



Model Curriculum

QP Name: Electric Vehicle (EV) Charging Station Technician (Installation and commissioning)

QP Code: PSS/Q2503

QP Version: 2.0

NSQF Level: 4

Model Curriculum Version: 2.0

Power Sector Skill Council (PSSC) || Plot No. 4, Institutional Area, CBIP Building, Malcha Marg,
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Training Parameters

Sector	POWER	
Sub-Sector	Distribution	
Occupation	Erection, Installation and Commissioning- Distribution	
Country	India	
NSQF Level	4	
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3113	
Minimum Educational Qualification and Experience	<ul style="list-style-type: none"> 12th grade pass with Science background Pursuing 2nd year of 3-year regular Diploma (after 10th) in relevant trade 10th grade pass with two years of any combination of NTC/NAC/CITS or equivalent. 	No Experience required.
	<ul style="list-style-type: none"> 10th Grade pass 	2 year relevant experience
	Minimum Age Limit : 18 years	
Pre-Requisite License or Training	NA	
Minimum Job Entry Age	18 years	
Last Reviewed On	29/04/2020	
Next Review Date	31/12/2024	
NSQC Approval Date		
QP Version	2.0	
Model Curriculum Creation Date	29/04/2020	
Model Curriculum Valid Up to Date	31/12/2024	
Model Curriculum Version	2.0	

Minimum Duration of the Course	450 Hours
Maximum Duration of the Course	450 Hours

Program Overview

This program is for training the candidates to become competent as an Electric Vehicle (EV) Charging Station Technician so that s/he can perform tasks for ensuring smooth operation of electric vehicle (EV) charging station as per standard practices.

Training Outcomes

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

- Basic concepts of electricity and electronics relevant to electric vehicles and their charging stations
- Preparation for installation of electric charging stations
- Installation and commissioning of electric vehicle charging stations
- Health, safety and hygiene requirements while performing the work
- Working in an effective manner
- Optimization of resource utilization at the workplace

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
PSS/N1331: Apply basic health and safety practices for power related work NOS Version No. - 2.0 NSQF Level - 2	18:00	27:00	0:00	0:00	45:00
Module 1: Introduction to the sector and the job	05:00	00:00	0:00	0:00	05:00
Module 2: Workplace health and safety practices	05:00	10:00	0:00	0:00	15:00
Module 3: Fire safety practices	05:00	08:00	0:00	0:00	13:00

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Module 4: Emergencies, rescue and first-aid procedures	03:00	09:00	0:00	0:00	12:00
PSS/N1336: Work effectively with others NOS Version No. - 2.0 NSQF Level - 2	10:00	20:00	0:00	0:00	30:00
Module 5: Working effectively with others	10:00	20:00	0:00	0:00	30:00
SGJ/N1702: Optimize resource utilization at workplace NOS Version No. - 1.0 NSQF Level - 3	15:00	30:00	0:00	0:00	45:00
Module 6: Material conservation	05:00	10:00	0:00	0:00	15:00
Module 7: Energy/ electricity conservation	05:00	12:00	0:00	0:00	17:00
Module 8: Waste management/recycling	05:00	08:00	0:00	0:00	13:00
PSS/N2506: Erect and install the electric vehicle (EV) charging station NOS Version No. - 1.0 NSQF Level - 4	65:00	85:00	30:00	0:00	180:00
Module 9: Basic Concepts of Electricity	10:00	5:00	0:00	0:00	15:00
Module 10: Preparation for Installation	15:00	20:00	10:00	0:00	45:00
Module 11: Erection of EV Charging Station	20:00	30:00	10:00	0:00	60:00
Module 12: Installation of EV Charging Station	20:00	30:00	10:00	0:00	60:00
PSS/N2507: Commission the electric vehicle charging station NOS Version No. - 1.0 NSQF Level - 4	30:00	30:00	30:00	0:00	90:00
Module 13: Testing the Charging Station	15:00	15:00	15:00	0:00	45:00
Module 14: Commissioning the Charging Station	15:00	15:00	15:00	0:00	45:00
DGT/VSQ/N0102 - Employability Skills (60 hours) NOS Version No. - 1.0 NSQF Level - 5	24:00	36:00	0:00	0:00	60:00
Module 15: Introduction to Employability Skills	0.5:00	1:00	0:00	0:00	1.5:00
Module 16: Constitutional values - Citizenship	0.5:00	1:00	0:00	0:00	1.5:00

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Module 17: Becoming a Professional in the 21st Century	1:00	1.5:00	0:00	0:00	2.5:00
Module 18: Basic English Skills	4:00	6:00	0:00	0:00	10:00
Module 19: Career Development & Goal Setting	1:00	1:00	0:00	0:00	2:00
Module 20: Communication Skills	2:00	3:00	0:00	0:00	5:00
Module 21: Diversity & Inclusion	1:00	1.5:00	0:00	0:00	2.5:00
Module 22: Financial and Legal Literacy	2:00	3:00	0:00	0:00	5:00
Module 23: Essential Digital Skills	4:00	6:00	0:00	0:00	10:00
Module 24: Entrepreneurship	3:00	4:00	0:00	0:00	7:00
Module 25: Customer Service	2:00	3:00	0:00	0:00	5:00
Module 26: Getting ready for apprenticeship & Jobs	3:00	5:00	0:00	0:00	8:00
Total Duration	162:00	228:00	60:00	0:00	450:00

Module Details

Module 1: Introduction to the sector and the job

Mapped to PSS/N1331, v2.0

Terminal Outcomes:

- Explain the importance of an electric vehicle charging station technician (installation and commissioning)
- List key responsibilities of an electric vehicle charging station technician (installation and commissioning)

Duration: 05:00	Duration: 00:00
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the Power industry and the Distribution sub-sector. • Describe the size and scope of the electric vehicle (EV) charging industry. • State the future trends and career growth opportunities within the EV charging station segment. • List the key responsibilities of EV charging station technicians (installation and commissioning) 	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Nil	

Module 2: Workplace health and safety practices

Mapped to PSS/N1331, v2.0

Terminal Outcomes:

- Describe the various risks and hazards at the workplace and their preventive and corrective measures
- Apply the preventive and corrective measures to protect self and others from common workplace hazards and risk

Duration: 05:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • State the importance of working in a clean and safe environment. • Elaborate potential health and safety risks and hazards in the work environment and their possible causes. • Describe preventive and remedial measures to deal with common health and safety risks and hazards in the work environment. • Describe safe working practices while working with EV charging equipment. • Explain the methods of accident prevention • Identify health and safety equipment at the workplace and their locations. 	<ul style="list-style-type: none"> • Employ safe work practices while working with electrical equipment. • Apply specific safety measures to be undertaken while installing, commissioning, operating and maintaining EV charging station. • Conduct general preventive and remedial safety checks for physical, chemical, ergonomic and thermal risks and hazards. • Demonstrate the correct use of various health and safety equipment at the workplace. • Demonstrate good housekeeping practices.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Helmet, gloves, rubber mat, ladder, neon tester, leather or asbestos gloves, flameproof aprons, flameproof overalls buttoned to the neck, cuffless (without folds) trousers, reinforced footwear, helmets/hard hats, cap and shoulder covers, ear defenders/plugs, safety boots, knee pads, particle masks, glasses/goggles/visors, hand and face shields, machine guards, residual current Devices, shields, dust sheets, respirator.	

Module 3: Fire safety practices

Mapped to PSS/N1331, v2.0

Terminal Outcomes:

- Describe the preventive and remedial measures to deal with fires
- Apply the preventive and corrective measures to protect self and others from fire hazards

Duration: 05:00	Duration: 08:00
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> • Elaborate the various causes of fire, such as heating of metal; spontaneous ignition; sparking; electrical heating; loose fires, smoking, welding, chemical fires; etc. • Describe the different methods of extinguishing a fire. • List the various materials used for extinguishing fire, such as sand, water, foam, CO₂ and dry powder based on the type of fire. • Describe the techniques of using different types of fire extinguishers. • State preventive and housekeeping measures for eliminating a fire hazard. • List various types of safety signs. 	<ul style="list-style-type: none"> • Demonstrate the use of various types of fire extinguisher for Class A, B, C, D and E fire. • Demonstrate rescue techniques adopted during a fire incident. • Maintain good housekeeping to prevent fire hazards.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Personal Protective Equipment (PPE) for fire-fighting, various kind of fire extinguishers, other materials used for extinguishing fire such as sand, blankets and water	

Module 4: Emergencies, rescue and first-aid procedures

Mapped to PSS/N1331, v2.0

Terminal Outcomes:

- Respond appropriately to various types of emergencies
- Apply the preventive measures to protect self and others from various types of emergencies
- Apply rescue and first-aid measures in an emergency

Duration: 03:00	Duration: 09:00
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss various types of emergencies and the correct response for each. • State the precautions to be taken while freeing a person from electrocution. • State the basic first-aid procedures and the techniques of bandaging. • Explain the application of CPR and the conditions in which it is to be performed. • Discuss best practices while reporting an incident. 	<ul style="list-style-type: none"> • Dramatize (through role-play) an appropriate response to an accident situation or medical emergency. • Demonstrate loss minimization or rescue activity during an accident or medical emergency. • Administer first aid to the victims for injuries, such as bleeding, burns, choking, electric shock, poisoning etc. • Perform basic emergency procedures during emergency mock drills for better understanding of procedures applied in emergencies, such as raising alarm, safe/efficient evacuation, correct ways of escape, correct assembly point, roll call, correct return to work. • Demonstrate the artificial respiration and the CPR Process. • Demonstrate how to free an affected person from electrocution safely. • Perform safe movement of injured people and others to a safe place during emergencies.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
First aid kit.	

Module 5: Working effectively with others

Mapped to PSS/N1336, v2.0

Terminal Outcomes:

- Communicate effectively at the workplace
- Work in a team with a positive and helpful attitude
- Act responsibly and in a disciplined manner

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • State the importance of effective communication in the workplace. • Describe various categories of people that one is required to communicate and coordinate with, in an organisation. • Identify various components of effective communication. • Explain the value and importance of active listening and assertive communication. • State the importance of teamwork and developing effective working relationships for professional success. • State the importance of ethics and discipline for professional success. • Explain what constitutes disciplined behaviour for a working professional. 	<ul style="list-style-type: none"> • Apply practices that improve effectiveness and communication etiquette while working, such as avoidance of abusive language; using appropriate titles and terms of respect; do not eat or chew while talking etc. • Employ appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism. • Apply practices that improve team effectiveness. • Dramatize (through role-play) disciplined behaviours at the workplace, such as punctuality; completing tasks within agreed timescales, ensuring quality standards; not gossiping and wasting time, honesty, etc. • Dramatize (Role-play) the process for escalation of grievances and problems.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Nil	

Module 6: Material Conservation

Mapped to SGJ/N1702, v1.0

Terminal Outcomes:

- Optimize usage of material at work

Duration: 05:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the importance of optimizing the use of materials at the workplace. • Describe practices of efficient and inefficient management and utilization of material and water at the workplace. • Explain the importance of immediate escalation of material wastage problems that cannot be rectified to appropriate authority. 	<ul style="list-style-type: none"> • Employ practices to optimize the usage of materials including water at the workplace. • Conduct inspections of the work area to check for spills/leakages. • Demonstrate measures adopted to plug spills/leakages. • Demonstrate routine cleaning of tools, machines and equipment.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Materials and tools and equipment used at work	

Module 7: Energy/electricity conservation

Mapped to SGJ/N1702, v1.0

Terminal Outcomes:

- Optimize the usage of energy/electricity at work

Duration: 05:00	Duration: 12:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the importance of optimizing the use of energy/electricity in the workplace. • Discuss the use of prevalent energy-efficient devices. • Describe practices of efficient and inefficient management and utilization of energy/electricity. • List ways to recognize common electrical problems. • Explain the importance of immediately reporting malfunctioning (fumes /sparks /emission /vibration /noise) and lapse in the maintenance of equipment. 	<ul style="list-style-type: none"> • Employ practice to ensure optimization of the usage of energy/electricity in the workplace. • Conduct inspection of the work area for improperly connected electrical equipment. • Conduct checks for leakage of current using appropriate equipment. • Apply appropriate procedure for rectifying leakages of current. • Demonstrate routine cleaning of tools, machines and equipment.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Energy-saving devices	

Module 8: Waste management/recycling

Mapped to SGJ/N1702, v1.0

Terminal Outcomes:

- Minimise waste generation
- Dispose of waste with as per industry approved standards

Duration: 05:00	Duration: 08:00
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the categorization of into recyclable, non-recyclable and hazardous waste. • Explain the use of prevalent energy-efficient devices. • Elaborate the practices of efficient and inefficient management and utilization of energy/electricity. • List ways to recognize common electrical problems. • Explain the importance of immediately reporting malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in the maintenance of equipment. 	<ul style="list-style-type: none"> • Apply appropriate waste segregation method. • Demonstrate disposal of non-recyclable, recyclable and reusable waste using appropriate methods. • Demonstrate the disposal of hazardous waste.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Non-recyclable, recyclable and reusable waste	

Module 9: Basic Concepts of Electricity

Mapped to PSS/N2506, v1.0

Terminal Outcomes:

- Explain the basic concepts of electricity and electronics
- Explain the basic concepts and technologies of EV charging stations

Duration: 10:00	Duration: 05:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the basic concepts regarding AC single-phase and three-phase supply. • Discuss the importance of basic laws such as Ohms law, Kirchhoff’s Voltage Law (KVL) and Kirchhoff’s Current Law (KCL) in electrical installations. • Describe the basic electrical and electronic components used in the manufacturing of charging stations such as Power Electronic Devices generally used in LV and HV Chargers. • Interpret the various symbols used in electrical components. • Describe the basic electrical concepts applicable in the installation and commissioning of EV charging stations. • List the various types of EV charging stations available in the market. • List the electrical components and parts of an EV charging station and their functions. • Describe the trends and developments in the industry including new technology, standards and working methods. • List the technical specifications and configurations of various types of AC and DC chargers. 	<ul style="list-style-type: none"> • Apply suitable techniques to measure the electrical quantities such as current, voltage, resistance, impedance and energy. • Calculate power factor. • Demonstrate the process of splicing and connecting electrical wires
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Nil	

Module 10: Preparation for installation

Mapped to PSS/N2506, v1.0

Terminal Outcomes:

- Verify conditions for installation
- Prepare tools, equipment, materials and work area for installation

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • State the elements of installation and commissioning of EV charging stations. • Discuss the key considerations for planning the sequence of operations. • Explain the pre-installation checks and procedures to be carried out and their importance. • State the various sources and types of connectivity such as 3G, 4G, Ethernet, LAN etc. provided to the charging station. • List the tools, materials and equipment used for installing the charging station. • Explain the importance of checking the product order specifications. 	<ul style="list-style-type: none"> • Employ practice of inspecting the site for all requirements for the erection and installation of an EV charging station. • Demonstrate the unpacking of the EV charging machine and checking for the presence and functionality of all components, like the transformer, electric kiosks, lines/cables and associated equipment. • Demonstrate action to be taken in case of variance from the specifications of the product and equipment to be installed. • Map the GPS coordinates for deciding the location for charging station location. • Determine the appropriate length of the charging cable and circuit breaker based on site, charging station and customer requirements.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Electric vehicle (EV) charging stations; parts and components of the EV charging station; electric kiosks, lines/cables and associated equipment for line termination and metering; tools (such as a ratchet, sockets, drive torque wrench, adjustable wrench, bubble level, screwdriver, wire stripper, voltage tester), job specification documents and PPE.	

Module 11: Erection of EV charging station

Mapped to PSS/N2506, v1.0

Terminal Outcomes:

- Erect the electric vehicle charging station

Duration: 20:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> List the various types of electrical sources/facilities for energizing the charging station. Explain the process of cabling using electrical facilities such as AC to DC Conversion circuits like Half Wave, Full Wave, Bridge Rectifiers, DISCOM utility, micro-grid systems, solar panels etc. to the place of installation of charging station. Discuss the importance of putting identifiable marks on the civil foundation for charging station erection. Describe the importance of manufacturer guidelines in unpacking the EV charging station. Detail the technique to be followed to ensure proper erection and positioning of the charging station. Discuss the factors to decide the number of rectifiers to be installed in the charging station. Explain the considerations for number of charging guns at the EV charging station. 	<ul style="list-style-type: none"> Demonstrate the process of installing conduits for carrying electrical wires, cables from nearest source/facility to the charging station. Assign markings on civil foundation for charging station erection after taking measurements. Demonstrate the fixing of the EV machine on the civil foundation while ensuring a firm grip. Employ operating of appropriate tools and equipment such as drilling machine, screwdriver set, socket wrench, hammer, washers, nuts; various types of mounting and insertion tools etc. as per the type of task to be performed pertaining to EV charging station installation.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
EV charging station, rectifiers, charging guns, tools and accessories (drilling machine, screwdriver set, socket wrench, hammer, washers, nuts; various types of mounting and insertion tools etc.), job specification documents and PPE.	

Module 12: Installation of EV charging station

Mapped to PSS/N2506, v1.0

Terminal Outcomes:

- Install the electric vehicle charging station

Duration: 20:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the relevant IS and IEC standards applicable to the EV charging station installation. • Explain the procedure to connect wires, cables from electrical panels and sub-panels within the charging station. • Describe the functioning and usage of tools required for-marking, punching, cutting, drilling, filing, stripping, crimping, socketing and fixing glands and screws etc. • Describe the standard practice to pull wires from the electrical facility to the installation site. • State the importance of disconnecting the power supply connections before installation. • Explain the process to perform electrical wiring in residential and commercial setups. • Elaborate the technique to connect the power supply to the main switches and/or installation blocks. • State the importance of residual current device in an EV charging station. • Explain the various types of cable routing techniques such as surface cable routing, flush-type cable routing within a charging station. • Discuss the purpose and installation procedure for the software and communication protocols • Explain the various types of protection to be provided to the charging such as weather protection, protection against voltage fluctuations, safety tests etc. 	<ul style="list-style-type: none"> • Demonstrate the installation of rectifier for each charging guns in the EV charging station. • Employ proper procedure of pulling wires from the electrical facility to the charging installation site. • Demonstrate the process of connecting the wires, cables drawn from the electrical facility to the electrical panels and sub-panels of the charging station using standard routing methods. • Demonstrate the installation of earth protection system and AC/DC power modules in the EV charging station in line with IS and IEC standards applicable to EV charging station installation. • Demonstrate the process of installing a residual current device (RCD) or fault current circuit breaker in compliance with the specifications of the charging station. • Employ configuring of password authentication and licensing software in the charging station. • Demonstrate the installation of appropriate protocol for EV charging, such as Combined Charging System (CCS), GB/T, CHAdeMO (CHArge de Move), AC Charging etc. • Employ proper procedure for connecting and positioning the modem to the charging station to ensure effective GSM/CDMA connectivity. • Perform levelling, aligning, coupling and connecting in accordance the specifications of the charging station. • Evaluate the EV machine for desired functionalities as per manufacturer’s specifications. • Prepare a sample report for the installed EV

	charging station as per organizational standard operating procedure (SOP).
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
EV charging station (AC and DC), tools and accessories, work reports, electrical components, drawings, charging protocols (CCS, ChadeMo, GB/T) installation descriptions and manuals.	

Module 13: Testing the charging station

Mapped to PSS/N2507, v1.0

Terminal Outcomes:

- Describe the types of tests performed on an installed EV charging station
- Test the EV charging station for proper installation
- Evaluate the charging capabilities of the EV charging station

Duration: 15:00	Duration: 15:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • List the various types of tests that are performed to test the EV charging station. • Explain the process to be followed to conduct various types of tests pertaining to the commissioning of an EV charging station. • State the key considerations to check the electrical connections for the charging station. • Elaborate the technique for measurement of the voltage drop between various parts of the charging station. • Describe the steps to perform calculations for evaluating charging station characteristics and capabilities • Discuss the importance of ensuring that the resistance value is within the specified range. • Discuss the impact of environmental factors on the operability of the charging station. • Explain the procedure to perform Ingress Protection (IP) testing. • Discuss relevant IS and IEC standards to perform IP testing. • Describe the start-up procedures performed for the charging station. • State the importance of running the equipment at recommended initial settings. • State the importance of conducting a trial run of the EV charging station. • List the factors that help confirm conformance of process outcomes with desired standards. • Discuss the key considerations for monitoring of charging station operations. • Describe the method of recording measurements and observations. 	<ul style="list-style-type: none"> • Perform earthing tests in accordance with industry rules and regulations and standard work practices. • Test the connections of the conductive parts with the supply voltage source as per standard practice. • Conduct tests to check for electrical continuity between exposed conductive parts and the earth circuit. • Apply the technique of measuring the voltage drop between the exposed conductive part and the earthing terminal of the charging station. • Calculate values such as earth resistance, the voltage drop between any exposed conductive part and the earth-circuit connections. • Perform Ingress Protection (IP) testing according to relevant IS and IEC standards. • Evaluate the charging capabilities of the station by testing the communication protocol to as per desired standards. • Evaluate the operability of the equipment by running it at the recommended initial settings. • Evaluate the electrical system and devices for continuity of the connections of the protective conductor, insulation resistance, RCD (FI) triggering current, triggering time etc.
Classroom Aids:	



Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook

Tools, Equipment and Other Requirements

EV charging station (AC and DC), tools and accessories, work reports, electrical components, drawings, charging protocols (CCS, ChadeMo, GB/T) installation descriptions and manuals.

Module 14: Commissioning the charging station

Mapped to PSS/N2507, v1.0

Terminal Outcomes:

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- Describe the various commissioning procedures
- Commission the EV charging station

Duration: 15:00	Duration: 15:00
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the procedure to rectify faults and equipment malfunction pertaining to the commissioning of the charging station. • Describe the need for modifications in the existing systems and installed devices. • State the importance of the installation and commissioning certificate in the work process. • Explain the importance of ensuring that the site is cleared of all (electrical) debris, cleaned, and safe for people before leaving. 	<ul style="list-style-type: none"> • Demonstrate how to deal with equipment malfunction and rectify faults during the commissioning process. • Employ the process of modifying the existing systems and installing electrical devices as per requirements and test results. • Demonstrate the process to document backups, manuals, logs, etc. as per work requirements.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
EV charging station (AC and DC), tools and accessories, work reports, electrical components, drawings, charging protocols (CCS, ChadeMo, GB/T) installation descriptions and manuals.	

Module 15: Introduction to Employability Skills

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

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- Discuss about Employability Skills in meeting the job requirements

Duration: <0.5:00>	Duration: <1:00>
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the importance of Employability Skills in meeting the job requirements 	<ul style="list-style-type: none"> • List different learning and employability related GOI and private portals and their usage
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 16: Constitutional values - Citizenship

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Discuss about constitutional values to be followed to become a responsible citizen

Duration: <0.5:00>	Duration: <1:00>
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen. 	<ul style="list-style-type: none"> Show how to practice different environmentally sustainable practices
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 17: Becoming a Professional in the 21st Century

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Demonstrate professional skills required in 21st century

Duration: <1:00>	Duration: <1.5:00>
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes

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<ul style="list-style-type: none"> • Discuss 21st century skills. • Describe the benefits of continuous learning 	<ul style="list-style-type: none"> • Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 18: Basic English Skills

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Practice basic English speaking.

Duration: <4:00>	Duration: <6:00>
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> • Describe basic communication skills 	<ul style="list-style-type: none"> • Show how to use basic English sentences

<ul style="list-style-type: none"> Discuss ways to read and interpret text written in basic English 	<p>for everyday conversation in different contexts, in person and over the telephone</p> <ul style="list-style-type: none"> Read and interpret text written in basic English Write a short note/paragraph / letter/e - mail using basic English
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 19: Career Development & Goal Setting

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Demonstrate Career Development & Goal Setting skills.

Duration: <1:00>	Duration: <1:00>
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> Discuss need of career development plan 	<ul style="list-style-type: none"> Demonstrate how to communicate in a well -mannered way with others.

	<ul style="list-style-type: none"> • Create a career development plan with well-defined short- and long-term goals
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 20: Communication Skills

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Practice basic communication skills.

Duration: <2:00>	Duration: <3:00>
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the importance of active listening for effective communication • Discuss the significance of working 	<ul style="list-style-type: none"> • Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette

collaboratively with others in a team	
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 21: Diversity & Inclusion

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Describe PwD and gender sensitisation.

Duration: <1:00>	Duration: <1.5:00>
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> Discuss the significance of reporting sexual harassment issues in time 	<ul style="list-style-type: none"> Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
Classroom Aids:	

Whiteboard, marker pen, projector

Tools, Equipment and Other Requirements

Module 22: Financial and Legal Literacy

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Describe ways of managing expenses, income, and savings.

Duration: <2:00>	Duration: <3:00>
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> • List the common components of salary and compute income, expenditure, taxes, investments etc. • Discuss the legal rights, laws, and aids 	<ul style="list-style-type: none"> • Outline the importance of selecting the right financial institution, product, and service • Demonstrate how to carry out offline and online financial transactions, safely and securely

Classroom Aids:

Whiteboard, marker pen, projector

Tools, Equipment and Other Requirements
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Module 23: Essential Digital Skills

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Demonstrate procedure of operating digital devices and associated applications safely.

Duration: <4:00>	Duration: <6:00>
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the role of digital technology in today's life • Discuss the significance of using internet for browsing, accessing social media platforms, safely and securely 	<ul style="list-style-type: none"> • Show how to operate digital devices and use the associated applications and features, safely and securely • Create sample word documents, excel sheets and presentations using basic features • Utilize virtual collaboration tools to work

	effectively
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 24: Entrepreneurship

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Describe opportunities as an entrepreneur.

Duration: <3:00>	Duration: <4:00>
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> Explain the types of entrepreneurship and enterprises Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement 	<ul style="list-style-type: none"> Create a sample business plan, for the selected business opportunity

Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 25: Customer Service

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Describe ways of maintaining customer.

Duration: <2:00>	Duration: <3:00>
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> Explain the significance of identifying customer needs and addressing them. Explain the significance of identifying customer needs and responding to them in a professional manner. Discuss the significance of maintaining hygiene and dressing appropriately. 	<ul style="list-style-type: none"> Demonstrate how to maintain hygiene and dressing appropriately.
Classroom Aids:	
Whiteboard, marker pen, projector	

Tools, Equipment and Other Requirements

Module 26: Getting ready for apprenticeship & Jobs

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Describe ways of preparing for apprenticeship & Jobs appropriately.

Duration: <3:00>	Duration: <5:00>
Theory - Key Learning Outcomes	Practical - Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the significance of maintaining hygiene and confidence during an interview • List the steps for searching and registering for apprenticeship opportunities 	<ul style="list-style-type: none"> • Create a professional Curriculum Vitae (CV) • Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively • Perform a mock interview
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification <Select the minimum educational requirements, such as 12 th Pass, Graduate or NSQF certified.>	Specialization <Specify the areas of specialization that are desirable.>	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
BE/ BTech	Electrical Engineering	1	As Engineer in EV Charging station installation and commissioning			
Diploma	Electrical Engineering	3	As a Junior Engineer in EV			

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			Charging station installation and commissioning			
ITI	Electrician	5	As a Technician in EV Charging station installation and commissioning			

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role: “Technician - Electric Vehicle (EV) Charging Station (Installation and Commissioning)” mapped to QP: “PSS/Q2503, v2.0”. Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: “Trainer”, “Trainer (VET and Skills)”, mapped to the Qualification Pack: “MEP/2601, v2.0” with minimum score of 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification <Select the minimum educational requirements, such as 12 th Pass, Graduate or NSQF certified.>	Specialization <Specify the areas of specialization that are desirable.>	Relevant Industry Experience		Training/ Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
BE/ BTech	Electrical Engineering	1	As Engineer in EV Charging station installation and commissioning			
Diploma	Electrical Engineering	3	As a Junior Engineer in EV Charging station installation and			

		commissioning		
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Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role: “Technician - Electric Vehicle (EV) Charging Station (Installation and Commissioning)” mapped to QP: “PSS/Q2503, v2.0”. 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, v2.0” with minimum score of 80%.

Assessment Strategy

The emphasis is on 'learning-by-doing' and practical demonstration of skills and knowledge based on the performance criteria. The assessment papers are developed by Subject Matter Experts (SME) available with the Assessment Agency as per the performance and assessment criteria mentioned in the Qualification Pack. The assessments papers are also checked for the various outcome-based parameters such as quality, time taken, precision, tools & equipment requirement etc. The assessment sets are then reviewed by PSSC official for consistency. The assessments are designed to assess maximum parts during the practical hands-on work. The technical limitations at the training centres are taken care of in theory and viva. Criteria such as the use of a lift to pick heavy objects or selection of fire extinguisher during a fire are also assessed under theory/viva.

The assessment agencies are instructed to hire assessors with integrity, reliability and fairness. Each assessor shall sign a document with its assessment agency by which they commit themselves to comply with the rules of confidentiality and conflict of interest, independence from commercial and other interests that would compromise the impartiality of the assessments. The assessment agencies are instructed to ideally have assessor with minimum 5 years industry experience as an ITI passed / minimum 3 years' industry experience as diploma engineer and minimum 1 years' industry experience as a graduate engineer.

The assessors selected by Assessment Agencies are scrutinized and made to undergo training and introduction to PSSC Assessment Framework, competency-based assessments, assessors guide etc.

The assessors are provided with assessor's guide developed by the Subject Matter Expert of the assessment agency as per the assessment framework. The assessment guides are developed to

ensure the maximum possible consistency in the assessment by different assessors and elaborate on the following

1. Qualification Pack Structure
2. Guidance for the assessor to conduct theory, practical and viva assessments (exposed in Training of Assessors TOA)
3. Guidance for trainees to be given by assessor before the start of the assessments.
4. Guidance on assessments process, practical brief with steps of operations practical observation checklist and mark sheet
5. Viva guidance for uniformity and consistency across the batch.
6. Guidance on assessment evidence collection

The assessment results are backed by evidence collected by assessors.

1. The assessor needs to collect a copy of the attendance for the training done under the scheme. The attendance sheets are signed and stamped by the Incharge /Head of the Training Centre.
2. The assessor needs to verify the authenticity of the candidate by checking the photo ID card issued by the institute as well as any one Photo ID card issued by the Central/Government. The same needs to be mentioned in the attendance sheet. In case of suspicion, the assessor should authenticate and cross verify trainee's credentials in the enrolment form.
3. The assessor needs to take a photograph of all the students along with the assessor standing in the middle and with the centre name/banner at the back as evidence.
4. The assessor needs to carry a camera to click a photograph of the trainees working on the job and giving theory exam as evidence.
5. The assessor also needs to carry a photo ID card.
6. The assessor also needs to take the photographs as evidence from appropriate angles/sides of the final workpiece/job submitted by the trainee. This evidence is signed by the trainee at the time of submission of the job piece.
7. The assessor needs to measure the dimensions and finish of the submitted job piece as per the tolerance or standards mentioned in the assessment guide.
8. The assessor will also check the internal record of assignments, performance records and feedback provided to candidates.

References

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.

National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.



Acronyms and Abbreviations

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training