NATIONAL COMPETENCY STANDARDS
FOR
MECHANICAL TECHNOLOGIST
(DIPLOMA)

MANUFACTURING SECTOR

TECHNICAL & VOCATIONAL EDUCATION AND TRAINING 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 Mechanical Technologist, Diploma, developed in collaboration with industry experts and trainers. These standards establish a nationally recognized qualification aligned with international best practices, setting a benchmark for TVET qualifications in Bhutan.

The NCS ensures that trainees acquire the necessary skills, knowledge, and attitude required by industries. Developed through close consultation with experts, it enhances the relevance of training to labor market needs, equipping graduates to meet industry expectations and improving their employability. A strong and responsive TVET system will also make vocational education more attractive to youth.

The Council acknowledges the valuable contributions of industry experts and trainers in the development of these standards. We urge employers and training providers to continue their support in implementing the NCS, fostering a skilled and productive workforce that contributes to national socio-economic development. Moving forward, we look forward to enhanced industry engagement and collaborative efforts in building a quality-assured, demand-driven TVET system.

Director
BQPCA

ACKNOWLEDGEMENT

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The TVET Quality Council, Bhutan Qualifications and Professionals Certification Authority would like to express our deepest appreciation to the following industry and subject matter experts who have participated in development of the National Competency Standards:

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PACKAGING OF QUALIFICATIONS

Overview of the NCS

Unit Title	Elements of Competence
1. Supervise Production and Quality Control	1. Plan and Organize Production Activities 2. Monitor and Control Production Processes 3. Implement Quality Control Procedures
2. Develop and Operate CAD/CAM/CNC Systems	1. Create and Modify CAD Models 2. Prepare CAM Programs 3. Operate CNC Machines
3. Design and Maintain Heat Transfer Systems	1. Design Heat Transfer Systems 2. Install and Commission Heat Transfer Systems 3. Maintain and Troubleshoot Heat Transfer Systems
4. Install and service Hydraulics and Pneumatics systems	1. Interpret system schematics and technical specifications 2. Assemble and install fluid power circuits 3. Perform maintenance of fluid power systems.
5. Supervise Mechanical Systems Maintenance	1. Plan and schedule maintenance activities 2. Supervise mechanical maintenance team 3. Optimize maintenance systems

6. Manage Basic Mechanical Engineering Projects	1. Initiate and Plan the Project 2. Execute and Monitor the Project 3. Close and Evaluate the Project
7. Design Mechanical Components	1. Design mechanical components 2. Perform stress and deformation analysis 3. Select materials for engineering applications
8. Integrate and Troubleshoot Mechanical Automation Systems	1. Integrate sensors, actuators, and control components 2. Develop and test control logic using PLC, HMI, and SCADA 3. Maintain and troubleshoot automation systems
9. Operate and Maintain Hydropower Mechanical Systems	1. Prepare hydropower systems for operation 2. Operate hydropower turbines and auxiliaries 3. Maintain hydropower mechanical systems

UNIT TITLE	Supervise Production and Quality Control
DESCRIPTOR	This unit contains competencies for planning, supervision, and quality control to ensure efficiency, compliance, and continuous improvement of mechanical production processes.
CODE	3115-U1-D
ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Plan and Organize Production Activities	1.1 Interpret production schedules, job orders, and technical drawings. 1.2 Allocate resources, tools, and materials for the production process. 1.3 Assign tasks to personnel according to skills and workload. 1.4 Coordinate workflow to meet delivery timelines. 1.5 Establish production targets and performance indicators.
2. Monitor and Control Production Processes	2.1 Supervise operations to ensure adherence to production plans. 2.2 Implement process adjustments to address deviations or delays. 2.3 Ensure compliance with safety and environmental regulations. 2.4 Inspect work in progress for conformity to specifications. 2.5 Maintain accurate production records and reports.

3. Implement Quality Control Procedures	3.1 Develop and apply quality control checklists and inspection procedures. 3.2 Test and measure components or products against specifications. 3.3 Identify non-conforming products and initiate corrective actions. 3.4 Document quality issues and maintain inspection reports. 3.5 Train staff on quality standards and procedures.

RANGE STATEMENT	
PPEs may include but not limited to:	
• Safety boot • Hand gloves • Ear Muff/Plug • Nose Mask	• Goggles • Work dress • Helmet
Tools and Equipment may include but not limited to:	
• Measuring instruments	• Testing equipment
Critical Aspects	
• Follow Safety at workplace • Follow standard procedure for all the tasks • Establish production targets and performance indicators.	

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
• Ethics and Integrity • Occupational Health and Safety regulations • Basic first Aid • Production planning and scheduling principles. • Quality control systems and tools. • Material specifications and tolerances. • Recordkeeping and documentation practices. • Environmental Regulations	• Team Work • Communication • Problem Solving • Interpersonal Relationship • Time Management • Innovation

UNIT TITLE	Develop and Operate CAD/CAM/CNC Systems
DESCRIPTOR	This unit contains competencies to design, program, and manufacture mechanical components using CAD/CAM software and CNC machines.
CODE	3115-U2-D
ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Create and Modify CAD Models	1.1 Interpret engineering drawings and specifications. 1.2 Develop 2D and 3D models using CAD software 1.3 Modify existing models based on feedback or design changes. 1.4 Ensure models comply with design standards and tolerances. 1.5 Save and manage files according to organizational procedures.
2. Prepare CAM Programs	2.1 Select appropriate machining processes and tools. 2.2 Generate CAM programs based on CAD models. 2.3 Simulate machining operations to verify tool paths. 2.4 Optimize programs for efficiency and quality. 2.5 Document CAM programs for future use.

3. Operate CNC Machines	3.1 Set up CNC machines according to specifications. 3.2 Load programs and test run operations. 3.3 Monitor machining operations for accuracy and quality. 3.4 Adjust settings to maintain tolerances and surface finish. 3.5 Perform routine maintenance on CNC equipment.

RANGE STATEMENT	
PPEs may include but not limited to:	
• Safety boot • Hand gloves • Ear Plug • Nose Mask	• Goggles • Work dress • Helmet • Apron
Tools and Equipment may include but not limited to:	
• Hand tool set • Testing Equipment	• Precision Measuring tools
Materials may include but not limited to:	
• Ferrous materials • Lubricants	• Non-ferrous materials • Cleaning agents

Critical Aspects
• Follow Safety at workplace • Follow standard procedure for all the tasks • Develop 2D and 3D models within tolerances

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
• Ethics and Integrity • Occupational Health and Safety regulations • Basic first Aid • CAD/CAM software functions and applications. • CNC machine operations and maintenance. • Cutting tool selection and machining parameters. • Geometric dimensioning and tolerancing. • Workplace safety in machining environments.	• Team Work • Communication • Problem Solving • Interpersonal Relationship • Time Management • Innovation

UNIT TITLE	Design and Maintain Heat Transfer Systems
DESCRIPTOR	This unit contains competencies for designing, installing, operating, and maintaining heat transfer systems for industrial applications.
CODE	3115-U3-D
ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Design Heat Transfer Systems	1.1 Identify system requirements and operational parameters. 1.2 Select appropriate heat exchanger and system components. 1.3 Calculate heat transfer rates and fluid flow requirements. 1.4 Specify materials suitable for operating conditions. 1.5 Prepare detailed design drawings and specifications.
2. Install and Commission Heat Transfer Systems	2.1 Prepare installation plans and schedules. 2.2 Coordinate installation of equipment and piping systems 2.3 Test system performance against design specifications. 2.4 Adjust parameters for optimal efficiency. 2.5 Prepare commissioning and test documentation

3. Maintain and Troubleshoot Heat Transfer Systems	3.1 Conduct routine inspections and preventive maintenance. 3.2 Identify faults through diagnostic testing. 3.3 Troubleshoot faults and repair components. 3.4 Repair or replace defective components. 3.5 Document maintenance activities. 3.6 Ensure systems meet safety and performance standards.

RANGE STATEMENT	
PPEs may include but not limited to:	
• Safety boot • Hand gloves • Industrial Nose Mask	• Goggles • Work dress • Helmet
Tools and Equipment may include but not limited to:	
• Hand tool set • Testing equipment	• Measuring instruments • Gauges
Critical Aspects	
• Follow Safety at workplace • Follow standard procedure for all the tasks • Calculate heat transfer rates and fluid flow requirements	

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
• Ethics and Integrity • Occupational Health and Safety regulations • Basic first Aid • 5S • Principles of heat transfer and thermodynamics. • Design codes and standards for heat transfer equipment. • Materials selection for thermal systems. • Maintenance and troubleshooting techniques. • Safety procedures for pressurized systems.	• Team Work • Communication • Problem Solving • Interpersonal Relationship • Time Management • Innovation

UNIT TITLE	Install and Service Hydraulics and Pneumatics Systems
DESCRIPTOR	This unit contains competencies for installation, testing, servicing, and troubleshooting of hydraulic and pneumatic systems used in mechanical operations to ensure safe and reliable system performance.
CODE	3115-U4-D
ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Interpret system schematics and technical specifications	1.1 Correctly identify standard symbols for hydraulic and pneumatic components on circuit diagrams. 1.2 Trace system operation from a schematic. 1.3 Determine ***component specifications*** from manufacturer documentation. 1.4 Identify the intended function of a circuit.
2. Assemble and install fluid power circuits	2.1 Select ***components*** based on the circuit schematic and specifications. 2.2 Assemble components using fittings, connectors, and sealing methods to prevent leaks. 2.3 Route and secure hoses and tubing to avoid damage, excessive wear, and pressure drops. 2.4 Perform pre-commissioning checks, including cleanliness inspection and verification of component installation

3. Perform maintenance of fluid power systems.	3.1 Conduct routine maintenance inspection according to schedule 3.2 Perform preventive maintenance tasks 3.3 Use diagnostic tools as per the job requirement 3.4 Apply a logical troubleshooting methodology to systematically isolate the root cause of system failures 3.5 Repair/Replace faulty components 3.6 Test the system to confirm the operations meets the specified performance and safety standard 3.7 Complete maintenance and repair documentation

RANGE STATEMENT	
PPEs may include but not limited to:	
• Safety boot • Hand gloves • Industrial Nose Mask • Safety Barricade	• Goggles • Work dress • Helmet
Tools and Equipment may include but not limited to:	
• Hand tool set • Gauges	• Testing Equipment •

Materials may include but not limited to:	
• Hydraulic Oil • Hoses, Pipes and fittings • Valves and Actuators	• Oil Seal • Accessories
Component specifications may include but not limited to:	
• Pressure rating	• Flow capacity
Components may include but not limited to:	
• Cylinders • Hoses	• Valves
Critical Aspects	
• Follow Safety at workplace • Follow standard procedure for all the tasks • Intended function of system	

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
• Ethics and Integrity • Occupational Health and Safety regulations • Basic first Aid • Fluid power principals • Component types and functions • Properties of fluids • Circuit design • Signs and symbols for fluid power system	• Team Work • Communication • Problem Solving • Interpersonal Relationship • Time Management • Innovation

UNIT TITLE	Supervise Mechanical Systems Maintenance
DESCRIPTOR	This unit contains competencies for planning, supervision, and management of mechanical systems maintenance.
CODE	3115-U5-D
ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Plan and Schedule Maintenance Activities	1.1 Develop maintenance schedules based on equipment criticality and OEM guidelines. 1.2 Allocate manpower, materials, and equipment efficiently. 1.3 Coordinate inter-departmental resource needs. 1.4 Adjust plans to address unexpected challenges.
2. Supervise Mechanical Maintenance Teams	2.1 Assign tasks according to skills and job requirements. 2.2 Provide technical guidance and support to staff. 2.3 Monitor work progress and ensure quality standards. 2.4 Motivate and mentor team members. 2.5 Conduct performance reviews and feedback sessions.

3. Optimize Maintenance Systems	3.1 Implement Computerized Maintenance Management System for tracking KPIs. 3.2 Standardize procedures for ***critical equipment***. 3.3 Liaise with OEMs/vendors for technical support and warranty claims. 3.4 Recommend reliability upgrades for system enhancements like predictive maintenance sensors.

RANGE STATEMENT	
PPEs may include but not limited to:	
• Safety boot • Hand gloves • Industrial Nose Mask	• Goggles • Work dress • Helmet
Tools and Equipment may include but not limited to:	
• ICT Equipment • Testing equipment	• Measuring Instrument • Communication equipment
critical equipment may include but not limited to:	
• Pumps • conveyors	• compressors • fans and blowers

Critical Aspects
• Follow Safety at workplace • Follow standard procedure for all the tasks • Allocate manpower, materials, and equipment efficiently • Provide technical guidance and support to staff.

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
• Ethics and Integrity • Occupational Health and Safety regulations • Basic first Aid • Principles of resource management. • Leadership and team management techniques. • Types of Maintenances • Quality assurance systems. • Reporting and documentation methods. • Estimation and costing • Procurement system	• Team Work • Communication • Problem Solving • Interpersonal Relationship • Time Management • Innovation

UNIT TITLE	Manage Basic Mechanical Engineering Projects
DESCRIPTOR	This unit contains competencies for application of basic project management principles in planning, executing, and closing of mechanical projects.
CODE	3115-U6-D
ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Initiate and Plan the Project	1.1 Define project objectives, scope, and deliverables in consultation with stakeholders. 1.2 Develop a basic project plan, including timelines, milestones, and resource allocation. 1.3 Prepare budget and resource requirements. 1.4 Identify potential risks and mitigation strategies. 1.5 Establish communication channels with stakeholders.
2. Execute and Monitor the Project	2.1 Coordinate activities and resources according to the project plan. 2.2 Monitor progress against timelines and budget. 2.3 Implement corrective measures for deviations. 2.4 Ensure compliance with safety and quality standards. 2.5 Maintain project documentation and records.

3. Close and Evaluate the Project	3.1 Verify deliverables against specifications. 3.2 Obtain approvals and acceptance from stakeholders. 3.3 Conduct project evaluation and lessons learned review. 3.4 Prepare final project reports and documentation. 3.5 Archive project records for reference.

RANGE STATEMENT	
PPEs may include but not limited to:	
• Safety boot • Safety Helmet	• Work dress • Nose Mask
Tools and Equipment may include but not limited to:	
• ICT Equipment • Communication equipment	• Measuring tools • Project Management Software
Critical Aspects	
• Follow Safety at workplace • Follow standard procedure for all the tasks • Develop a basic project plan, including timelines, milestones, and resource allocation. • Identify potential risks and mitigation strategies.	

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
• Ethics and Integrity • Occupational Health and Safety regulations • Basic first Aid • Basic project management principles (scope, cost, time, quality). • Risk management in technical projects. • Communication and stakeholder management. • Budgeting and cost control techniques. • Project documentation and reporting.	• Team Work • Communication • Problem Solving • Interpersonal Relationship • Time Management • Innovation

UNIT TITLE	Design Mechanical Components
DESCRIPTOR	This unit contains competencies for designing of mechanical components through engineering analysis and material selection.
CODE	3115-U7-D
ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Design mechanical components	1.1 Apply design principles for shafts, gears, and fasteners. 1.2 Select appropriate materials based on application. 1.3 Validate designs through calculations and simulations.
2. Perform stress and deformation analysis	2.1 Use Finite Element Analysis (FEA) software for simulations. 2.2 Interpret stress-strain diagrams and factor of safety. 2.3 Recommend design improvements based on analysis.
3. Select materials for engineering applications	3.1 Compare ***mechanical properties*** for materials 3.2 Identify suitable materials for different environments. 3.3 Apply cost and manufacturability considerations.

RANGE STATEMENT	
PPEs may include but not limited to:	
• Safety boot • Hand gloves	• Goggles • Work dress
Tools and Equipment may include but not limited to:	
• ICT Tools • UTM	• Design Software • Measuring Tools
Materials may include but not limited to:	
• Ferrous	• Non-Ferrous
mechanical properties may include but not limited to:	
• Strength • Toughness	• Hardness
Critical Aspects	
• Follow Safety at workplace • Follow standard procedure for all the tasks • Interpret stress-strain diagrams and factor of safety.	

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
• Ethics and Integrity • Occupational Health and Safety regulations • Basic first Aid • Mechanics of materials (stress, strain, fatigue). • Material science (metals, polymers, composites). • Basics of FEA and computational tools.	• Team Work • Communication • Problem Solving • Interpersonal Relationship • Time Management • Innovation

UNIT TITLE	Integrate and Troubleshoot Mechanical Automation Systems
DESCRIPTOR	This unit contains competencies for integration and troubleshooting of automation systems using PLCs, sensors, actuators, HMIs, and SCADA
CODE	3115-U8-D
ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Integrate sensors, actuators, and control components	1.1 Select appropriate sensors, actuators, and control devices per system requirements. 1.2 Install and wire components in accordance with schematic diagrams. 1.3 Configure and test sensor and actuator operations under real-world conditions. 1.4 Connect automation devices with PLCs, HMIs, and SCADA interfaces. 1.5 Verify signal transmission and data acquisition across the system.
2. Develop and test control logic using PLC, HMI, and SCADA	2.1 Write and implement basic ladder logic or structured programs in PLC software. 2.2 Configure HMI screens for monitoring and operator input. 2.3 Integrate SCADA systems for supervisory control and data logging. 2.4 Simulate and test control programs, HMIs, and SCADA interfaces for correct operation. 2.5 Troubleshoot program and interface errors, optimizing system performance.

3. Maintain and troubleshoot automation systems	3.1 Identify, diagnose, and document common automation, HMI, and SCADA faults. 3.2 Replace, calibrate, and configure faulty automation components. 3.3 Update PLC programs, HMI and SCADA configurations as per maintenance needs. 3.4 Perform preventive maintenance on sensors, actuators, and control devices. 3.5 Maintain safety standards and apply lock-out/tag-out procedures during maintenance

RANGE STATEMENT	
PPEs may include but not limited to:	
• Safety boot • Hand gloves • Safety Helmet	• Goggles • Work dress • Industrial Nose Mask
Tools and Equipment may include but not limited to:	
• Hand tool set • Multimeter • Software • Testing equipment • Sensors • Drives • Logic Analyzer	• Diagnostic Scan tool • SCADA • PLC • Soldering tool • Actuators • Industrial Network • Monitoring software

Critical Aspects
• Follow Safety at workplace • Follow standard procedure for all the tasks • Configuration and testing of systems

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
• Ethics and Integrity • Occupational Health and Safety regulations • Basic first Aid • Basic Electrical and Electronics • Basics of PLC architecture, programming, and communication protocols. • Design and configuration of HMIs for operator interaction. • SCADA concepts: supervisory control, data acquisition, alarms, and logging. • Industrial communication networks (Ethernet/IP, Modbus, Profibus, etc.).	• Team Work • Communication • Problem Solving • Interpersonal Relationship • Time Management • Innovation

UNIT TITLE	Operate and Maintain Hydropower Mechanical Systems
DESCRIPTOR	This unit covers the competencies for operation, monitoring, and maintenance of hydropower mechanical equipment to ensure reliability and efficiency of hydropower plants.
CODE	3115-U9-D
ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Prepare hydropower systems for operation	1.1 Conduct pre-start checks on turbines, penstocks, gates, and auxiliary systems. 1.2 Verify lubrication, cooling, and hydraulic oil levels. 1.3 Inspect mechanical components for leaks, wear, or misalignment. 1.4 Confirm safety devices and interlocks are functional. 1.5 Record pre-operation inspection results and report abnormalities
2. Operate hydropower turbines and auxiliaries	2.1 Start and stop turbines according to operating procedures. 2.2 Adjust guide vanes, wicket gates, and valves to regulate load and flow. 2.3 Monitor parameters such as vibration, temperature, pressure, and speed. 2.4 Respond promptly to alarms, abnormal sounds, or irregular conditions. 2.5 Maintain accurate operational logs and shift records.

3. Maintain hydropower mechanical systems	3.1 Lubricate bearings, couplings, and moving components as scheduled. 3.2 Replace seals, gaskets, filters, and other minor components. 3.3 Diagnose common faults such as leaks, vibrations, or overheating. 3.4 Repair or replace defective components using appropriate tools. 3.5 Test equipment after maintenance or repair to confirm operational readiness. 3.6 Record all maintenance and troubleshooting activities accurately.

RANGE STATEMENT	
PPEs may include but not limited to:	
• Safety boot • Hand gloves • Safety Helmet • Ear Plug	• Goggles • Work dress • Safety Belt
Tools and Equipment may include but not limited to:	
• Hand tool set • Multimeter • Testing equipment • Turbines • Penstock	• Diagnostic Scan tool • Thermal Imager • Laser Alignment tool • Governors • Gates

Materials may include but not limited to:	
• Coolant • Seals and O-rings	• Lubricants • Fasteners
Critical Aspects	
• Follow Safety at workplace • Follow standard procedure for all the tasks • Maintenance checks of hydropower electro-mechanical equipment	

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
• Ethics and Integrity • Occupational Health and Safety regulations • Basic first Aid • Principles of hydropower generation • Hydropower plant mechanical system components. • Operating procedures and safety protocols for hydropower turbines • Mechanical components of turbines and auxiliaries and their maintenance requirements • Lubrication types and schedules for turbine shafts and bearings	• Team Work • Communication • Problem Solving • Interpersonal Relationship • Time Management • Innovation

• Common hydropower mechanical faults and their causes • Condition-monitoring parameters (vibration, temperature, noise) and their significance	

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 have seven levels as per the BQF as follows:

Bhutan Qualifications Framework 2023

Table 2: Qualification Types and Levels Based on Education Sector.

BQF Level	Community Education	School Education	TVET	Higher Education	Monastic Education
8				Doctoral Degree	*Khewang* མཁས་དབང་།
7			Master's Degree Postgraduate Diploma Postgraduate Certificate	Master's Degree Postgraduate Diploma Postgraduate Certificate	*Tsugla Gongma* གསུག་ལག་གོང་མ།
6			Applied Degree	Bachelor's Degree Bachelor's Degree (Honours) Graduate Diploma Graduate Certificate	*Tsugla Wogma* གསུག་ལག་འོག་མ།
5			Advanced Diploma	Advanced Diploma	
4			Diploma	Diploma	
3		Bhutan Higher Secondary Education Certificate	Certificate 3		*Dringrim Gongma* འབྲིང་རིམ་གོང་མ།
2		Bhutan Certificate for Secondary Education	Certificate 2		*Dringrim Barma* འབྲིང་རིམ་བར་མ།
1	ALC		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 behavior 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	Sound level of self-awareness and beliefs; and ability to apply social norms and	Stable tasks with some aspects of change General guidance and supervision that require

		and unfamiliar problems Communicating effectively and clearly, both oral and written, in both English and Dzongkha	build relationships Application of a set of ethical norms Commitment to own field of interest and apply self-management of learning and performance	discretion and judgement Adapting to own behaviour to work with others
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	Basic awareness of self, beliefs, and social norms; and understand the significance of relationships Basic awareness of	Highly structured tasks with close support and supervision Minimal Discretion and judgement

		Communicating using everyday expressions and simple phrases in Dzongkha and English	fundamental ethical norms, basic civil rights, and responsibilities Willingness to understand tasks and motivated to implement them successfully	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 Technical & Vocational Education and Training Management Information System (TVET – MIS) both in terms of economic sector identification and that of the individual standard.

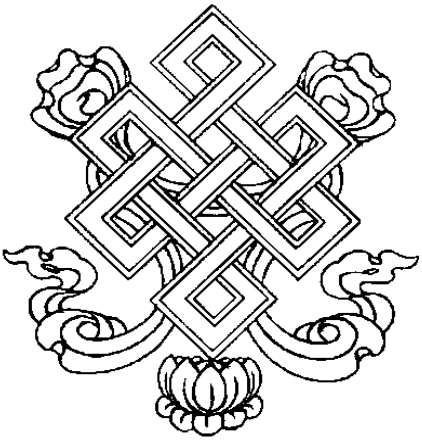
Coding the individual national competency standards

Coding the individual skills standard has a multiple purpose:

- to identify the level,
- to identify to which module the standard belongs,
- to identify in which order the standard is clustered within that module.

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 module. Some standards are so complex that they need to stand alone.



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