NATIONAL COMPETENCY STANDARDS
FOR
ELECTRICAL TECHNOLOGIST
(Diploma)

TVET QUALITY COUNCIL
BHUTAN QUALIFICATIONS AND PROFESSIONALS CERTIFICATION AUTHORITY
THIMPHU, BHUTAN.
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FOREWORD

The TVET Quality Council, BQPCA is pleased to present the National Competency Standards (NCS) for Electrical Technologist, Diploma. The main objective of developing National Competency Standards is to set up a well-defined nationally recognized TVET Qualifications that will help in setting a benchmark for the TVET Qualifications in the country aligned to the international best practices.

The NCS are developed to ensure that the TVET trainees possess the desired Skills, Knowledge and Attitude required by the industries. In order to ensure the relevancy of the competencies, the NCS are developed in close consultation with industry experts and trainers from training institutes.

A training system based on NCS shall ensure that the training is relevant to the needs of the Industries. As a result, future TVET trainees will be better skilled to meet the needs and expectations of industries and employers. Such a positive impact on the employability of TVET graduates will enhance the reputation of the TVET system and make it attractive to the youths.

While acknowledging the existing level of cooperation and collaboration, the Council earnestly requests employers and training providers to extend the fullest support and cooperation in development and implementation of the NCS. The ultimate objective is to build a competent and productive national workforce that will contribute to the socio-economic development of our country.

We gratefully acknowledge the valuable contributions made by experts from industries and trainers during the consultation and validation processes of the NCS development. We further look forward to improved industry engagement and active participation of trainers in the development of a quality-assured demand driven TVET system.

Director
BQPCA

ACKNOWLEDGEMENT

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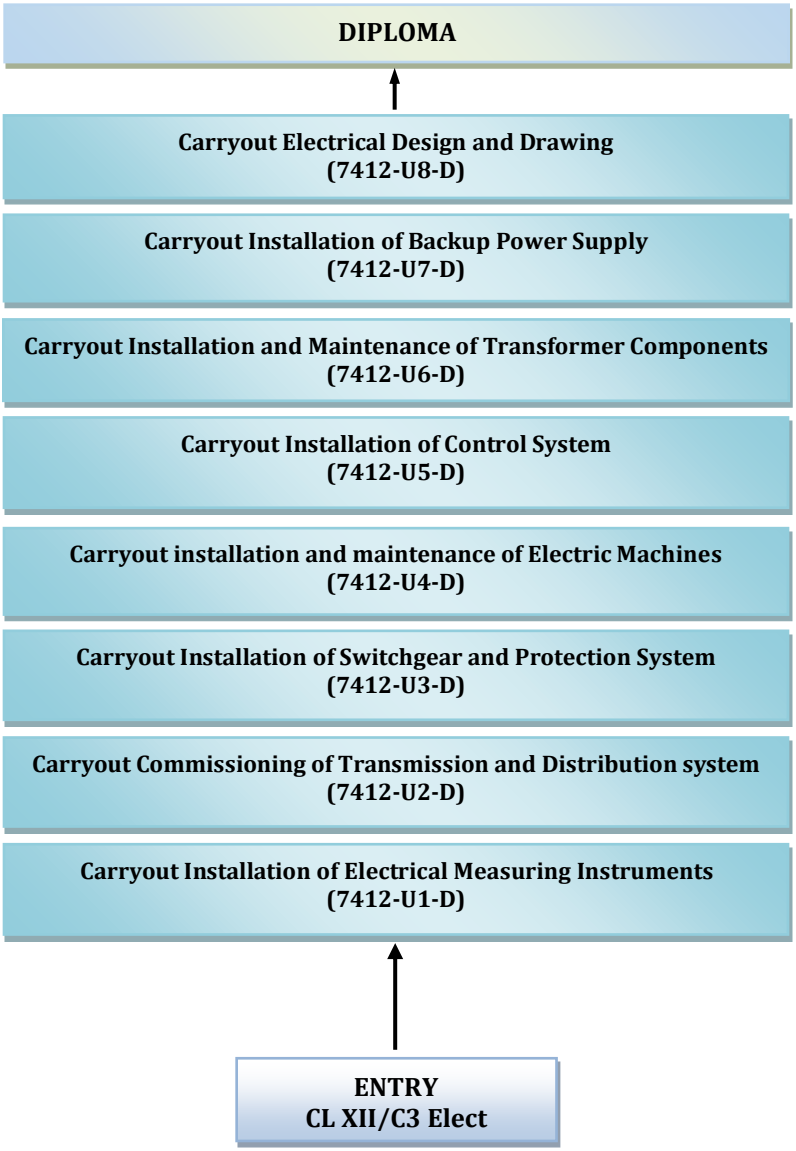
PACKAGING OF QUALIFICATIONS



OVERVIEW OF THE COMPETENCY STANDARDS

Unit Title	Elements of competence
1. Carryout Installation of Electrical Measuring Instrument (EMI)	1. Perform Operation of EMI 2. Perform Testing of EMI 3. Perform Operation of Sensors
2. Carryout Commissioning of Transmission and Distribution System	1. Perform commissioning of Transmission line 2. Perform commissioning of Distribution line 3. Perform Troubleshooting of transmission and distribution line
3. Carryout Installation of Switchgear and Protection System	1. Perform Installation of protection devices 2. Perform Monitoring of Protection devices 3. Perform Maintenance of Protection devices
4. Carryout Installation and Maintenance of Electric Machines	1. Perform testing of alternator 2. Perform Installation of motors starters 3. Perform Installation of motors
5. Carryout Installation of Control Systems	1. Perform PLC Operation 2. Perform VDF Operation 3. Perform operation of Electro-Pneumatic system 4. Perform integration of PLC and Pneumatic system
6. Carryout Installation and Maintenance of Transformer Components	1. Monitor Transformer 2. Perform functional Test of Transformer protection devices 3. Service Transformer 4. Perform Transformer Test
7. Carryout Installation of Backup Power Supply	1. Perform Installation of battery backup 2. Perform Installation of diesel generator 3. Perform Installation of Uninterrupted Power Supply (UPS)

	4. Perform Installation of Solar power systems
8. Carryout Electrical Design and Drawing	1. Perform basic CAD drawing 2. Design Illumination Applying lumen method 3. Perform estimation and costing for small industrial wiring installation

UNIT TITLE	**Carryout Installation of Electrical Measuring Instrument (EMI)**
DESCRIPTOR	This unit covers the competencies required to operate, testing of electrical measuring instrument and operation of sensors
CODE	**7412-U1-D**
ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Perform operation of EMI	1.1 Use ***PPEs*** as per the job requirements following standard procedure. 1.2 Select and use ***tools and equipment*** as per the job requirements following standard procedure 1.3 Measure voltage and current using instrument transformer following standard procedure. 1.4 Measure power factor following standard procedure
2. Perform testing of EMI	2.1 Use PPEs as per the job requirements following standard procedure. 2.2 Select and use tools and equipment as per the job requirements following standard procedure 2.3 Test ***electrical measuring instruments*** following standard procedure
3. Perform operation of sensors	3.1 Use PPEs as per the job requirements following standard procedure. 3.2 Select and use tools and equipment as per the job requirements following standard procedure 3.3 Install ***Sensors*** following standard procedure 3.4 Test functionality test of sensors following standard procedure

RANGE STATEMENT	
PPE may include but not limited to:	
• Safety boot	• Working Dress
Tools and equipment may include but not limited to:	
• Tester • Combination Plier • Screw driver set	• Three phase power supply kit • CRO • CT/PT
Electrical Measuring Instruments may include but not limited to:	
• Ammeter • Multimeter • Power factor meter	• Voltmeter • Wattmeter • Energy Meter • Phase sequence meter
Sensors may include but not limited to:	
• RTD sensor • Pressure gauge	• Smoke detector • Proximity sensor
Critical Aspects:	
• Demonstration of occupational health and safety practices at workplace • Test electrical measuring instruments following standard procedure	

UNDERPINING KNOWLEDGE	UNDERPININNG SKILLS
• Ethics and Integrity • Occupational Health and Safety • Types of Instrument transformers • Introduction to magnetic Induction	• Team Work • Communication • Negotiation • Problem Solving • Creativity

● Working principle and application of Instrument Transformer ● Types of sine and cosine waveforms ● Operation of complex numbers ● Concept of Power Factor ● Working theory of permanent magnet moving coil ● Working principle of sensors ● Types of sensors ● Application of sensors	● Time Management

UNIT TITLE	Carryout Commissioning of Transmission and Distribution System
DESCRIPTOR	This unit covers the competencies required to commission and troubleshoot transmission and distribution line.
CODE	7412-U2-D
ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Perform commissioning of transmission line	2.1 Use ***PPEs*** as per the job requirements following standard procedure. 2.2 Select and use ***tools and equipment*** as per the job requirements following standard procedure 2.3 Perform IR Test following standard procedure 2.4 Perform continuity test following standard procedure 2.5 Perform polarity test following standard procedure
2. Perform commissioning of distribution line	3.1 Use PPEs as per the job requirements following standard procedure. 3.2 Select and use tools and equipment as per the job requirements following standard procedure 3.3 Perform IR Test following standard procedure 3.4 Perform continuity test following standard procedure 3.5 Perform polarity test following standard procedure
3. Troubleshoot transmission and distribution line	4.1 Use PPEs as per the job requirements as per following standard procedure. 4.2 Select and use tools and equipment as per the job requirements as per following standard procedure 4.3 Perform ***physical inspection*** following standard procedure

	4.4 Troubleshoot ***three phase line fault*** following standard procedure

RANGE STATEMENT	
Tools and equipment may include but not limited to:	
● Hydraulic conductor cutter ● Pulley ● Come-along clamp ● Sagging bridge ● Winch machine ● Splicer machine ● Discharge rod	● Aluminum ladder ● Screw driver set ● Combination plier ● Compressor machine ● Binocular ● LSA analyzer ● TFR equipment
PPEs *may include but not limited to:*	
● Reflective vest ● Work dress ● Safety boots	● Safety gloves ● Safety belts ● Safety helmet
Physical inspection may include but not limited to:	
● Broken conductor ● Arching horn gap ● Right of way (ROW)	● Punctured insulators ● Line clearance
Three phase line faults may include but not limited to:	
● Asymmetrical faults (L-L, L-G, L-L-G, L-L-L-G)	● Symmetrical faults (L-L-L)
Critical Aspects:	
● Demonstration of occupational health and safety practices at workplace ● Troubleshoot transmission and distribution line	

UNDERPINING KNOWLEDGE	**UNDERPININNG SKILLS**
● Ethics and Integrity ● Occupational Health and Safety ● Types of losses in T & D lines ● Components of T & D line and its functions ● Sag calculation ● Calculation on three phase line faults	● Team Work ● Communication ● Negotiation ● Problem Solving ● Creativity ● Time Management

UNIT TITLE	**Carry out Installation of Switchgear and Protection System**
DESCRIPTOR	This unit covers the competencies required to install switchgear and protection system, monitor and maintain protection devices
CODE	**7412-U3-D**
ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Perform installation of protection device	1.1 Use ***PPEs*** as per the job requirements following standard procedure. 1.2 Select and use ***tools and equipment*** as per the job requirements following standard procedure 1.3 Install ***protection devices*** following standard procedure
2. Perform monitoring of Protection devices	2.1 Use PPEs as per the job requirements following standard procedure. 2.2 Inspect oil level of CT and PT following standard procedure 2.3 Inspect gas level of SF6 circuit breaker following standard procedure 2.4 Inspect LA and surge monitor following standard procedure 2.5 Inspect condition of isolator and earth switch following standard procedure
3. Perform maintenance of protection devices	3.1 Use PPEs as per the job requirements following standard procedure. 3.2 Select and use tools and equipment as per the job requirements following standard procedure 3.3 Test ***protection devices*** following standard procedure

RANGE STATEMENT	
Tools and equipment may include but not limited to:	
• Combination Plier • Wire stripper	• Earthing Clamp • Screw driver set
PPEs may include but not limited to:	
• Working dress • Safety belts • Safety gloves	• Safety boots • Reflective vest
Protection Devices may include but not limited to:	
• Overcurrent protection device • Surge protection device • Numerical relay	• Earth fault device • CT • PT
Critical Aspects:	
• Demonstration of occupational health and safety practices at workplace • Perform monitoring and maintenance of Protection devices	

UNDERPINING KNOWLEDGE	**UNDERPININNG SKILLS**
• Ethics and Integrity • Occupational Health and Safety • First Aid • Types of protection devices • Working principle and application of protection devices • Difference between gang and single operated CBs • Types of CBs and its operation • Working principle and application of numerical relays	• Team Work • Communication • Negotiation • Problem Solving • Creativity • Time Management

UNIT TITLE	Carryout Installation and Maintenance of Electric machines
DESCRIPTOR	This unit covers the competencies required to test alternator and install motor starter and motors
CODE	7412-U4-LD
ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Perform Testing of Alternator	1.1 Use ***PPEs*** as per the job requirements following standard procedure. 1.2 Select and use ***tools and equipment*** as per the job requirements following standard procedure 1.3 Perform built up voltage test following standard procedure 1.4 Perform open and short circuit tests following standard procedure 1.5 Perform parallel operation of alternators following standard procedure
2. Perform Installation of Motor Starter	2.1 Use PPEs as per the job requirements following standard procedure. 2.2 Select and use tools and equipment as per the job requirements following standard procedure 2.3 Construct automatic star delta starter following standard procedure 2.4 Construct star delta forward reverse motor starter following standard procedure 2.5 Install LRS following standard procedure
3. Perform Installation of Motors	3.1 Use ***PPEs*** as per the job requirements following standard procedure. 3.2 Select and use tools and equipment as per the job requirements following standard procedure

	3.3 Install single phase motor following standard procedure 3.4 Service single phase motor following standard procedure 3.5 Install three phase motor following standard procedure 3.6 Service three phase motor following standard procedure

RANGE STATEMENT	
Tools and equipment may include but not limited to:	
● Induction motor ● Portable drilling machine ● Portable blower ● VFD ● Frequency Meter ● Multimeter	● Measuring tape ● Arduino microcontroller/PLC CPU and modules ● PC ● Ammeter ● Voltmeter
PPEs may include but not limited to:	
● Safety gloves ● Safety helmets ● Safety belts ● Working dress	● Safety boots ● Dust mask ● Reflective vest
Critical Aspects:	
● Demonstration of occupational health and safety practices at workplace ● Perform installation of motor starter and motor ● Perform testing of alternator	

UNDERPINING KNOWLEDGE	**UNDERPININNG SKILLS**
● Ethics and Integrity ● Occupational Health and Safety ● Working Principle and application of motor starter ● Basics of electromagnetic theory ● Construction and working of single and three phase motors	● Team Work ● Communication ● Negotiation ● Problem Solving ● Creativity ● Time Management

UNIT TITLE	**Carryout Installation of Control Systems**
DESCRIPTOR	This unit covers the competencies required to perform PLC, VLD & Electro-Pneumatic system operation and integration of PLC and Pneumatic System
CODE	**7412-U5-D**
ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Perform PLC Operation	1.1 Use ***PPEs*** as per the job requirements following standard procedure. 1.2 Select and use ***tools and equipment*** as per the job requirements following standard procedure 1.3 Prepare for PLC Operation following standard procedure 1.4 Perform basic ladder-logic programming following standard procedure 1.5 Program using basic instructions following standard procedure 1.6 Perform basic programming using timers and counters following standard procedure 1.7 Program basic instruction following standard procedure
2. Perform VFD operation	2.1 Perform ON/OFF control of motor following standard procedure 2.2 Perform forward reverse operation of motor following standard procedure 2.3 Perform speed control of motor following standard procedure 2.4 Perform acceleration and deceleration of motor following standard procedure 2.5 Perform advance control of motor following standard procedure

3. Perform operation of electro-pneumatic system	3.1 Prepare for pneumatic operation following standard procedure 3.2 Perform direct and indirect control of single acting cylinder following standard procedure 3.3 Perform direct and indirect control of double acting cylinder following standard procedure 3.4 Design pneumatic circuit using single acting cylinder following standard procedure 3.5 Design pneumatic circuit using double acting cylinder following standard procedure
4. Perform integration of PLC and Pneumatic system	4.1 Program direct and indirect control of single acting cylinder 4.2 Program direct and indirect control of double acting cylinder 4.3 Program pneumatic circuit using single acting cylinder 4.4 Design pneumatic circuit using double acting cylinder

RANGE STATEMENT	
Tools and equipment may include but not limited to:	
● Combination plier ● Screw driver set ● Multimeter ● PLC	● Wrench set ● Pneumatic system ● PC
PPEs may include but not limited to:	
● Safety gloves ● Safety helmets ● Safety belts ● Working dress	● Safety boots ● Dust mask ● Reflective vest
Critical Aspects:	
● Demonstration of occupational health and safety practices at workplace ● Perform PLC operation ● Perform operation of electronic pneumatic system	

UNDERPINING KNOWLEDGE	UNDERPININNG SKILLS
• Ethics and Integrity • Occupational Health and Safety • Working Principle of PLC • PLC Programming • Working Principle of Pneumatic system • Speed control of motors	• Team Work • Communication • Negotiation • Problem Solving • Creativity • Time Management

UNIT TITLE	Carryout Installation and Maintenance of Transformer components
DESCRIPTOR	This unit covers the competencies required to monitor transformer, functional test of transformer protection devices, servicing and testing of transformers.
CODE	7412-U6-D
ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Monitor Transformer	1.1 Use ***PPEs*** as per the job requirements following standard procedure 1.2 Select and use ***tools and equipment*** as per the job requirements following standard procedure 1.3 Inspect for abnormal noise in transformer following standard procedure 1.4 Inspect ***transformer components*** following standard procedure
2. Perform functional test of transformer protection devices	2.1 Use ***PPEs*** as per the job requirements following standard procedure 2.2 Select and use tools and equipment as per the job requirements following standard procedure 2.3 Inspect ***transformer protection devices*** following standard procedure
3. Perform Servicing of Transformer	3.7 Use ***PPEs*** as per the job requirements following standard procedure 3.8 Select and use tools and equipment as per the job requirements following standard procedure 3.9 ***Service transformer*** following standard procedure
4. Perform Testing of transformer	4.1 Use PPEs as per the job requirements following standard procedure.

	4.2 Select and use tools and equipment as per the job requirements following standard procedure 4.3 ***Test transformer*** following standard procedure 4.4 Commission transformer following standard procedure

RANGE STATEMENT	
Tools and equipment may include but not limited to:	
● Calculator ● Torque wrench ● Wrench and spanner set ● Phase sequence meter ● Oil conditioning machine ● Ammeter ● Voltmeter ● Wattmeter	● Discharge rod ● Transformer ● IR tester ● Pliers ● Screw driver set ● Multimeter ● BDV test kit
PPEs may include but not limited to:	
● Safety Boots ● Safety gloves ● Safety helmets	● Reflective vest ● Working dress
Transformer components may include but not limited to:	
● Breather assembly ● Conservation and OLTC oil level ● Bushing ● Arching horn ● Healthiness of earthing ● Restricted Earth Fault	● OTI and WTI pocket oil level ● Buchholz relay oil level ● OTI & WTI temperature ● Leakage of transformer oil ● Cooling system ●
Transformer protection devices may include but not limited to:	
● Buchholz relay test ● Pressure relief device test ● Winding Temperature Indicator test ● Oil temperature Indicator test	● Magnetic oil gauge test ● On-Load tap changer test ● Oil surge relay test
Service transformer may include but not limited to:	
● Replace bushing ● Maintain arc horn gap ● Filter transformer oil	● Change transformer oil ● Regenerate/replace silica gel ● Change breather

• Top up transformer oil • Tighten terminal connections	• Change gasket
Test Transformer may include but not limited to:	
• Breakdown voltage test of transformer oil • OCC test • SCC test • Vector group test • Tan-Delta test	• Ratio test • Load test • Magnetic core balance test • Winding polarity test • IR, DAR and PI test • Dissolved Gas Analysis test
Critical Aspects:	
• Demonstration of occupational health and safety practices at workplace • Perform servicing and testing of transformer	

UNDERPINING KNOWLEDGE	**UNDERPININNG SKILLS**
• Ethics and Integrity • Occupational Health and Safety • First Aid • Working Principle of transformers • Components of Transformer and its function • Types and application of Transformers • Transformer Losses, efficiency and voltage regulation • Importance of performing pre-commissioning test • Purpose and process of oil filtration • Transformer protection device • Environmental regulations	• Team Work • Communication • Negotiation • Problem Solving • Creativity • Time Management

UNIT TITLE	Carryout Installation of Backup Power Supply
DESCRIPTOR	This unit covers the competencies required to install backup power supply
CODE	7412-U7-D
ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Perform Installation of Battery Backup	1.1 Use ***PPEs*** as per the job requirements following standard procedure. 1.2 Select and use ***tools and equipment*** as per the job requirements following standard procedure 1.3 Perform system sizing following standard procedure 1.4 Monitor battery backup following standard procedure 1.5 Service battery backup following standard procedure
2. Perform Installation of Diesel Generator	2.1 Use PPEs as per the job requirements following standard procedure. 2.2 Select and use tools and equipment as per the job requirements following standard procedure 2.3 Perform system sizing following standard procedure 2.4 Monitor Diesel generator following standard procedure 2.5 Service Diesel generator following standard procedure
3. Perform Installation of Uninterrupted Power Supply (UPS)	3.1 Use PPEs as per the job requirements following standard procedure. 3.2 Select and use tools and equipment as per the job requirements following standard procedure

	3.3 Perform system sizing following standard procedure 3.4 Monitor UPS following standard procedure 3.5 Service UPS following standard procedure
4. Perform Installation of Solar Power System	4.1 Use PPEs as per the job requirements following standard procedure. 4.2 Select and use tools and equipment as per the job requirements following standard procedure 4.3 Perform sizing of ***solar PV system*** following standard procedure 4.4 Install solar PV system following standard procedure 4.5 Service solar PV system following standard procedure

RANGE STATEMENT	
Tools and equipment may include but not limited to:	
● Calculator ● Screw driver set ● Discharge rod ● Battery ● DG set ● UPS ● Pyrheliometer	● Wrench ● Plier ● Wattmeter ● Ammeter ● Voltmeter ● Spirit level ● Pyranometer
PPEs may include but not limited to:	
● Safety boots ● Working dress ● Reflective vest	● Safety gloves ● Safety harness ● Safety mask ●
Solar PV Components may include but not limited to:	
● Modules ● Inverter ● Fuse	● Battery ● Controllers ● DC/AC Bus

Critical Aspects:
● Demonstration of occupational health and safety practices at workplace ● Perform installation and testing of solar power system.

UNDERPINING KNOWLEDGE	**UNDERPININNG SKILLS**
● Ethics and Integrity ● Occupational Health and Safety Regulations ● First Aid ● Types of backup system ● Types of batteries ● Types of switches and fuses ● Methods of charging ● Types of DG (single and three phase) ● Modes of operation in DG ● Components of DG and its function ● Introduction to UPS system and Inverter ● Components of UPS and its functions ● Working principle of Solar PV ● Types of PV system ● Environmental Regulations	● Team Work ● Communication ● Negotiation ● Problem Solving ● Creativity ● Time Management

UNIT TITLE	Carry out Electrical Design and Drawing
DESCRIPTOR	This unit covers the competencies required to carryout electrical design and drawing
CODE	7412-U8-LD
ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Perform Basic CAD Drawing	1.1 Use ***PPEs*** as per the job requirements following standard procedure. 1.2 Select and use ***tools and equipment*** as per the job requirements following standard procedure 1.3 Use CAD tools following standard procedure 1.4 Draw objects following standard procedure 1.5 Create dimension and text following standard procedure
2. Design Illumination Applying Lumen Method	2.1 Use PPEs as per the job requirements following standard procedure. 2.2 Select and use tools and equipment as per the job requirements following standard procedure 2.3 Design illumination for ***Lighting systems*** following standard procedure
3. Perform Estimation and Costing for Small Industrial Wiring Installation	3.1 Use PPEs as per the job requirements following standard procedure. 3.2 Select and use tools and equipment as per the job requirements following standard procedure 3.3 Estimate industrial loads following standard procedure 3.4 Design layout plan using CAD tools following standard procedure 3.5 Prepare BOQ following standard procedure

RANGE STATEMENT	
Tools and equipment may include but not limited to:	
• PC • Calculator	• CAD software
PPEs may include but not limited to:	
• Work dress • Work Station	• Safety Shoes
Lighting systems may include but not limited to:	
• Indoor lighting • Street Lighting	• Sports lighting
Critical Aspects:	
• Demonstration of occupational health and safety practices at workplace • Design illumination for lighting systems following standard procedure • Perform Estimation and Costing for Small Industrial Wiring Installation	

UNDERPINING KNOWLEDGE	UNDERPININNG SKILLS
• Ethics and Integrity • Occupational Health and Safety Regulations • First Aid • Introduction and Application of CAD tools • Lumen method • Laws of Illumination • Illumination terminologies • Wiring Installation rules and regulations • Introduction to procurement rules and regulations • Basic management and supervision	• Team Work • Communication • Negotiation • Problem Solving • Creativity • Time Management

ANNEXURE

National Competency Standards (NCS)

The National Competency Standards specify the skill, knowledge and attitudes applied to a particular occupation. Standards also specify the standards or criteria of performance of a competent worker and the various contexts in which work may take place. Standards provide explicit advice to assessors regarding the skill and knowledge to be demonstrated by candidates seeking formal recognition either following training or through work experience.

Purpose of National Competency Standards

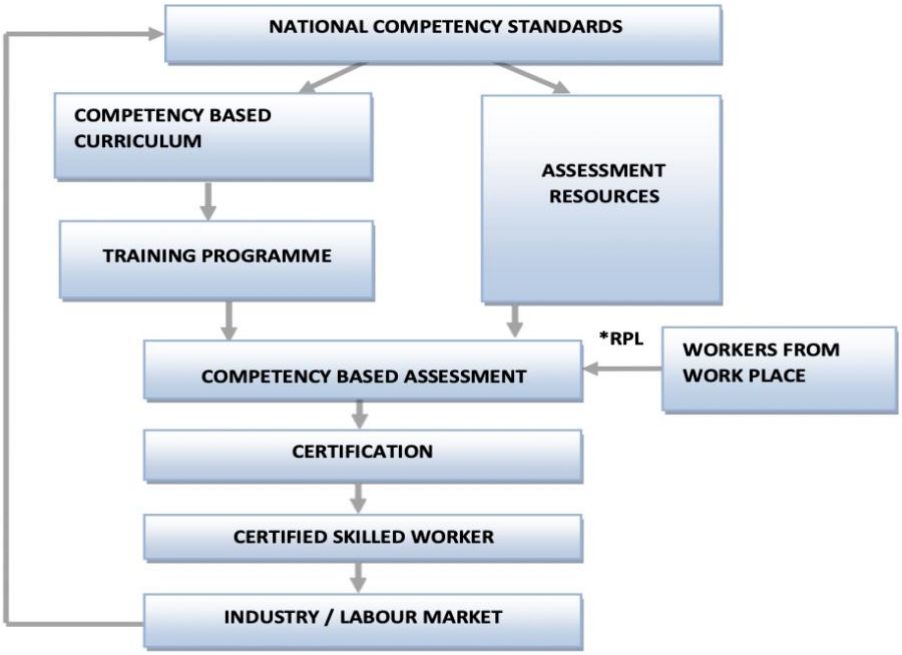
National Competency Standards serve a number of purposes including:

- Providing advice to curriculum developers about the competencies to be included in the curriculum.
- Providing specifications to assessment resource developers about the competencies within an occupation to be demonstrated by candidates.
- Providing advice to industry/employers about job functions, which in turn can be used for the development of job descriptions, performance appraisal systems and work flow analysis.

Bhutan Qualifications Framework (BQF)

Bhutan Qualifications Framework is an integrated national framework that outlines all types of qualification in Bhutan. As an established and nationally accepted instrument, the BQF has been benchmarked against international practices in terms of standards. The BQF aims to recognize all forms of learning systems, including formal, non-formal, and informal learning. It acknowledges technological advancements and recognizes contemporary modes of delivery. It covers a broad range of education systems including the TVET education.

Implementation of TVET Qualifications



*** RPL = Recognition of Prior Learning**

TVET Qualifications Levels

TVET Qualifications has seven levels as per the BQF. The levels are:

Master's Degree
Applied Degree
Advanced Diploma
Diploma
Certificate 3
Certificate 2
Certificate 1

Level Descriptors

The TVET Qualification levels are set based on the level descriptors, as defined in the BQF. The detail of the qualification level descriptor is as follow:

Level	***Knowledge***	***Skills***	***Values***	***Application***
	Knowledge that is:	***Demonstrate skills that involve:***	***Demonstrate values that involve:***	***Applied in contexts that involve:***
4	Broad theoretical, technical and operational	Selecting and applying a range of standard processes relevant to varied and sometimes unpredictable tasks Selecting and applying a range of solutions involving formulation of solutions to resolve complex issues Demonstrating a high level of proficiency in English and Dzongkha	Strong level of awareness of self and others; and an appreciation of belief system, role of social norms, and the importance of relationship building Application of ethical norms and legal rules in decision-making; and comprehending the correlation between values and behaviour Commitment to own profession and quality of work	Stable tasks with predictable changes Broad guidance with some self-direction that requires sound judgement Taking some responsibility for planning and coordination with others
3	Theoretical with some technical and operational processes	Applying a range of standard processes to known but varied tasks Selecting and applying a range of solutions to familiar and unfamiliar problems Communicating effectively and	Sound level of self-awareness and beliefs; and ability to apply social norms and build relationships Application of a set of ethical norms Commitment to own field of interest and apply self-management of	Stable tasks with some aspects of change General guidance and supervision that require discretion and judgement Adapting to own behaviour to work with others

		clearly, both oral and written, in both English and Dzongkha	learning and performance	
2	Basic, factual and conceptual	Applying standard processes relevant to carry out known tasks Applying a set of known solutions to solve simple and straightforward issues Using simple and direct exchange of information on familiar and routine matters Developing basic proficiency in Dzongkha and English	Some level of self-awareness and beliefs, and appreciation of social norms; and significance of relationships Awareness of ethical norms, and openness to different activities Developing own knowledge and skills	Structured and stable tasks General support and Supervision that require some discretion and judgement Collaboration with others to achieve goals
1	Foundational, every day and general	Applying operational literacy, numeracy skills required to carry out simple tasks Applying simple solutions to solve simple and straightforward everyday issues Communicating using everyday expressions and simple phrases in Dzongkha and English	Basic awareness of self, beliefs, and social norms; and understand the significance of relationships Basic awareness of fundamental ethical norms, basic civil rights, and responsibilities Willingness to understand tasks and motivated to implement them successfully	Highly structured tasks with close support and supervision Minimal Discretion and judgement Readiness to work together and share knowledge with others

CODING USED FOR NATIONAL COMPETENCY STANDARDS

The coding and classification system developed in Bhutan is logical, easy to use, and also aligned with international best practices. The Bhutanese coding and classification system is based on the International Standard Classification of Occupations, 2008 (ISCO-08) developed by the International Labour Organisation (ILO).

The coding of the National competency standards forms the basis of the identification code for the Vocational Education and Training Management Information System (VET – MIS) both in terms of economic sector identification and that of the individual standard.

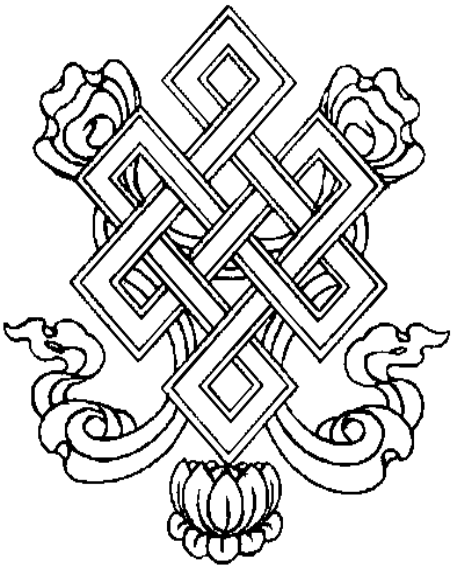
Coding the individual national competency standards

Coding the individual skills standard has a multiple purpose:

- to identify the occupational code
- to identify the units
- to identify the qualification level.

A job can include a number of competencies described in the national competency standards.

However, in order to follow a logical order, only national competency standards related to each other and following a logical sequence in terms of training delivery, from the simple to the complex, are clustered into a qualification level. Some standards are so complex that they need to stand alone.



TVET Quality Council
Bhutan Qualifications and Professionals Certification Authority
Thimphu, Bhutan