



# Model Curriculum

**QP Name: Construction Electrician - LV**

**QP Code: CON/Q0603**

**QP Version: 3.0**

**NSQF Level: 4**

**Model Curriculum Version: 1.0**

Construction Skill Development Council of India | Construction Skill Development Council of India (CSDCCI), CPB – 103 & 104, Block-4B, DLF corporate Park, Phase – III, MG Road Gurugram – 122002  
Near Guru Dronacharya Metro Station



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## Training Parameters

<b>Sector</b>	Construction Skill Development Council of India
<b>Sub-Sector</b>	Real Estate and Infrastructure Construction
<b>Occupation</b>	Construction Electrical Works
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7411.0100
<b>Minimum Educational Qualification and Experience</b>	11th grade pass or Completed 1st year of 3-year diploma (after 10th) and pursuing regular diploma or 10th grade pass plus 1-year NTC/ NAC or 8th grade pass plus 2-year NTC plus 1 Year NAC/ relevant experience or 10th Grade Pass with 2 years relevant experience or 10th grade pass and pursuing continuous schooling or Previous relevant Qualification of NSQF Level 3.0 with minimum education as 5th Grade pass or Previous relevant Qualification of NSQF Level 3.5
<b>Pre-Requisite License or Training</b>	Low Voltage electrical works license from recognized university
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	31/03/2022
<b>Next Review Date</b>	31/03/2025
<b>NSQC Approval Date</b>	31/03/2022
<b>QP Version</b>	3.0
<b>Model Curriculum Creation Date</b>	02/01/2021



<b>Model Curriculum Valid Up to Date</b>	31/03/2025
<b>Model Curriculum Version</b>	1.0
<b>Minimum Duration of the Course</b>	480 hrs
<b>Maximum Duration of the Course</b>	480 hrs



# 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.

- Carry out preparatory works prior to cable laying
- Lay cable and carry out electrification of construction equipment
- Perform repairing and maintenance of cables and construction equipment
- Perform concealed / exposed wiring and electrification
- Install and maintain electrical fixtures/ fittings, earthing arrangement and home appliances
- Demonstrate effective communication with co-workers, superiors and sub-ordinates across different teams
- Provide support to co-workers, superiors and sub-ordinates within the team and across interfacing teams to ensure effective execution of assigned task.
- Demonstrate practices sensitive to disabilities (physical, mental, intellectual or sensory impairment), cultural diversity and gender neutrality.
- Demonstrate prioritizing of work activities to achieve the desired productivity.
- Demonstrate organizing of resources as per work plan prior to commencement of work.
- Identify various hazards at construction site.
- Use PPE’s relevant to construction electrician task.
- Perform safe waste disposal at construction site.
- Demonstrate the activities to check the spread of infection as per medical/ organizational guidelines.

## Compulsory Modules

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

NOS and Module Details	Theory Duration (Hrs)	Practical Duration (Hrs)	On-the-Job Training Duration (Mandatory) (Hrs)	On-the-Job Training Duration (Recommended) (Hrs)	Total Duration (Hrs)
<b>CON/N0608 Lay (single/ three-phase) cable and provide electrification for equipment at construction sites</b> NOS Version No. 3.0 NSQF Level 4	38:00	52:00	00:00	00:00	90:00
<b>Introduction to the job role of Construction Electrician LV</b>	08:00	00:00	00:00	00:00	08:00
<b>Lay (single/ three phase) cable and provide electrification for</b>	30:00	52:00	00:00	00:00	82:00



equipment at construction sites					
<i>CON/N0609 Inspect electrical maintenance of construction equipment as per requirement</i> NOS Version No. 3.0 NSQF Level 4	35:00	55:00	00:00	00:00	90:00
Inspect and maintain construction equipment as per requirement	35:00	55:00	00:00	00:00	90:00
<i>CON/N0610 Carry out LV electrical wiring and assist the foreman in building electrification works</i> NOS Version No. 3.0 NSQF Level 4	50:00	100:00	00:00	00:00	150:00
Carry out LV electrical wiring and assist in building electrification works	50:00	100:00	00:00	00:00	150:00
<i>CON/N8001 Work effectively in a team to deliver desired results at the workplace</i> NOS Version No. 10.0 NSQF Level 4	09:00	21:00	00:00	00:00	30:00
Communicate effectively at workplace	09:00	21:00	00:00	00:00	30:00
<i>CON/N8002 Plan and organize work to meet expected outcomes</i> NOS Version No. 7.0 NSQF Level 4	09:00	21:00	00:00	00:00	30:00
Prioritise activities and organise resources	09:00	21:00	00:00	00:00	30:00
<i>CON/N9001 Work according to personal health, safety and environment protocol at construction site</i> NOS Version No. 8.0 NSQF Level 4	09:00	21:00	00:00	00:00	30:00
Follow safety norms as defined by organization, adopt healthy and safe work practices	09:00	21:00	00:00	00:00	30:00
<b>DGT/VSQ/N0102: Employability Skills</b>	60:00	00:00	00:00	00:00	60:00



<b>NOS Version No.1.0</b>					
<b>NSQF Level 4</b>					
<b>Employability Skills</b>	<b>60:00</b>	<b>00:00</b>	<b>00:00</b>	<b>00:00</b>	<b>60:00</b>
<b>Total Duration</b>	<b>210:00</b>	<b>270:00</b>	<b>00:00</b>	<b>00:00</b>	<b>480:00</b>



# Module Details

## Module 1: Introduction to the job role of Construction Electrician LV Mapped to CON/N0608, v.3.0

### Terminal Outcomes:

- Explain the role and responsibilities of construction electrician LV
- Discuss the career progression for the construction electrician LV

<b>Duration:</b> 08:00	<b>Duration:</b> 00:00
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Describe the role and responsibilities of the construction electrician LV.</li> <li>• Define the personal attributes required in construction electrical works.</li> <li>• Explain future possible progression and career development options of a construction electrician LV.</li> </ul>	.
<b>Classroom Aids:</b>	
Computer, printer, projector, white board/ flip chart, marker and duster	
<b>Tools, Equipment and Other Requirements</b>	
N.A	





## Module 2: Lay (single/ three phase) cable and provide electrification to equipment

*Mapped to CON/N0608, v.3.0*

### Terminal Outcomes:

- Carry out preparatory works prior to cable laying
- Lay cable and carry out electrification of construction equipment

<b>Duration: 30:00</b>	<b>Duration: 52:00</b>
<p><b>Theory – Key Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Interpret electrical drawings and specification for cable laying and equipment installation work.</li> <li>• Explain the concept of AC, DC, units of measurement of electrical entities, single phase circuit, 3-phase circuit, electric measuring devices, etc.</li> <li>• Discuss applicable Indian standard codes of practice for electrical works.</li> <li>• Explain wiring symbols used in single and three phase electrical diagrams.</li> <li>• Explain techniques of interpreting electrical diagrams/ schematics regarding electrical circuits and manufacturer’s instructions</li> <li>• Discuss the working of MCB, RCCB, ELCB, various electrical circuits, capacitors, inductors. etc.</li> <li>• Discuss different method of earthing.</li> <li>• Explain quantity estimation of required resources from electric circuit diagram and details provided.</li> <li>• Explain safety and environmental norms related to LV electrical works at construction sites.</li> <li>• Explain standard method and sequence of electrical cable laying at construction site.</li> <li>• Describe acceptance criteria followed for selection of materials, fixtures or tools used in cable laying.</li> <li>• Explain permits and checklists required prior to and after cable laying activity.</li> <li>• Explain the safety parameters required to be checked for poles or trenches used for laying of cable.</li> </ul>	<p><b>Practical – Key Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Estimate the quantity of required electrical materials/ consumables for cable laying activity time requirement for cable laying activity.</li> <li>• Demonstrate the process of isolation of power source at the construction site as per electrical safety norms.</li> <li>• Demonstrate how to conduct cable laying as per plan ensuring all quality and safety aspects.</li> <li>• Perform joining of cable by straight through joint and termination of cable using appropriate tools.</li> <li>• Demonstrate installation of components like circuit breakers, starters, relays, etc. as per the requirements.</li> <li>• Demonstrate the methods to connect the cables to power source and electrical equipment/ machinery as per manufacturers guidelines and standard practices.</li> <li>• Demonstrate methods to provide earthing for the various equipment.</li> <li>• Demonstrate electrical testing methods during inspection and trial run of the installed equipment.</li> </ul>



- Explain type of cables (single/ 3 phase) used as per electrical load requirement.
- Explain standard practice of safeguarding installed electrical equipment from external damaging effects .

**Classroom Aids:**

Computer, printer, projector, white board/ flip chart, marker and duster

**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, pliers, hammers, hacksaws, chisels, spanners (set), wrenches, measuring tape, spirit level, plumb-bob, mason's line, multi-meter, voltage tester, drilling machine, hand cutting machine, cables, wires, sockets, switches, lights, conduits (flexible and rigid), raceways, vibrators, bar cutting machine, bar bending machine, water pumps



## Module 3: Inspect and maintain construction equipment as per requirement

*Mapped to CON/0609, v.3.0*

### Terminal Outcomes:

- Perform repairing and maintenance of cables and construction equipment.

Duration: 35:00	Duration: 55:00
<p><b>Theory – Key Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Explain working principle and power rating of electrical circuits, MCB, RCCB, ELCB, components and fixtures used in construction equipment.</li> <li>• Explain type of connections and tests to be carried out in capacitive, inductive AC and DC circuits.</li> <li>• Explain different types of motors, their uses and working principles.</li> <li>• Explain about star, delta connection and their uses in electrical circuits.</li> <li>• Discuss the working principle of various type of starters used in DC motors such as 3point, 4 point etc. as well as that used 3 phase squirrel cage induction motors such as DOL, Star-Delta etc.</li> <li>• Explain working principle of different types of 3 phase transformers, connections (star- star, delta-delta, delta-star) and their components.</li> <li>• Explain the application of transformers and relevant terminologies like magnetic flux, winding, current and voltage ratio, core and shell construction, etc.</li> <li>• Describe different methods of earthing including measurement of earth resistance by earth tester, testing of earth Leakage by ELCB and relay, etc.</li> </ul>	<p><b>Practical – Key Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Demonstrate appropriate tests to diagnose electrical faults of equipment.</li> <li>• Demonstrate how to repair or replace faulty parts of circuits according to the power rating and manufacturer’s guideline.</li> <li>• Use appropriate starters according to the specification and power rating of motors during maintenance.</li> <li>• Demonstrate how to carry out winding in armatures of motor as per specification of motor.</li> <li>• Inspect and rectify faults detected in earthing of construction equipment referring to manufacturer’s guidelines.</li> <li>• Inspect leakage, faults in LV single/ three phase power distribution wirings as per directions and standard practices.</li> <li>• Demonstrate how to operate and inspect transformers to detect faults under close supervision.</li> <li>• Demonstrate how to join damaged armoured cables (bearing heavy electricity loads) using straight through joints efficiently.</li> <li>• Demonstrate documentation of readings, and conclusions of tests performed.</li> </ul>
<p><b>Classroom Aids:</b></p>	
<p>Computer, printer, projector, white board/ flip chart, marker and duster</p>	
<p><b>Tools, Equipment and Other Requirements</b></p>	
<p>Screw driver set, measuring tape, spirit level, plumb-bob, mason’s line, cutting machine, drilling machine, 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), rigid conduits, flexible conduit, clamps for conduits, screws, helmet , safety shoes , safety belt, cotton hand gloves, goggles, Reflective jackets, safety message boards, Fire extinguishers, Sand buckets,</p>	



## Module 4: Carry out LV electrical wiring and assist in building electrification works

*Mapped to CON/N0610, v3.0*

### Terminal Outcomes:

- Perform concealed / exposed wiring and electrification.
- Install and maintain electrical fixtures/ fittings, earthing arrangement and home appliances.

<b>Duration: 50:00</b>	<b>Duration: 100:00</b>
<p><b>Theory – Key Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Describe statutory guidelines provided by ISI for LV wiring operations.</li> <li>• List common electrical wiring accessories, their specifications in line with National Electrical Codes (NEC) guidelines.</li> <li>• Explain applicable manufacturer’s guidelines/ specifications for use of hand/power tools and measuring devices.</li> <li>• Explain applicable manufacturer’s guidelines/ specifications for use of electrical fittings and fixtures.</li> <li>• Explain specification, colour coding of cables to be used in wiring system according to load on circuit requirement.</li> <li>• Explain properties of different components used in electrical earthing work.</li> <li>• Explain standard practices of cable laying through conduits.</li> <li>• Explain area of application and specification of protective devices like fire alarm, MCB, ELCB, MCCB in house wiring.</li> <li>• Explain the lighting arrangement which enables maximum use of natural lights.</li> <li>• Explain standard house wiring procedure and best practices.</li> </ul>	<p><b>Practical – Key Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Interpret drawings, circuit diagrams and/or related schematics for single and three phase LV house wiring system.</li> <li>• Calculate electrical material requirements based on electrical fittings and layouts.</li> <li>• Prepare budget for household wiring.</li> <li>• Demonstrate how to lay flexible conduit pipes through RCC structures (slabs, beams, walls) or through chased wall (brick wall) surface.</li> <li>• Demonstrate installation of electrical fixtures, fittings (such as DBs, switch boards, switches, sockets, lights and wall brackets) at specified locations.</li> <li>• Perform necessary tests to ensure safe condition of electrical circuit during and post wiring activity using appropriate tools.</li> <li>• Demonstrate how to measure earth resistance and leakage using appropriate electrical devices.</li> <li>• Demonstrate electrical earthing work for household appliances adopting standard procedure and using appropriate earthing components.</li> <li>• Demonstrate how to establish new LV connection as per circuit load requirement.</li> <li>• Demonstrate installation of household appliances including fan, water pump, refrigerator, fire alarm system, security systems, etc.</li> <li>• Demonstrate documentation of relevant readings and filling up checklist.</li> </ul>
<b>Classroom Aids:</b>	
Computer, printer, projector, white board/ flip chart, marker and duster	
<b>Tools, Equipment and Other Requirements</b>	
Wall chasing chisel, hammer, hacksaw, file marking tools, table vice, Stock and die set, Pipe , cutter to cut pipes, Hand brooms, Shovels, Screw driver set, measuring tape, spirit level, plumb-bob, mason’s line, cutting machine, drilling machine, power source, rigid conduits, flexible conduit, clamps for conduits, screws, 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 5: Communicate effectively at workplace

Mapped to CON/N8001, v10.0

### Terminal Outcomes:

- Demonstrate effective communication with co-workers, superiors and sub-ordinates across different teams
- Provide support to co-workers, superiors and sub-ordinates within the team and across interfacing teams to ensure effective execution of assigned task.
- Demonstrate practices sensitive to disabilities (physical, mental, intellectual or sensory impairment), cultural diversity and gender neutrality.

<b>Duration:</b> 09:00	<b>Duration:</b> 21:00
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain the effects and benefits of timely actions relevant to the task at hand with examples.</li> <li>• Explain the importance of teamwork and its effects relevant to the task at hand with examples.</li> <li>• Explain the importance of proper and effective communication and its adverse effects in case of failure of proper communication.</li> <li>• Discuss about gender and its related concept: gender equality, gender equity (group work)</li> <li>• Discuss different types of disabilities (physical, mental, intellectual or sensory impairment).</li> <li>• Discuss the activities sensitive to the cultural diversity, disabilities and gender neutrality at the workplace.</li> <li>• Discuss the basic rules and regulations related to gender sensitivity, disabilities, and cultural diversity, with their impact on operations of a workplace.</li> <li>• Discuss how to take initiative in resolving issues among co-workers in a given situation.</li> <li>• Discuss reporting procedure followed at the workplace.</li> </ul>	<ul style="list-style-type: none"> <li>• Apply effective communication skills while interacting with co-workers, trade seniors and others during the assigned task.</li> <li>• Use appropriate writing skills and verbal communication reporting as per commonly applicable organisational norms.</li> <li>• Demonstrate teamwork skills during assigned task.</li> <li>• Demonstrate acceptable interpersonal transactions with individuals having disabilities (physical, mental, intellectual or sensory impairment) or cultural diversity.</li> <li>• Demonstrate the process modifications required to make the workplace free from gender biases.</li> </ul>
<b>Classroom Aids:</b>	
Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts, Safety tags, Safety Notice board, registers and other teaching aids	
<b>Tools, Equipment and Other Requirements</b>	
N/A	



## Module 6: Prioritise activities and organise resources

Mapped to CON/N8002, v7.0

### Terminal Outcomes:

- Demonstrate prioritizing of work activities to achieve the desired productivity.
- Demonstrate organizing of resources as per work plan prior to commencement of work.

Duration: 09:00	Duration: 21:00
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain methods to upkeep, store and stack tools, materials used for domain specific works.</li> <li>• Explain the process of planning of the given tasks and activities relevant to the trade/job role within defined scope and duration.</li> <li>• Explain the procedure adopted for prioritizing an activity and sequencing of activities.</li> <li>• Explain the work plan and flow of activities in sequence for the assigned work.</li> <li>• Explain basic concept of labour productivity and work productivity.</li> <li>• Explain requisition of resources, reporting for requirement of resources orally and in written to concerned authority.</li> <li>• Explain how to minimise wastage of resources.</li> <li>• Explain the plan for waste collection and disposal after task.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify the work target and plan activities to achieve the desired productivity.</li> <li>• Demonstrate requisition of resource citing an example.</li> <li>• Demonstrate the planning for various activities relevant to task as per the scope and schedule.</li> <li>• Demonstrate how to organise the required tool, manpower and material resources for the assigned task.</li> <li>• Select required quantity of materials, tools or devices for defined work activities.</li> <li>• Demonstrate how to prioritize all works/ activities to maximise output.</li> <li>• Demonstrate optimum use of resources while performing domain specific work activities.</li> <li>• Demonstrate waste collection and disposal as per organisational norms.</li> <li>• Demonstrate completion of work within stipulated time and plan.</li> </ul>
<b>Classroom Aids:</b>	
Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts, Safety tags, Safety Notice board, registers and other teaching aids	
<b>Tools, Equipment and Other Requirements</b>	
N/A	





## Module 7: Follow safety norms as defined by organization, adopt healthy and safe work practices

*Mapped to CON/N9001, v.8.0*

### Terminal Outcome:

- Identify various hazards at construction site.
- Use PPE's relevant to construction electrician task.
- Perform safe waste disposal at construction site.
- Demonstrate the activities to check the spread of infection as per medical/ organizational guidelines.

Duration: 09:00	Duration: 21:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Explain the types of hazards at the construction sites and identify the hazards specific to the domain related works.</li> <li>• Recall the safety control measures and actions to be taken under emergency situation.</li> <li>• Explain the classes of fire and types of fire extinguishers.</li> <li>• Explain the importance of participation of workers in safety drills.</li> <li>• Explain the reporting procedure to the concerned authority in case of emergency situations.</li> <li>• Describe the standard procedure for handling, storing and stacking of material, tools, equipment and accessories.</li> <li>• Explain different types of waste at construction sites and their disposal method.</li> <li>• Explain the purpose and importance of vertigo test at construction site.</li> <li>• List out basic medical tests required for working at construction site.</li> <li>• Explain the types and benefits of basic ergonomic principles, which should be adopted while carrying out specific task at the construction sites.</li> <li>• Explain the importance of housekeeping works.</li> <li>• List different types of infectious disease that can spread/ originate at a construction site</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the operating procedure of the fire extinguishers.</li> <li>• Demonstrate use of PPEs as per work requirements.</li> <li>• Demonstrate vertigo test.</li> <li>• Demonstrate safety techniques to be adopted in case of accidents.</li> <li>• Demonstrate safe waste disposal practices followed at construction site.</li> <li>• Demonstrate safe housekeeping practices.</li> <li>• Demonstrate the practices to maintain personal hygiene, workplace hygiene and site/ workplace sanitization.</li> <li>• Demonstrate the methods to clean and disinfect all materials, tools and supplies before and after use.</li> <li>• Demonstrate the procedure to report to the concerned authority regarding the outbreak/ hazard of any infectious disease/ pandemic.</li> </ul>





- Discuss the ways of transmission of the various infectious disease.
- Explain the methods to check the spread of the infectious disease.
- Describe the symptoms and cure of the various infectious disease.

**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, Jump suit, Wire brush, Hand & 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 8: Employability Skills (60 Hours)

Mapped to DGT/VSQ/N0102- v1.0

Mandatory Duration: 60:00

Module Name: Employability Skills

This is a compulsory module introduced by Directorate General of Training (DGT). For further details regarding module please find at below link.

<https://www.nqr.gov.in/national-skills-qualification-framework>



# Annexure

## Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Post-Graduation/ Graduation in Engineering	M. Tech /B. Tech in electrical	Two	electrical engineering	0	electrical engineering	As a pre-requisite for new entrant, no prior experience in training /assessment is mandatory. However, if someone with prior experience in requisite domain joins, experience will be measured in terms of relevant industry experience.
Diploma	Diploma in electrical	Three	electrical engineering	0	electrical engineering	
Graduation/ Ex. Army /ITI /12 <sup>th</sup> pass	General B.A./B.Sc./ Graduation certificate from Army/ITI certificate in relevant trade/12 <sup>th</sup> pass	Six	Working as Construction electrician LV/ electrical domain/Experience at Supervisory role in electrical domain	0	Working as Construction electrician LV/ electrical domain/Experience at Supervisory role in electrical domain	

Trainer Certification	
Domain Certification	Platform Certification
Trainer- 70 % in each NOS of Qualification Pack “Construction Electrician LV, CON/Q0603 v3.0” & 80% overall.	Trainers - 80% in each NOS of Qualification Pack “Trainer (VET and Skills) MEP/Q2601, v2.0”and 80% overall.



## Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Post-Graduation/ Graduation in Engineering	M. Tech /B. Tech in electrical	Two	electrical engineering	0	electrical engineering	As a pre-requisite for new entrant, no prior experience in training /assessment is mandatory. However, if someone with prior experience in requisite domain joins, experience will be measured in terms of relevant industry experience.
Diploma	Diploma in electrical	Five	electrical engineering	0	electrical engineering	
Graduation/ Ex. Army /ITI /12 <sup>th</sup> pass	General B.A./B.Sc./ Graduation certificate from Army/ITI certificate in relevant trade/12 <sup>th</sup> pass	Seven	Working as Construction electrician LV/ electrical domain/Experience at Supervisory role in electrical domain	0	Working as Construction electrician LV/ electrical domain/Experience at Supervisory role in electrical domain	

Assessor Certification	
Domain Certification	Platform Certification
Assessor- 70 % in each NOS of Qualification Pack "Construction Electrician LV, CON/Q0603 v3.0" & 80% overall.	Assessor - 80% in each NOS of Qualification Pack "Assessor (VET and Skills) MEP/Q2701, v2.0" and 80% overall.



## Assessment strategy

### Assessment system Overview

Assessment is done through CSDCI affiliated Assessment Body. Assessors are trained & certified by CSDCI after a 10-day training of assessor's 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 Construction Electrician LV 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 and
- Where appropriate, any supplementary criteria used to make a judgment on the level of performance.

### 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 are conducted with proper seating arrangements with enough space between the candidates to prevent copying.

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 Assessment agency/ Assessor will ensure adequate tools and materials are available to conduct the practical test.

The theory and practical assessments will be carried out on same day. If number of candidates are more than 20, more assessors will be organized on same day to complete the assessment

The assessment has to comprise of two components, namely:

1. Knowledge assessment (theory/viva assessment)
2. Skill assessment (practical/hands-on skill assessment)

**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.

**Knowledge Assessment:** The knowledge assessments are conducted through written test

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 assessment Electrician is summarized below

Assessment				
Assessment Type	Formative or Summative	Strategies	Weightage	Duration
Theory	Summative	Written Examination	30	1.5
Practical	Summative	Structured practical tasks	70	5.5

### 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. This criterion ensures 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



### **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.

Video of the practical session is prepared 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.

### **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 a week and uploads it on SIP.



## References

## Glossary

Term	Description
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).
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do <b>upon the completion of the training</b> .
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do <b>upon the completion of a module</b> . A set of terminal outcomes help to achieve the training outcome.
CON	Construction
MCQ	Multiple Choice Questions
VIVA	Viva voce (means oral exam)





## Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
CSDCI	Construction Skill development Council of India
MCQ	Multiple Choice Question
PPEs	Personal Protective Equipment
SIP	Skill India Portal
LV	Low Voltage
MS	Mild Steel
LED	Light Emitting Diode
AC	Alternate Current
DC	Direct Current
MCB	Miniature Circuit Breaker
ELCB	Earth Leakage Circuit Breaker
RCCB	Residual Current Circuit Breaker