



**NATIONAL COMPETENCY STANDARDS
FOR
MOBILE PHONE TECHNICIAN
(NC2)**

**Department of Occupational Standards
Ministry of Labour and Human Resources
Thimphu, Bhutan.
(2017)**



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Table of Contents

Foreword	2
Acknowledgement	4
Packaging of Qualifications	6
Overview of the Unit Competencies	7
Annexures:	
I National Competency Standards (NCS)	i
II Purpose of National Competency Standards	i
III Bhutan Vocational Qualifications Framework (BVQF).....	ii
IV BVQF Levels	iii
V Coding used for National Competency Standards	v
VI Assessment Guide	v

FOREWORD

The Department of Occupational Standards of the Ministry of Labour and Human Resources proudly presents the National Competency Standards (NCS) for Mobile phone technician as part of TVET reform initiative for improving the quality of Vocational Education and Training System in Bhutan. The standards represent the fruits of hard work and invaluable experiences gained by the department since its establishment in the latter half of 2003. The main aim of developing National Competency Standards is to set up a well-defined nationally recognized Vocational Qualification and Certification system that will help set a benchmark for the Technical Vocational Education and Training (VET) System in our country aligned to international best practices.

National Competency Standards is one of the base pillars in the Bhutan Vocational Qualification Framework (BVQF) and is the first step in its implementation. The standards are developed to ensure that employees or vocational graduates possess and acquire the desired skills, knowledge and attitude required by industries and employers. In order to ensure this close match in supply and demand of skills, knowledge and attitude, standards have been developed in close consultation and partnership with industry experts and validated by the validation Committees formed for the concerned economic sectors.

A vocational education and training system based on National Competency Standards shall ensure that delivered training is of a high quality and relevant to the needs of the labour market. As a result, future TVET graduates will be better equipped to meet the need and expectations of industries and employers. This positive impact on the employability of TVET graduates will enhance the reputation of vocational education and training and make it attractive to school leavers.

While acknowledging the existing level of cooperation and collaboration, the ministry earnestly requests employers and training providers to extend the fullest support and cooperation in implementing the National Competency Standards. The ultimate objective is to build a competent and productive national workforce that will contribute to the continued socio-economic progress of our country.

I gratefully acknowledge the valuable contributions made by experts from industries during the consultation, verification and validation processes of the

standards. I look forward to improved engagement and active participation of the industry and employers in the development of a quality assured demand driven TVET system in the near future.

Dorji Tshering

Director

Department of Occupational Standards,
Ministry of Labour and Human Resources

ACKNOWLEDGEMENT

Validation date : 1st September, 2017.

Endorsement date : 9th September, 2017.

Date of Review : 9th September, 2020 (max. 3 years).

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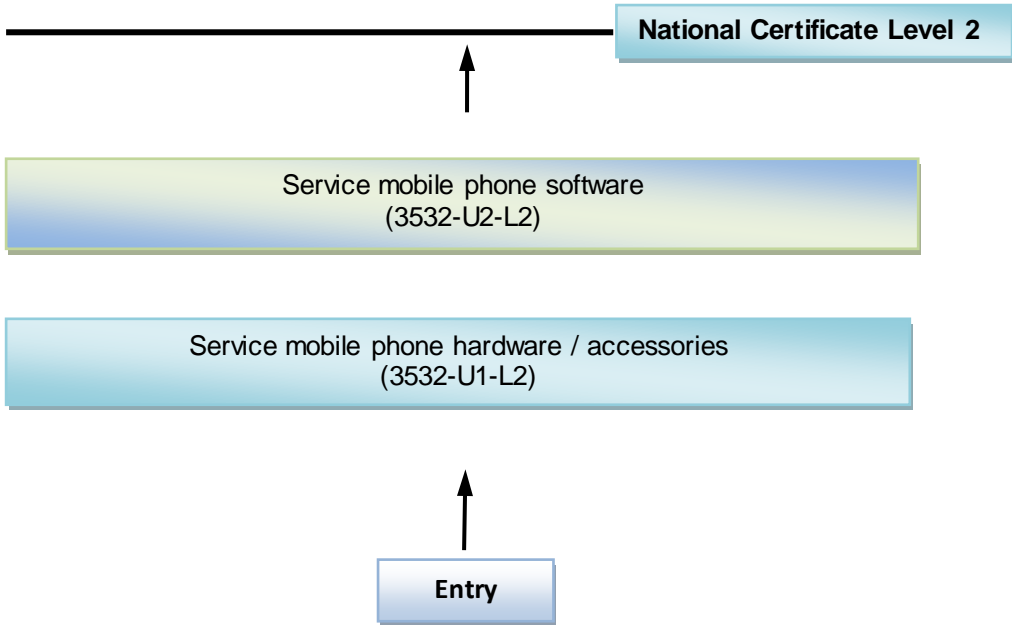
Subject experts involved during the consultation workshop:

1. Netra Prasad, Technician, B K Electronics, Gelephu.
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3. Shibji Sonar, Technician, K T Electronics, Gelephu.
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PACKAGING OF QUALIFICATIONS



OVERVIEW OF UNIT COMPETENCIES

National Certificate - Level 2

UNIT TITLE	ELEMENTS OF COMPETENCE	PAGE
Service mobile phone hardware / accessories	<ol style="list-style-type: none"><li data-bbox="374 312 893 368">1. Diagnose the mobile phone hardware / accessories faults<li data-bbox="374 387 857 443">2. Repair the mobile phone hardware / accessories	8
Service mobile phone software	<ol style="list-style-type: none"><li data-bbox="374 483 863 539">1. Diagnose the mobile phone software faults<li data-bbox="374 558 785 587">2. Repair mobile phone software	11

UNIT TITLE : **Service mobile phone hardware / accessories**

DESCRIPTOR : This unit covers the competencies required to diagnose the mobile hardware / accessories faults and then to repair it following all relevant standard procedures / specifications, ensuring safety practices at all times.

CODE : **3532-U1-L2**

ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Diagnose the mobile phone hardware / accessories faults	1.1 Select and use personal protective equipment (PPE) as per the job requirement following standard procedures 1.2 Select and use tools and equipment as per the job requirement following standard procedures 1.3 Select and use materials as per the job requirement following standard procedures 1.4 Check mobile phone visually to identify faults as per the job requirement following standard procedures 1.5 Check mobile phone using diagnostic equipment to identify faults as per the job requirement following standard procedures
2. Repair / replace mobile phone hardware / accessories	2.1 Prepare cost estimate as per the job requirement following standard procedures 2.2 Remove defective hardware as per the job requirement following standard procedures 2.3 Remove defective accessories as per the job requirement following standard procedures 2.4 Repair / replace defective hardware as per the job requirement following standard procedures 2.5 Repair / replace defective accessories as per the job requirement following standard procedures 2.6 Test the functioning of mobile phone as per the

	<p>job requirement following standard procedures</p> <p>2.7 Assemble the mobile phone as per the job requirement following standard procedures</p>
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RANGE STATEMENT

Work may take place at service center or in a training center.

- E-waste regulations
- OHS regulations

Personal protective equipment (PPE) may include but not limited to conducting:

- Goggles
- Hand gloves
- Safety boots

Tools and equipment may include but not limited to:

- Multi meter
- Pliers
- Screw driver set
- Touch remover
- Vacuum LCD
- Tweezer
- Blower
- Soldering iron
- Jumper wire

Materials may include but not limited to:

- Soldering wire
- Soldering paste
- Thinner
- Adhesive glue
- Double gum

Faults may include but not limited to:

- Breakage
- Circuit faults
- Body defects

Defective hardware may include but not limited to:

- Mother board
- Integrated circuits
- Resistor
- Diodes
- Capacitors

Defective accessories may include but not limited to:

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Ear piece • Ringer • Speaker & mike • LCD screen • Battery • Battery connector | <ul style="list-style-type: none"> • Keypad / touch plate • Headphone • Camera • Charging connector • Antenna |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Critical aspects applicable to these unit:

- Demonstrate safe working practices at all times in accordance with OHS regulations.
- Check mobile phone visually and using diagnostic equipment to identify faults as per the job requirement following standard procedures
- Repair / replace defective hardware and accessories as per the job requirement following standard procedures

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
<ul style="list-style-type: none"> • Ethics and integrity • Basic estimation and costing • Components and functioning of phone hardware / accessories • Basic electronic components and circuits • Basic mobile networks • Types / brand of phones • Phone specifications • E-waste management 	<ul style="list-style-type: none"> • Communication skills • Team work • Negotiation • Problem solving • Basic soldering

UNIT TITLE : Service mobile phone software

DESCRIPTOR : This unit covers the competencies required to diagnose mobile phone software faults and to service it following all the relevant standard procedures / specifications, ensuring safety practices at all times.

CODE : 3532-U2-L2

ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Diagnose mobile phone software faults	1.1 Select and use personal protective equipment (PPE) as per the job requirement following standard procedures 1.2 Select and use tools and equipment as per the job requirement following standard procedures 1.3 Check mobile phone to identify software faults as per the job requirement following standard procedures 1.4 Select and use diagnostic software as per the job requirement following standard procedures
2. Repair / update mobile phone software	2.1 Prepare cost estimate as per the job requirement following standard procedures 2.2 Repair mobile phone software using software repair tool as per the job requirement following standard procedures 2.3 Update mobile phone software as per the job requirement following standard procedures 2.4 Test the functioning of software / mobile phone as per the job requirement following standard procedures

RANGE STATEMENT	
Work may take place at service center or in a training center.	
<ul style="list-style-type: none"> Occupational Health & Safety regulations 	
Personal protective equipment (PPE) may include but not limited to:	
<ul style="list-style-type: none"> Goggles Hand gloves 	<ul style="list-style-type: none"> Safety boots
Tools and equipment may include but not limited to:	
<ul style="list-style-type: none"> Computer 	<ul style="list-style-type: none"> Data cable
Software repair tools may include but not limited to:	
<ul style="list-style-type: none"> Odin z3x Infinity 	<ul style="list-style-type: none"> Spider Volcano MS key

<p>Critical aspects applicable to these unit:</p> <ul style="list-style-type: none"> Demonstrate safe working practices at all times in accordance with OHS regulations. Repair / update mobile phone software using software repair tool as per the job requirement following standard procedures

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
<ul style="list-style-type: none"> Ethics and integrity Basic estimation and costing Basic mobile networks Types / brand of phones Phone specifications 	<ul style="list-style-type: none"> Communication skills Team work Negotiation Problem solving

<ul style="list-style-type: none">• Application software• Anti-virus• IOS (operating software)• Software diagnostic tool• Basic IT	
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Annexure:

1.1 National Competency Standards (NCS)

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.

1.2 Purpose of National Competency Standards

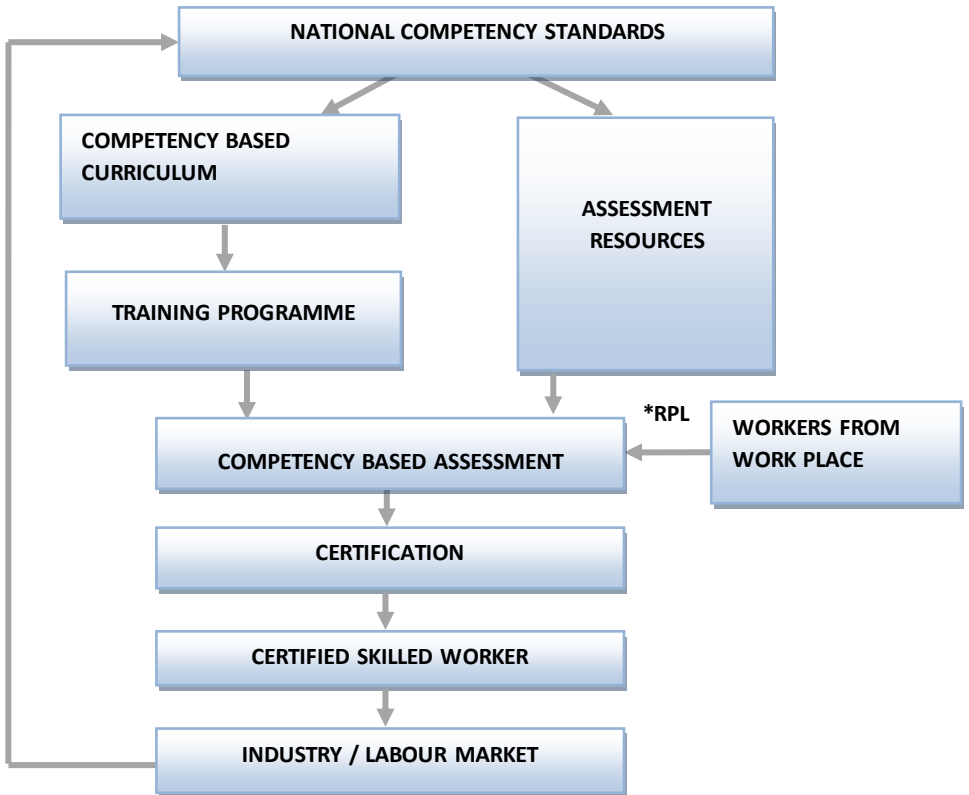
Competency Standards serve a number of purposes including:

- Providing advice to curriculum developers about the skill and knowledge to be included in curriculum.
- Providing specifications to assessment resource developers about the skill, knowledge and attitudes 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.

1.3 Bhutan Vocational Qualifications Framework (BVQF)

Bhutan Vocational Qualifications Framework is an agreed system of Assessing, Certifying and Monitoring nationally recognized qualifications for all learning in the VET sector against national standards, in training institutions, in the workplace, in schools or anywhere where learning takes place.

Components of the Bhutan Vocational Qualification Framework (BVQF)



* RPL = Recognition of Prior Learning

1.4 BVQF Levels

The Bhutan Vocational Qualifications Framework has three levels classified based on the competency of the skilled workers. The three levels are:

- National Certificate Level 3 (NC 3) -Master Craftsman
- National Certificate Level 2 (NC 2) -Craftsman
- National Certificate Level 1 (NC 1) -Semi Skilled Worker

BVQF Level Descriptors

The qualification levels are decided based on level descriptors. The detail of the qualification level descriptor is as follows:

National Certificate Level 1 (Semi skilled)

Carry out processes that:	Learning demand:	Responsibilities Which are applied:
<ul style="list-style-type: none">• Are narrow in range.• Are established and familiar.• Offer a clear choice of routine responses.• Involve some prioritizing of tasks from known solutions.	<ul style="list-style-type: none">• Basic operational knowledge and skill.• Utilization of basic available information.• Known solutions to familiar problems.• Little generation of new ideas.	<ul style="list-style-type: none">• In directed activity.• Under general supervision and quality control.• With some responsibility for quantity and quality.• With no responsibility for guiding others.

National Certificate Level 2 (Craftsman)

Carry out processes that:	Learning demand:	Responsibilities which are applied:
<ul style="list-style-type: none"> • Require a range of well-developed skills. • Offer a significant choice of procedures requiring prioritization. • Are employed within a range of familiar context. 	<ul style="list-style-type: none"> • Some relevant theoretical knowledge. • Interpretation of available information. • Discretion and judgment. • A range of known responses to familiar problems 	<ul style="list-style-type: none"> • In directed activity with some autonomy. • Under general supervision and quality checking. • With significant responsibility for the quantity and quality of output. • With some possible responsibility for the output of others.

National Certificate Level 3 (Master Craftsman)

Carry out processes that:	Learning demand:	Responsibilities which are applied:
<ul style="list-style-type: none"> • Requires a wide range of technical or scholastic skills. • Offer a considerable choice of procedures requiring prioritization to achieve optimum outcomes. • Are employed in a variety of familiar and unfamiliar contexts. 	<ul style="list-style-type: none"> • A broad knowledge base which incorporates some theoretical concepts. • Analytical interpretation of information. • Informed judgment. • A range of sometimes innovative responses to concrete but often unfamiliar problems. 	<ul style="list-style-type: none"> • In self-directed activity. • Under broad guidance and evaluation. • With complete responsibility for quantity and quality of output. • With possible responsibility for the output of others.

1.5 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 practises. 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 unit competency standard is to identify the level in qualification package to which it belongs.

While packaging, in order to follow a logical order, only 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 packages.

1.6 ASSESSMENT GUIDE

Form of assessments

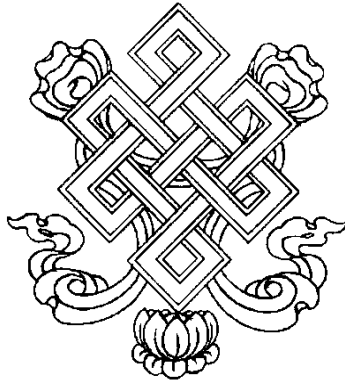
- Continuous assessment together with collected evidence of performance will be used.
- Evidence of the performance shall be based on practical demonstration.
- Knowledge can be assessed through diagrams, in writing or orally (viva-voce).

Assessment context

- Competency may be assessed in the actual work place or in a simulated workplace setting.

Assessment condition

- The candidate shall have access to all required tools, equipment, materials and documents.
- Candidate must complete the assessment in industry accepted time frame.



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