



**NATIONAL COMPETENCY STANDARDS
FOR
ORNAMENTAL HORTICULTURIST
(CERTIFICATE 3)**

**AGRICULTURE AND FORESTRY
SECTOR**



**TECHNICAL & VOCATIONAL EDUCATION AND
TRAINING (TVET) QUALITY COUNCIL
BHUTAN QUALIFICATIONS AND PROFESSIONALS
CERTIFICATION AUTHORITY
THIMPHU, BHUTAN
MAY 2025**

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FOREWORD

The TVET Quality Council, BQPCA is pleased to present the National Competency Standards (NCS) for **Ornamental Horticulturist, BQF Certificate 3**, which is developed in consultation with the field experts and trainers. 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 our country aligned to the international best practices.

The standards 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 standards are developed in close consultation and partnership with industry experts and trainers from training institutes.

A training system based on National Competency Standards shall ensure that the training is relevant to the needs of the labour market. 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 National Competency Standards. 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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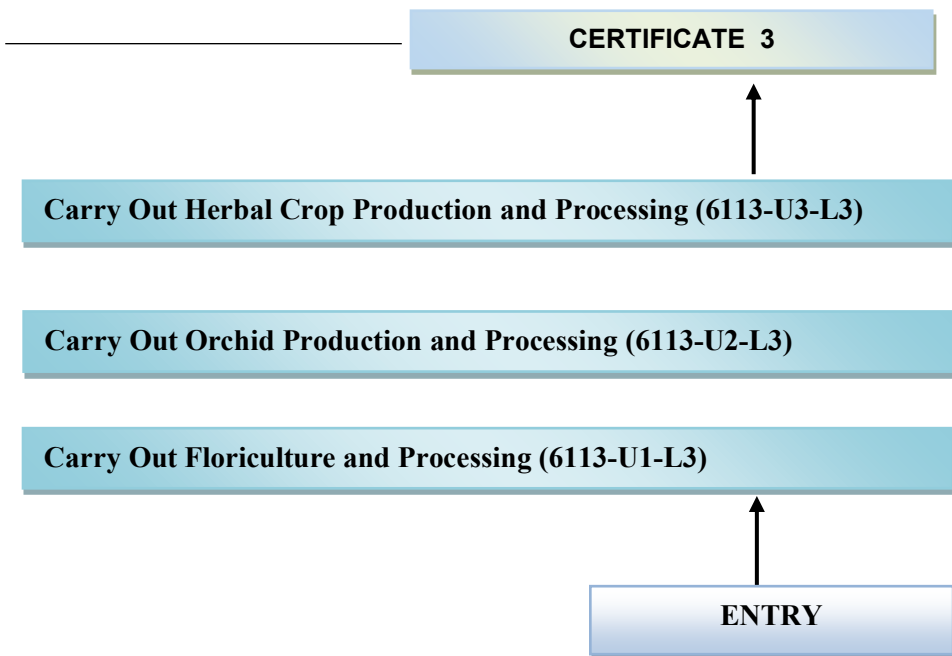
The TVET Quality Council, Bhutan Qualifications and Professionals Certification Authority would like to express our deepest appreciation to the following industry and subject matter experts who have participated in revision and validation of National Competency Standards for Ornamental Horticulturist:

Industry Experts Involved in Validation of NCS for Ornamental Horticulturist			
SN	Name	Designation	Organization
1	Dorji Tshering	Master Trainer	RDTC, Zhemgang
2	Nidup Zangmo	Agri- Supervisor	ARDC, Bajo
3	Tshewang Zangmo	Florist	JJK Nursery, Chhukha
4	Dechen Chozom	Florist	Pema Meto Dumra
5	Bhakti Maya Powdyel	Florist	Alstroemeria Delight
6	Meera Mongar	Florist	Green Finger
7	Ningboi Chongloi	Florist	Wangyel Flower Nursery, Thimphu

Industry Experts Engaged During the Revision of NCS for Ornamental Horticulturist			
SN	Name	Designation	Organization
1	Dorji Tshering	Master Trainer	RDTC, Zhemgang
2	Jamyang Lungten	Florist	Pema Meto Dumra
3	Melam Zangmo	Founder	Kitshel Garden, Thimphu
4	Tanka Maya Pulami	Dy. Chief Agriculture Officer	ARDC, Bajo

Facilitator from the TVET Quality Council, BQPCA		
Prem Kumar Bhattarai	Program Officer	TVET QC, BQPCA

PACKAGING OF QUALIFICATIONS



OVERVIEW OF NCS FOR ORNAMENTAL HORTICULTURIST

UNIT TITLE	ELEMENTS OF COMPETENCE
1. Carry Out Floriculture and Processing	1.1 Prepare for Floriculture Operations 1.2 Manage Nursery 1.3 Cultivate Floriculture Crops 1.4 Perform Bonsai Production 1.5 Perform Harvesting and Post-harvest Handling
2. Carry Out Orchid Production and Processing	2.1 Prepare for Orchids Production Operations 2.2 Manage Nursery 2.3 Cultivate Orchids 2.4 Perform Harvesting and Post-harvest Handling
3. Carry Out Herbal Crop Production and Processing	3.1 Prepare for Herbal Crop Production Operations 3.2 Manage Nursery 3.3 Cultivate Herbal Crops 3.4 Perform Harvesting and Post-harvest Handling

UNIT TITLE	Carry Out Floriculture and Processing
DESCRIPTOR	This unit covers the competencies required to perform preparatory activities for floriculture, nursery management, crop cultivation and maintenance and post -harvest handling
CODE	6113-U1-L3
ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Prepare for Floriculture Activities	1.1 Conduct market research following standard procedure 1.2 Assess crop suitability as per the job requirements following standard procedure 1.3 Identify tools and equipment following standard procedure 1.4 Gather appropriate PPEs following standard procedure 1.5 Gather materials as per the job requirement following standard 1.6 Gather floriculture Plants as per the job requirement following standard procedure

<p>2. Manage Nursery</p>	<p>2.1 Observe occupational health and safety procedures following standard procedure</p> <p>2.2 Operate appropriate tools and equipment following standard procedure</p> <p>2.3 Prepare nursery site and materials as per the job requirement following standard procedure</p> <p>2.4 Perform propagation as per the job requirement following standard procedure</p> <p>2.5 Perform nursery plant maintenance as per job requirement following standard procedure</p> <p>2.6 Perform nutrition management as per the job requirement following standards procedure</p> <p>2.7 Harvest and market nursery plants as per the job requirement following standard procedure</p>
<p>3. Cultivate Floriculture Crops</p>	<p>3.1 Observe occupational health and safety procedures following standard procedure</p> <p>3.2 Use tools and equipment as per the job requirements following standard procedure</p> <p>3.3 Prepare cultivation site as per the job requirement following standard procedure</p>

	<p>3.4 Perform planting activities as per job requirement following standard procedure</p> <p>3.5 Perform plant maintenance as per job requirement following standard procedure</p>
4. Perform Bonsai Production	<p>4.1 Identify appropriate bonsai plants following standard procedure</p> <p>4.2 Prepare propagation materials as per job requirement</p> <p>4.3 Perform training and pruning as per job requirement following standard procedure</p> <p>4.4 Perform plant maintenance as per job the requirement following standard procedure</p>
5. Perform Harvesting and Post-harvest Handling	<p>5.1 Observe occupational health and safety procedures following standard procedure</p> <p>5.2 Use tools and equipment as per the job requirements following standard procedure</p> <p>5.3 Perform crop harvesting as per the job requirement following standard procedure</p> <p>5.4 Perform post-harvest activities as per job requirement following standard procedure</p> <p>5.5 Produce value-added products of floriculture crops following standard procedure</p>

	5.6 Market the crops as per job requirement following standard procedure
6. Perform Basic Landscaping	6.1 Observe occupational health and safety procedures following standard procedure 6.2 Use tools and equipment as per the job requirements following standard procedure 6.3 Prepare to perform gardening following standard procedure 6.4 Perform basic garden design following standard procedure 6.5 Perform basic gardening following standard procedure

RANGE STATEMENT

Tools and equipment may include but not limited to:

- | | |
|--|---|
| <ul style="list-style-type: none"> • Spades • Sickle • Rake • Shovel • Hoe • Wheelbarrow | <ul style="list-style-type: none"> • Spraying machine • Secateurs • Pruning saw • Grafting knife • Budding knife |
|--|---|

PPEs may include but limited to:

- | | |
|--|---|
| <ul style="list-style-type: none"> • Rain boots • Dust masks | <ul style="list-style-type: none"> • Safety Gloves • Work dress |
|--|---|

Floriculture crop may include but not limited to:

<ul style="list-style-type: none"> • Ornamental trees • Ornamental shrubs 	<ul style="list-style-type: none"> • Ornamental climbers/vines
Plant maintenance may include but not limited to:	
<ul style="list-style-type: none"> • Pest and disease management • Watering • Fertilizing 	<ul style="list-style-type: none"> • Weeding • Mulching
Post-harvest activities may include but not limited to:	
<ul style="list-style-type: none"> • Grading • Cleaning • Hydration 	<ul style="list-style-type: none"> • Sorting • Trimming • Storage
Valued-added products may include but not limited to:	
<ul style="list-style-type: none"> • Floral Arrangement and Bouquets • Preserved and dried flowers • Cosmetic Products 	<ul style="list-style-type: none"> • Beverage Products • Essential Oils
Critical Aspects	
<ul style="list-style-type: none"> • Demonstrate compliance with safety regulations applicable to work operations at all times • Demonstrate competencies to perform orchid maintenance • Demonstrate competencies to perform harvesting, post-harvesting and value addition of orchids 	

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
<ul style="list-style-type: none"> • Ethics and Integrity • Occupational Health and Safety Regulations • Basic First Aid • Plant Health Management 	<ul style="list-style-type: none"> • Team Work • Communication • Problem Solving • Interpersonal Relationship • Creativity

<ul style="list-style-type: none"> • Plant Identification • Norms and standards for Nursery and Plantation • Plant Physiology • Package of Practice • Plant Botany • Plant nutrients requirement • Bonsai Techniques • Related BAFDA and Forestry Rule • 5S 	<ul style="list-style-type: none"> • Time Management • Innovation
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UNIT TITLE	Carry Out Orchid Production
DESCRIPTOR	This unit covers the competencies required to prepare for orchid production, manage nursery, cultivate crop, and perform post-harvesting handling
CODE	6113-U2-L3
ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Prepare for Orchid Production	<p>1.1 Conduct market research following standard procedure</p> <p>1.2 Assess crop's suitability as per the job requirements following standard procedure</p> <p>1.3 Gather PPEs as per the job requirement following standard procedure</p> <p>1.4 Gather tools and equipment following standard procedure</p> <p>1.5 Gather materials as per the job requirement following standard</p> <p>1.6 Gather Orchids as per the job requirement following standard procedure</p>
2. Manage Orchid Nursery	<p>2.1 Observe occupational health and safety procedures following standard procedure</p> <p>2.2 Handle tools and equipment as per the job requirements following standard procedure.</p>

	<p>2.3 Prepare nursery site and materials as per the job requirement</p> <p>2.4 Perform propagation as per job requirement following standard procedure</p> <p>2.5 Perform nursery plant maintenance as per job requirement following standard procedure</p> <p>2.1 Harvest and market nursery plants as per job requirement following standard procedure</p>
3. Perform Orchid Cultivation and Management	<p>3.1 Observe occupational health and safety procedures following standard procedure</p> <p>3.2 Handle tools and equipment as per the job requirements following standard procedure</p> <p>3.3 Prepare plantation sites as per the job requirement following standard procedure</p> <p>3.4 Perform plantation activities as per job requirement following standard procedure</p> <p>3.5 Perform orchid maintenance as per job requirement following standard procedure</p> <p>3.6 Perform nutrition management as per the job requirement following standards procedure</p>

4. Perform Harvesting and Post-harvest Handling	4.1 Observe occupational health and safety procedures following standard procedure 4.2 Handle tools and equipment as per the job requirements following standard procedure 4.3 Perform harvesting as per job requirement following standard procedure 4.4 Perform post-harvest activities as per the job requirement following standard procedure 4.5 Produce value-added products following standard procedure 4.6 Perform packaging as per job requirement following standard procedure 4.7 Market the products as per job requirement following standard procedure
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RANGE STATEMENT	
PPE may include but not limited to:	
<ul style="list-style-type: none"> • Rain boots • Dust masks 	<ul style="list-style-type: none"> • Safety Gloves • Work dress
Tools and equipment may include but not limited to:	

<ul style="list-style-type: none"> • Spades • Sickle • Rake • Spade • Shovel • Hoe • Wheelbarrow • Spraying machine • Secateurs • Pruning saw 	<ul style="list-style-type: none"> • Laminar flow hood (or a still-air box) • Autoclave or pressure cooker • Scalpel and forceps • Glass jars or culture vessels • Measuring tools (pipettes, beakers)
Common orchid plants may include but not limited to:	
<ul style="list-style-type: none"> • Epiphytic Orchids • Terrestrial Orchids 	<ul style="list-style-type: none"> • Lithophytic Orchids (Dendrobium and Laelia)
Propagation may include but not limited to:	
<ul style="list-style-type: none"> • Natural clones • Division 	<ul style="list-style-type: none"> • Back bulb • Tissue culture
Post-harvest activities may include but not limited to:	
<ul style="list-style-type: none"> • Cleaning • Storing 	<ul style="list-style-type: none"> • Grading • Hydration
Critical Aspects	
<ul style="list-style-type: none"> • Demonstrate competencies in occupational health and safety practices at workplace • Demonstrate competencies to perform plant maintenance following standard procedure • Demonstrate competencies to cultivate orchids and maintenance activities • Demonstrate competencies to perform harvesting, post-harvesting activities and produce value-added products 	

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
<ul style="list-style-type: none"> • Ethics and Integrity • Occupational Health and Safety Regulations • Basic First Aid • Plant Health Management • Plant Identification and classification • Norms and standards for Nursery and Plantation • Related BAFDA and Forestry Rule 	<ul style="list-style-type: none"> • Team Work • Communication • Problem Solving • Interpersonal Relationship • Creativity • Time Management • Innovation • Stress management

UNIT TITLE	Carry Out Herbal Crop Production and Processing
DESCRIPTOR	This unit covers the competencies required to prepare for herbal crop production, manage nursery, cultivate crop, and post harvesting handling
CODE	6113-U3-L3
ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Prepare to Produce Herbs	1.1 Conduct market research as per the job requirements following standard procedure 1.2 Assess crop suitability as per the job requirements following standard procedure. 1.3 Identify <i>herbal crops</i> as per the job requirement following standard procedure
2. Manage Nursery	2.1 Observe occupational health and safety procedures following standard procedure 2.2 Handle tools and equipment as per the job requirements following standard procedure 2.3 Prepare nursery sites and materials as per the job requirement 2.4 Propagate <i>planting materials</i> as per the job requirement following standard procedure

	<p>2.5 Perform nursery <i>plant maintenance</i> as per job requirement following standard procedure</p> <p>2.6 Perform plant nutrition management following standard procedure</p> <p>2.7 Harvest and market nursery plants as per job requirement following standard procedure</p>
3. Cultivate Herbal Crops	<p>3.1 Observe occupational health and safety procedures following standard procedure</p> <p>3.2 Handle tools and equipment as per the job requirements following standard procedure</p> <p>3.3 Prepare site as per the job requirement following standard procedure</p> <p>3.4 Perform planting activities as per job requirement following standard procedure.</p> <p>3.5 Perform <i>plant maintenance</i> as per job requirement following standard procedure</p>

4. Perform Harvesting and Postharvest Handling	<p>4.1 Observe occupational health and safety procedures following standard procedure</p> <p>4.2 Handle tools and equipment as per the job requirements following standard procedure</p> <p>4.3 Perform harvesting as per job requirement following standard procedure</p> <p>4.4 Perform post-harvest activities as per job requirement following standard procedure</p> <p>4.5 Produce value-added products following standard procedure</p> <p>4.6 Perform packaging as per job requirement following standard procedure</p> <p>4.7 Market the products as per job requirement following standard procedure</p>
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RANGE STATEMENT	
PPE may include but not limited to:	
<ul style="list-style-type: none"> • Rain boots • Dust masks 	<ul style="list-style-type: none"> • Safety Gloves • Work dress
Tools and equipment may include but not limited to:	
<ul style="list-style-type: none"> • Spades • Sickle • Rake • Spade • Dryer 	<ul style="list-style-type: none"> • Shovel • Hoe • Wheelbarrow • Spraying machine • Secateurs

Common herbal crops may include but not limited to:	
<ul style="list-style-type: none"> • Shrub • Herbs 	<ul style="list-style-type: none"> • Trees • Roots
Plant maintenance may include but not limited to:	
<ul style="list-style-type: none"> • Pest and disease management • Watering • Fertilizing 	<ul style="list-style-type: none"> • Weeding • Mulching
Value-added products may include but not limited to	
<ul style="list-style-type: none"> • Herbal soap • Sprays • Spices 	<ul style="list-style-type: none"> • Perfume • Tea bags • Essential Oil
Critical Aspects	
<ul style="list-style-type: none"> • Demonstration of occupational health and safety practices at workplace • Perform nursery management activities • Perform plant care activities following standard procedure • Perform post-harvest operations • Perform value added product development 	

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
<ul style="list-style-type: none"> • Ethics and Integrity • Occupational Health and Safety Regulations • Basic First Aid • Plant Health Management • Plant Identification • Norms and standards for Nursery and Plantation • Product Processing 	<ul style="list-style-type: none"> • Team Work • Communication • Problem Solving • Interpersonal Relationship • Creativity • Time Management • Innovation • Patience

<ul style="list-style-type: none">• Related BAFDA and Forestry Rule• 5S	
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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

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	<i>Khewang</i> མ་ཁམ་དབང་།
7			Master's Degree Postgraduate Diploma Postgraduate Certificate	Master's Degree Postgraduate Diploma Postgraduate Certificate	<i>Tsugla Gongma</i> གཞུག་ལག་གོང་མ།
6			Applied Degree	Bachelor's Degree Bachelor's Degree (Honours) Graduate Diploma Graduate Certificate	<i>Tsugla Wogma</i> གཞུག་ལག་འོག་མ།
5			Advanced Diploma	Advanced Diploma	
4			Diploma	Diploma	
3		Bhutan Higher Secondary Education Certificate	Certificate 3		<i>Dringrim Gongma</i> འབྲིང་རིམ་གོང་མ།
2		Bhutan Certificate for Secondary Education	Certificate 2		<i>Dringrim Barma</i> འབྲིང་རིམ་བར་མ།
1		ALC	Certificate 1		

TVET Qualifications have seven levels as per the BQF as follows:

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	<i>Knowledge</i>	<i>Skills</i>	<i>Values</i>	<i>Application</i>
	<i>Knowledge that is:</i>	<i>Demonstrate skills that involve:</i>	<i>Demonstrate values that involve:</i>	<i>Applied in contexts that involve:</i>
4	Broad theoretical, technical and operational	<p>Selecting and applying a range of standard processes relevant to varied and sometimes unpredictable tasks</p> <p>Selecting and applying a range of solutions involving formulation of solutions to resolve complex issues</p> <p>Demonstrating a high level of proficiency in English and Dzongkha</p>	<p>Strong level of awareness of self and others; and an appreciation of belief system, role of social norms, and the importance of relationship building</p> <p>Application of ethical norms and legal rules in decision-making; and comprehending the correlation between values and behavior</p> <p>Commitment to own profession and quality of work</p>	<p>Stable tasks with predictable changes</p> <p>Broad guidance with some self-direction that requires sound judgement</p> <p>Taking some responsibility for planning and coordination with others</p>
3	Theoretical with some technical and	Applying a range of standard processes	Sound level of self-awareness	Stable tasks with some

	operational processes	<p>to known but varied tasks</p> <p>Selecting and applying a range of solutions to familiar and unfamiliar problems</p> <p>Communicating effectively and clearly, both oral and written, in both English and Dzongkha</p>	<p>and beliefs; and ability to apply social norms and build relationships</p> <p>Application of a set of ethical norms</p> <p>Commitment to own field of interest and apply self-management of learning and performance</p>	<p>aspects of change</p> <p>General guidance and supervision that require discretion and judgement</p> <p>Adapting to own behaviour to work with others</p>
2	Basic, factual and conceptual	<p>Applying standard processes relevant to carry out known tasks</p> <p>Applying a set of known solutions to solve simple and straightforward issues</p> <p>Using simple and direct exchange of information on familiar and routine matters</p> <p>Developing basic proficiency in Dzongkha and English</p>	<p>Some level of self-awareness and beliefs, and appreciation of social norms; and significance of relationships</p> <p>Awareness of ethical norms, and openness to different activities</p> <p>Developing own knowledge and skills</p>	<p>Structured and stable tasks</p> <p>General support and Supervision that require some discretion and judgement</p> <p>Collaboration with others to achieve goals</p>
1	Foundational, every day and general	Applying operational literacy, numeracy skills	Basic awareness of self, beliefs,	Highly structured

		<p>required to carry out simple tasks</p> <p>Applying simple solutions to solve simple and straightforward everyday issues</p> <p>Communicating using everyday expressions and simple phrases in Dzongkha and English</p>	<p>and social norms; and understand the significance of relationships</p> <p>Basic awareness of fundamental ethical norms, basic civil rights, and responsibilities</p> <p>Willingness to understand tasks and motivated to implement them successfully</p>	<p>tasks with close support and supervision</p> <p>Minimal Discretion and judgement</p> <p>Readiness to work together and share knowledge with others</p>
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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.

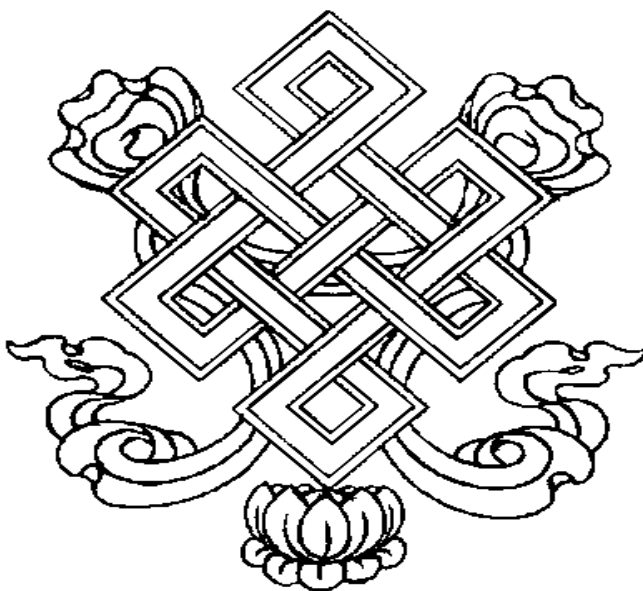
Coding the individual national competency standards

Coding the individual skills standard has a multiple purpose:

- to identify the 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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