Neon Tester, Ammeter, Voltmeter, Wattmeter, Ohmmeter, Digital Multimeter, Megger, Tong Tester, Measuring Tape, Spirit Level, Marking Tools, Drilling Machine, Cutting Machine, Chasing Machine, Electrical Socket (Set), Tungsten Bulb/ CFL/FSL Bulb, Halogen Lamp, Wall Socket, Simple Switchboard, Mains Breaker Switch, Earth Leakage Circuit Breaker (ELCB), Miniature Circuit Breaker (MCB), Helmet, Face Shield, Safety Goggles, Safety Shoes, Safety Belt, Insulated Rubber Gloves, Ear Plugs, Particle Masks, Reflective Jackets, Safety Message Boards, Fire Extinguishers, Sand Buckets, Digital Multimeter, Clamp Meter and socket tester	

Module 5: Assembling, Installing and Maintaining Temporary LV Electrical Panels

Mapped to CON/N0605, v5.0

Terminal Outcomes:

- Demonstrate how to assemble temporary LV power distribution panels (distribution boards).
- Show the repair or replacement of faulty parts/ fixtures as per requirement.

Duration: 20:00	Duration: 60:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain types of conduits and fixtures such as switches, sockets, MCBs, wire their selection criterias. • Describe method of connection temporary panel/ Distribution boards (DB) with main power outlet. • Determine the power rating of fixtures to be used in panel/ DB. • Describe type of faults associated with temporary electrical panels/ DBs and its accessories. • Explain standard procedure of shifting and installing DBs at different locations. • Explain type of tests to be undertaken in temporary panels/ DBs and its accessories such as voltage test, leakage test, power interruption/ continuity test etc. • Describe methods of trace out short circuits, power interruptions/ continuity using appropriate electrical devices. • Explain electrical earthing procedure in temporary panels and its importance • Explain specification and details of material, tools and equipment used for electrical earthing works. • Explain standard storing and stacking procedures of electrical units, materials, fixtures, tools and devices.	• Show how to interpret SLDs, instructions, safety guidelines, manufacturers 'specifications relevant to assembling of temporary panel/ distribution board (DB). • Show the installation of electrical fixtures such as switches, sockets etc. to the panel/ DB as per circuit load requirement. • Demonstrate how to connect the electrical fixtures by electric wires within the panel/DB • Demonstrate electrical earthing of panel/DB • Show how to connect the panel/ DB to main power source. • Demonstrate method of termination of cables at panel/DB using appropriate fixtures. • Show how to perform electrical tests to be carried out to inspect proper function of panel/DB using appropriate devices. • Show how to repair and replace faulty parts with respect to technical specifications and power rating. • Show the preparation of reports and documents regarding repair/ maintenance in specified formats.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Pliers, Screw Drivers (Set), Crimping Tools, Wire Strippers, Neon Tester, Ammeter, Voltmeter, Wattmeter, Ohmmeter, Digital Multimeter, Megger, Tong Tester, Measuring Tape, Spirit Level, Marking Tools, Drilling Machine, Cutting Machine, Chasing Machine, Electrical Socket (Set), Tungsten Bulb/ CFL/FSL Bulb, Halogen Lamp, Wall Socket, Simple Switchboard, Mains Breaker Switch, Earth Leakage Circuit Breaker (ELCB), Miniature Circuit Breaker (MCB), Helmet, Face Shield, Safety Goggles, Safety Shoes, Safety Belt, Insulated Rubber Gloves, Ear Plugs, Particle Masks, Reflective Jackets, Safety Message Boards, Fire Extinguishers, Sand Buckets	

Module 6: Work according to personal health, safety and environment protocols at the construction site

Mapped to CON/N9001, v3.0

Terminal Outcomes:

- Explain the importance of following safety norms as defined by the organization.
- Explain the need to adopt healthy & safe work practices.
- Describe the process of implementing good housekeeping and environment protection process and activities.
- Explain the importance of following infection control guidelines as per applicability.

Duration: 05:00	Duration: 25:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the reporting procedures in cases of breaches or hazards for site safety, accidents, and emergency situations as per guidelines. • Explain different types of safety hazards at construction sites. • Discuss basic ergonomic principles as per applicability. • Describe the procedure for responding to accidents and other emergencies at the site. • Explain the importance of handling tools, equipment, and materials as per applicable norms. • Explain the effect of construction material on health and environments as per applicability. • Describe various environmental protection methods as per applicability. • Explain the storage requirement of waste including non-combustible scrap material and debris, combustible scrap material and debris, general construction waste and trash (non-toxic, non-hazardous), any other hazardous wastes and any other flammable wastes at the appropriate location. • Explain how to use hazardous material in a safe and appropriate manner as per applicability. • Explain types of fire. • Describe the procedure of operating different types of fire extinguishers. • State safety relevant to tools, tackles, and equipment as per applicability. • List housekeeping activities relevant to the task. • Elucidate ways of transmission of infection • Explain the ways to manage infectious risks at the workplace.	• Demonstrate how to follow emergency and evacuation procedures in case of accidents, fires, or natural calamities. • Show how to operate different types of fire extinguishers corresponding to various types of fires as per EHS guidelines. • Demonstrate the use of appropriate Personal Protective Equipment (PPE) as per work requirements for Head Protection, Ear Protection, Fall Protection, Foot Protection, Face and Eye Protection, Hand and Body Protection, and Respiratory Protection (if required). • Demonstrate how to check and install all safety equipment as per standard guidelines. • Show how to collect, segregate and deposit construction waste into appropriate containers based on their toxicity or hazardous nature. • Show how to clean and disinfect all materials, tools and supplies before and after use.

• Describe different methods of cleaning, disinfection, sterilization, and sanitization. • List the symptoms of infection like fever, cough, redness, swelling, and inflammation.	
Classroom Aids:	
Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts, Safety Tags, Safety Notice board, registers and other teaching aids	
Tools, Equipment and Other Requirements	
Leather Hand Gloves, Jumpsuit, Wire brush, Hand and Leg guard leather, Safety goggles, Nose mask, Ear protection, Fire extinguishers, Sand buckets Flashback arrestors, Welding helmet, Welding glass, Fire Extinguisher, Fire prevention kit, First Aid box, Safety Tags, Safety Notice board	

Module 7: Work effectively in a team to deliver desired results at the workplace

Mapped to CON/N8001, v3.0

Terminal Outcomes:

- Explain the importance of interacting and communicating in an effective manner.
- Elucidate ways to support co-workers to execute the project requirements.
- Elucidate ways to practice inclusion at the workplace.

Duration: 05:00	**Duration: 25:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Elucidate own roles and responsibilities. • Explain the importance of effective communication. • Elucidate the consequence of poor teamwork on project outcomes, timelines, safety at the construction site, etc. • Explain different modes of communication used at the workplace. • Explain the importance of creating healthy and cooperative work environment among the gangs of workers. • Elucidate applicable techniques of work, properties of materials used, tools and tackles used, safety standards that co-workers might need as per the requirement. • Explain the importance of proper and effective communication and the expected adverse effects in case of failure relating to quality, timeliness, safety, risks at the construction project site. • Explain the importance and need of supporting co-workers facing problems for the smooth functioning of work. • Discuss the fundamental concept of gender equality. • Explain how to recognise and be sensitive to issues of disability, culture and gender. • Discuss legislation, policies, and procedures relating to gender sensitivity and cultural diversity including their impact on the area of operation.	• Demonstrate how to pass on work-related information/requirements clearly to the team members. • Show how to report any unresolved problem to the supervisor immediately. • Demonstrate ways to hand over the required material, tools, tackles, equipment and work fronts timely to interfacing teams. • Demonstrate ways to work together with co-workers in a synchronized manner. • Demonstrate effective implementation of gender-neutral practices at the workplace. • Demonstrate ways to address discriminatory and offensive behaviour in a professional manner as per organizational policy.
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 8: Plan and Organize Work to meet Expected Outcomes

Mapped to CON/N8002, v4.0

Terminal Outcomes:

- Elucidate ways to plan and prepare for work.
- Explain the importance of organising required resources as per the work plan.
- Explain the importance of completing work as per the plan.

Duration: 05:00	**Duration: 25:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
● Explain the importance of proper housekeeping including safe waste disposal. ● Discuss policies, procedures and work targets set by superiors. ● Explain how to identify work activities that need to be planned and organized. ● Explain how to determine the task requirements. ● Explain how to determine the quality requirements related to the task. ● Elucidate how to undertake all aspects of planning and organizing the task, including interpretation of task, reading drawings/schedules, arranging resources, reporting problems etc. ● Explain how to implement the planned activities.	● Demonstrate ways to determine the work requirements corresponding to the task (drawings/schedules/instructions/methodology), safety, tools and equipment prior to the commencement of the task. ● Show how to prepare the work areas in coordination with team members. ● Demonstrate the procedures for organizing the required materials, tools and tackles required for the task. ● Demonstrate how to use resources in an optimum manner to avoid any unnecessary wastage. ● Demonstrate the practices to use tools, tackles and equipment carefully to avoid damage. ● Show how to clean and organise the workplace after completion of tasks.
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 9: Employability Skills (30 Hours)

Mapped to DGT/VSQ/N0101, v1.0

Duration: 30:00
Key Learning Outcomes
Introduction to Employability Skills Duration: 1 Hour After completing this programme, participants will be able to: 1. Discuss the importance of Employability Skills in meeting the job requirements **Constitutional values - Citizenship Duration: 1 Hour** 2. Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen. 3. Show how to practice different environmentally sustainable practices **Becoming a Professional in the 21st Century Duration: 1 Hour** 4. Discuss 21st-century skills. 5. Display a positive attitude, self-motivation, problem-solving, time management skills and continuous learning mindset in different situations. **Basic English Skills Duration: 2 Hours** 6. Use appropriate basic English sentences/phrases while speaking **Communication Skills Duration: 4 Hours** 7. Demonstrate how to communicate in a well-mannered way with others. 8. Demonstrate working with others in a team **Diversity & Inclusion Duration: 1 Hour** 9. Show how to conduct oneself appropriately with all genders and PwD 10. Discuss the significance of reporting sexual harassment issues in time **Financial and Legal Literacy Duration: 4 Hours** 11. Discuss the significance of using financial products and services safely and securely. 12. Explain the importance of managing expenses, income, and savings. 13. Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws **Essential Digital Skills Duration: 3 Hours** 14. Show how to operate digital devices and use the associated applications and features, safely and securely 15. Discuss the significance of using the internet for browsing, and accessing social media platforms, safely and securely **Entrepreneurship Duration: 7 Hours** 16. Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges **Customer Service Duration: 4 Hours** 17. Differentiate between types of customers 18. Explain the significance of identifying customer needs and addressing them 19. Discuss the significance of maintaining hygiene and dressing appropriately **Getting ready for Apprenticeship & Jobs Duration: 2 Hours** 20. Create a biodata 21. Use various sources to search and apply for jobs 22. Discuss the significance of dressing up neatly and maintaining hygiene for an interview 23. Discuss how to search and register for apprenticeship opportunities

On-the-Job Training

Mapped to Assistant Electrician, v 4.0

CON/N0602, v 5.0, Mandatory Duration: *05:00*
Location: On-Site
Terminal Outcomes: • Demonstrate how to check the proper and safe working of hand and power tools. • Show how to perform fitting of conduits, cables wiring, fixing of electrical fixtures, electrical connection termination at power outlets, etc. using hand and power tools. • Demonstrate measuring size and dimension of wires, and conduits as per electrical installation/ maintenance work requirements using measuring instruments • Show how to interpret wiring symbols, SLDs, manufacturer's guidelines and electrical specifications • Demonstrate basic inspections of electrical circuits/ wiring using electrical devices like an ammeter, voltmeter, meggers, multi-meter, tong tester, earth tester, etc. • Show how to install electrical components like starters, circuit breakers, relays, etc. • Demonstrate maintenance of electrical tools, and devices post-use as per manufacturer's guidelines.
CON/N0603, v 5.0, Mandatory Duration: *10:00*
Location: On-Site
Terminal Outcomes • Demonstrate visual checks on electrical fixtures and materials related to lighting for their usability as per specified acceptance criteria • Show how to select cables, lights and electrical fixtures depending on electrical load requirement • Demonstrate laying of cables through underground and overhead as per the requirement as per SLD/ schematics/ electrical wiring diagram • Show joining of cable in 'straight through joint' methods using PVC tapes or other safe methods • Demonstrate termination of LV cables as per standard practice • Demonstrate the method of tagging electrical cables, and underground electrical conduits by standard method • Show repairing of electrical lighting arrangements. • Demonstrate methods of tracing out short circuits, and power interruptions/ continuity using appropriate electrical devices • Demonstrate the preventive maintenance of diesel generators
CON/N0604, v 5.0, Mandatory Duration: *05:00*
Location: On-Site
Terminal Outcomes: • Demonstrate visual checks on electrical fixtures and materials related to domestic wiring such as conduits, raceways, and wires to ascertain their usability as per specified acceptance criteria.

- Demonstrate the use of measuring instruments and cutting tools such as measuring tapes, markers, and cutters to cut and bend conduits
- Demonstrate use of hand and power tools for cutting drilling works for proper fixing of conduits and raceways as per wiring drawing.
- Show how to interpret the single-phase LV wiring diagram
- Demonstrate the method of termination of electrical wires/cables.
- Show how to perform electrical tests like voltage drop, continuity of current flow and resistance in insulations.
- Demonstrate handling and storing of electrical fixtures and materials used for domestic wiring.
- Show how to install the earthing components.

CON/N0605, v 5.0, Mandatory Duration: *10:00*

Location: On-Site

Terminal Outcomes

- Show how to interpret SLDs, instructions, safety guidelines, manufacturers 'specifications relevant to assembling of temporary panel/ distribution board (DB).
- Show the installation of electrical fixtures such as switches, sockets etc. to the panel/ DB as per circuit load requirement.
- Demonstrate how to connect the electrical fixtures by electric wires within the panel/DB
- Demonstrate electrical earthing of panel/DB
- Show how to connect the panel/ DB to main power source.
- Demonstrate method of termination of cables at panel/DB using appropriate fixtures.
- Show how to perform electrical tests to be carried out to inspect proper function of panel/DB using appropriate devices.
- Show how to repair and replace faulty parts with respect to technical specifications and power rating.
- Show the preparation of reports and documents regarding repair/ maintenance in specified formats.

Annexure

Trainer Requirements

Minimum Educational Qualification	Specialisation	Relevant Industry Experience		Preferable Training Experience	
		Years	*Specialization*	*Years*	*Specialization*
B. Tech	Electrical Engineering	2	Site Execution (Electrical Work)	1	Construction Electrical Works
OR					
Diploma	Electrical Engineering	3	Site Execution (Electrical Work)	1	Construction Electrical Works
OR					
ITI	Relevant Trade	6	Site Execution (Electrical Work)	1	Construction Electrical Works
OR					
Graduation	in any Stream	6	Site Execution (Electrical Work)	1	Construction Electrical Works
OR					
Ex-Army Graduate	in any Stream	6	Site Execution (Electrical Work)	1	Construction Electrical Works

Trainer Certification	
Domain Certification	**Platform Certification**
Recommended that the Trainer is certified for the Job Role: "Assistant Electrician", mapped to the Qualification Pack: "CON/Q0602, v4.0". The minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: "Trainer (VET and skills)", mapped to the Qualification Pack: "MEP/Q2601, v3.0". The minimum accepted score is 80%.

Assessor Requirements

Assessor Prerequisites			
Minimum Educational Qualification	**Specialisation**	**Relevant Industry Experience**	
		Years	***Specialization***
B.E. / B.Tech	Electrical Engineering	2	Site Execution (Electrical Work)
OR			
Diploma	Electrical Engineering	5	Site Execution (Electrical Work)
OR			
ITI	Relevant Trade	7	Site Execution (Electrical Work)

Assessor Certification	
Domain Certification	**Platform Certification**
Recommended that the Assessor is certified for the Job Role: "Assistant Electrician", mapped to the Qualification Pack: "CON/Q0602, v4.0". The minimum accepted score is 80%.	Recommended that the Assessor is certified for the Job Role: "Assessor (VET and skills)", mapped to the Qualification Pack: "MEP/Q2701, v3.0". The minimum accepted score is 80%.

Assessment Strategy

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

1. **Assessment system Overview:**

   Assessment is done through CSDCI affiliated Assessment Agencies. Assessors are trained & certified by CSDCI after Training Of Assessor (TOA) program. Assessments is conducted to gauge and assess the trainee's skill and knowledge competency in the specified areas. The assessment will have both theory and practical components in 30:70 ratio for **Assistant Electrician** job role.

   During the practical task, trainees are assessed on their workmanship, quality of finished product and time management. They will be graded for all their assessments based on the approved assessment strategy which is signed off by CSDCI. The Assessor submits an assessment plan to CSDCI prior to assessments.
   The assessment plan contains the following information:

   - What will be assessed, i.e. the competency based on each NOS based on theory and practical questions
   - How assessment will occur i.e. methods of assessment
   - When the assessment will occur
   - Duration of assessment
   - Where the assessment will take place i.e. context of the assessment (workplace/simulation)
   - The criteria for decision making i.e. those aspects that will guide judgments
   - Where appropriate, any supplementary criteria used to make a judgment on the level of performance.

2. **Testing Environment:**
   - Training partner shares the batch start date and end date, number of trainees and the job role.
   - Assessment will be fixed for a day after the end date of training. It could be next day or later. Assessment will be conducted at the training venue/test center.
   - The knowledge/theory assessments is conducted with proper seating arrangements with enough space between the candidates to prevent mal-practicing.
   - Question set for theory and practical will be distributed to each candidate by the Assessor. Theory testing will include multiple choice questions, pictorial question, etc. which will test the trainee on his theoretical knowledge of the subject. The skill /practical assessments will be conducted in the approved test centers. The training provider will ensure adequate tools and materials are available to conduct the practical test.
   - If number of candidates are more than 30, more assessors will be organized on same day to complete the assessment.
   - The assessment has to comprise of two components, namely:
     - Knowledge assessment (theory/viva assessment)
     - Skill assessment (practical/hands-on skill assessment)

3. **Mode of assessment:**
   - Demonstration/Practical for Performance /Skill Assessment
   - Synoptic multiple-choice question test
   - Viva for Knowledge Assessment

   } Knowledge Assessment

4. **Performance/skill assessment:**
   - The performance/skill assessment will be conducted through demonstration/practical
   - For the practical test trainees are assessed through a given task, which they have to complete correctly for them to be marked as passed.

- The assessment is conducted in a simulated working environment. Due to this fact, the assessors must note that the naturally occurring evidence of competence is unavailable or infrequent. Simulation must be undertaken in a Realistic Working Environment which provides an environment that replicates the key characteristics of the workplace in which the skill to be assessed is normally employed.

5. Knowledge Assessment:

- The knowledge assessments are conducted through written test/ viva.
- Synoptic test is used for this. It is an MCQ (Multiple Choice Question) test which are prepared externally and externally marked, meaning by agency having no link with training partners. The test may be conducted by the assessor in the oral mode, if required, considering the lack of reading and comprehending acumen (skills) of trainees. In such cases, the assessor will mention it on top of the MCQ submitted to CSDCI.
- The assessment strategy, weightage and duration of assessment for **Assistant Electrician** is summarized below

Assessment Type	Formative or Summative	Strategies	Weightage	Duration (hours)
Knowledge	Summative	MCQ/Viva	30	1.5
skill	Summative	Structured Practical Task	70	5.5

6. Assessment Quality Assurance framework:

- CSDCI has developed assessment criteria framework for each Qualification pack as per National Occupational Standards. The criteria framework includes weightages/marks for each criterion under knowledge and skill. The criteria ensure quality assurance as it ensures valid, consistent and fair assessments at all locations. Issued to the affiliated Assessment body. The Assessment body develop questions based on CSDCI issued assessment criteria.
- Evidences in the form of answer sheets in case of knowledge assessments are collected. For skill assessments videos and photographs are prepared as evidence. These are submitted by the assessor to the assessment agency. CSDCI does random checks of the same with the participant/ trainee's ID and ascertains authenticity and validity of assessments.
- The training partner will intimate the time of arrival of the assessor and time of leaving the venue. Random spot checks/audit is conducted by CSDCI to monitor assessment.

7. Methods of Validation:

- Unless the trainee is registered, the person cannot undergo assessment. To further ensure that the person registered is the person appearing for assessment, ID verification is carried out. Aadhar card number is part of registering the candidate for training. This forms the basis of further verification during the assessment.
- Assessor conducts the assessment through theory and practical questions developed in accordance with the assessment criteria and guidelines issued by CSDCI. This too is verified by random audits carried out by CSDCI.
- Evidences for assessments are to be collected and submitted to CSDCI for verification as per demand.
- Assessment agency is responsible to put details in SIP. CSDCI will also validate the data and result received from the assessment agency.

8. Method of assessment documentation and access:

- The assessment agency will upload the result of assessment in the portal. The data will not be accessible for change by the assessment agency after the upload. The assessment data will be validated by CSDCI assessment team. After upload, only CSDCI can access this data.
- CSDCI approves the results within five days after which results are uploaded on SIDH by Assessment Agency.

9. On the Job:

- On job training (OJT), candidates undergo training and leaning at actual workplace for a fixed period of time and a certain weightage of assessment is allocated out of total skill weightage of Qualification Pack for undergoing OJT as stipulated by CSDCI. This OJT score and assessors' end point score are combined to arrive at final Marking/grading of trainees' skill test. The OJT score is determined by Supervisor of company under which candidates undergo on job training.

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 Outcome	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 task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do it 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
MSDE	Ministry of Skill Development and Entrepreneurship
NCVET	National Council for Vocational Education and Training
NSDC	National Skill Development Corporation
SIDH	Skill India Digital Hub
CSDCI	Constriction Skill Development Council of India
AB	Awarding Body
SSC	Sector Skill Council
PMKVY	Pradhan Mantri Kaushal Vikas Yojana
DDU-GKY	Deen Dayal Upadhyaya Grameen Kaushalya Yojana
SANKALP	Skill Acquisition and Knowledge Awareness for Livelihood Promotion
STRIVE	Skills Strengthening for Industrial Value Enhancement
JSS	Jan Shikshan Sansthan
STT	Short Term Training
RPL	Recognition of Prior Learning
NAPS	National Apprenticeship Promotion Scheme
AA	Assessment Agency
TP	Training Provider / Training Partner
TC	Training Centre
ITI	Industrial Training Institute
NSQC	National Skill Qualification Committee
NSQF	National Skills Qualification Framework
Q-File	Qualification File
QP	Qualification Pack
MC	Model Curriculum
NOS	National Occupational Standards
PC	Performance Criteria
KU	Knowledge and Understanding
GS	Generic Skills
MCQ	Multiple Choice Question
EHS	Environment Health and Safety
PPE	Personal Protective Equipment
QA/QC	Quality Assurance / Quality Control
LT	Low Tension (Electrical wiring system up to 1kV)
HT	High Tension (Electrical wiring system above 1kV)
MCB	Miniature Circuit Breaker
ELCB	Earth Leakage Circuit Breaker
RCCB	Residual Current Circuit Breaker
RCBO	Residual Current Breaker with Overcurrent
ACSR	Aluminium Conductor Steel Reinforced
PVC	Polyvinyl Chloride (used in electrical wiring insulation)
XLPE	Cross-Linked Polyethylene (used in power cables)
SMPS	Switched Mode Power Supply
IP Rating	Ingress Protection Rating (for electrical enclosures)
VFD	Variable Frequency Drive (used for motor speed control)
DOL Starter	Direct-On-Line Starter (used for motors)

CT	Current Transformer
PT	Potential Transformer
LED	Light Emitting Diode
UPS	Uninterruptible Power Supply
DG Set	Diesel Generator Set