

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR ELECTRONICS INDUSTRY

What are Occupational Standards(OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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Introduction

Qualifications Pack- DTH Set-top Box Installer and Service Technician

SECTOR: ELECTRONICS

SUB-SECTOR: COMMUNICATION & BROADCASTING

OCCUPATION: AFTER SALES SERVICE

REFERENCE ID: ELE/Q8101

ALIGNED TO: NCO-2004/7243.45

DTH Set-top Box Installer and Service Technician: DTH Set-top box technician installs set-top boxes and provides after sales service for Direct to Home (DTH) system.

Brief Job Description: The individual at work installs the set-top box at customer's premises; addresses the field serviceable complaints and coordinates with the technical team for activation of new connections.

Personal Attributes: The individual must be willing to work in the field and travel through the day from one customer's premise to another. Punctuality, amenable behaviour, patience, good interpersonal relationship building, trustworthiness, integrity, and critical thinking are important attributes for this job.

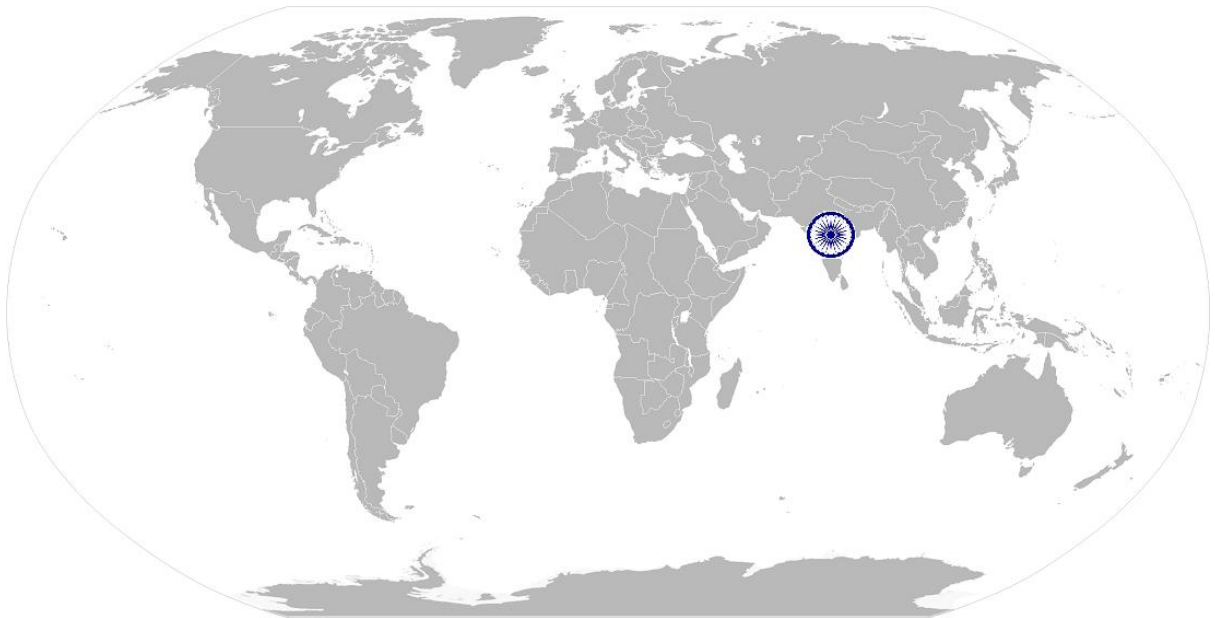
Job Details	Qualifications Pack Code	ELE/Q8101		
	Job Role	DTH Set-top-box Installer and Service Technician		
	Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
	Sector	Electronics	Drafted on	19/07/13
	Sub-sector	Communication & Broadcasting	Last reviewed on	24/03/14
	Occupation	After Sales Service	Next review date	24/03/15

Job Role	DTH Set-top-box Installer and Service Technician
Role Description	Installing set-top box of DTH type at client's site, addressing complaints, providing field service, coordinating with technical team for activating new connections
NVEQF/NVQF level	4
Minimum Educational Qualifications*	8 th passed
Maximum Educational Qualifications*	ITI/Diploma (Electronics, Electrical)
Training	Not Applicable
Experience	2 years as helper for 8 th /9 th standard passed
Applicable National Occupational Standards (NOS)	<p>Compulsory:</p> <ol style="list-style-type: none"> ELE/N8105 Install and repair DTH set-top box ELE/N8102 Comprehend customer's requirement ELE/N9951 Interact with other employees <p>Optional: Not applicable</p>
Performance Criteria	As described in the relevant OS units

ELE/N8105

Install and repair DTH set top box

National Occupational Standard



Overview

This unit is about installing DTH set top box at customer's place and to addressing service related complaints.

ELE/N8105

Install and repair DTH set top box

National Occupational Standard

Unit Code	ELE/N8105
Unit Title (Task)	Install and repair DTH set top box
Description	This unit is about installing set top box of DTH type at client's site, addressing service complaints and completing documentation
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> Collect the customer's site details and carry necessary equipment and products Install the set top box (DTH) at customer's site Provide field service and resolve faults in case of complaint Collect documents and forms filled by customer as per company's policy Achieve productivity and quality targets as prescribed by company
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Collecting customer details and carrying necessary equipment and products	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. understand the work order and site details of the customer from the superior and customer</p> <p>PC2. coordinate with stores department to collect the set box and other components or tools required for installation or servicing such as drilling machine, satellite meter, multi-meter</p>
Installing DTH Set Top Box	<p>To be competent, the user/ individual must be able to:</p> <p>PC3. identify the location for installing the Dish Antenna (LNB) as per the specific requirements in case of DTH</p> <p>PC4. drill and fix dish antenna (LNB)</p> <p>PC5. align it correctly using the satellite meter</p> <p>PC6. install set top box and check signal strength</p> <p>PC7. connect set top box with TV</p> <p>PC8. connect home theatre System with TV/ STB via HDMI, Audio/ Video/ Svideo/ SPDIF, etc.</p>
Servicing and resolving faults	<p>To be competent, the user/ individual must be able to:</p> <p>PC9. identify the fault responsible for unsatisfactory/interrupted service by checking wire, signal strength, connectors, set top box</p> <p>PC10. check the AC Mains output with the help of multi-meter and check the external power supply (Adaptor DC Output)</p> <p>PC11. rectify the problem and resume uninterrupted service to the satisfaction of client</p> <p>PC12. fill in the technical report of the fault found in the defective set top box and send to the L2 service centre where it will be repaired</p>
Completing documentation	<p>To be competent, the user/ individual must be able to:</p> <p>PC13. maintain opening and closing documents for collection of material and testing devices from the stores</p> <p>PC14. collect necessary forms such as Customer Registration and Program Authentication Form and submit to relevant departments in the company</p>

ELE/N8105

Install and repair DTH set top box

	PC15. collect customer identity (ID) proof and Customer feedback form
Achieving productivity, quality and safety standards	To be competent, the user/ individual must be able to: PC16. achieve 100% installation and servicing as allotted PC17. rectify customer complaint at first visit itself PC18. ensure zero repetitive complaints PC19. ensure 100% complaints resolution PC20. minimize material consumed for resolving the complaint/fault PC21. carry out the work as per standards specified for the quality PC22. follow the safety standards as per company's policy PC23. ensure 100% functioning of the set top box such as Transponder, Signal Strength, Audio and Video quality, and Remote control
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand: KA1. company's quality policies/ vision on: Customer Handling, TAT (Turnaround Time), Commitment KA2. organization structure and process of other departments of importance KA3. importance of the individual's role in the organization KA4. reporting structure KA5. profiling of customers KA6. installation and activation policy KA7. service model of the company
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. basics of Geo stationery satellite and Other Communication Satellite KB2. azimuth, elevation and polarisation KB3. spectrum utilization KB4. optimum signal strength/ signal quality for good reception KB5. basics of input/output functions and block diagram of the set top box KB6. functions of the set top box and remote control KB7. structure of cable, parameters and the implications on signal KB8. basic functioning of tuners KB9. functioning of Low Noise Block Down Converter (LNBC) KB10. basics of digital signals and difference in analogue and digital KB11. transmission of television signals and functioning of television sets KB12. specifications of different kind of inputs available on TV sets such as RF, AV, RGB, VGA, USB and HDMI KB13. digital signal processing chain including CAS and SMS KB14. frequently occurring faults, causes and solutions KB15. safety standards and practices to be followed while using power connection, stair to climb, first aid KB16. Quality of Service (QoS) and End of Line (EOL) parameters and optimum range as specified by IS13420 KB17. parameters for digital signals, viz., MER, BER, C/N, CTV and CSO and proper

ELE/N8105

Install and repair DTH set top box

	<p>recording of these for future reference</p> <p>KB18. output ports of all types of set top boxes and input/ output ports of compatible products such as LCD/ LED TV, Projectors, PCs</p> <p>KB19. connectivity of STB via additional device/ PC</p> <p>KB20. safety precautions to be followed while using set top box by customer</p>
Skills (S)	
<p>A. Core Skills/ Generic Skills</p>	<p>Basic reading and writing skills</p>
	<p>The individual on the job needs to know and understand:</p> <p>SA1. how to read warnings, instructions and other text material on product labels, and components</p> <p>SA2. how to read job sheet and complaints</p> <p>SA3. how to read product operating manuals</p> <p>SA4. how to operate computers and software installed</p> <p>SA5. how to read and understand electrical and electronic symbols, multiples and SI units</p>
	<p>Documentation skills</p>
	<p>The individual on the job needs to know and understand:</p> <p>SA6. how to document completion note for customer</p> <p>SA7. how to record completion information in the ERP system</p>
<p>B. Professional Skills</p>	<p>Communication skills</p>
	<p>The individual on the job needs to know and understand:</p> <p>SB1. how to interact with customer to understand the problem faced</p> <p>SB2. how to market and sell accessories and products of the company</p> <p>SB3. importance of communicating in language</p> <p>SB4. precautions and etiquette while dealing with customer</p> <p>SB5. be polite, patient and punctual</p>
	<p>Using tools and machines</p>
	<p>The individual on the job needs to know and understand:</p> <p>SB6. to use hand tools such as lead tester, spanner, cutter, etc.</p> <p>SB7. to operate machines/meters such as drilling machine, angle meter, satellite meter, etc.</p>
	<p>Critical thinking</p>
<p>The individual on the job needs to know and understand:</p> <p>SB8. to match symptoms of the fault noticed to the cause of the problem</p> <p>SB9. anticipate and avoid hazards that may occur during repairs because of tools, materials used or repair processes</p>	

ELE/N8105

Install and repair DTH set top box

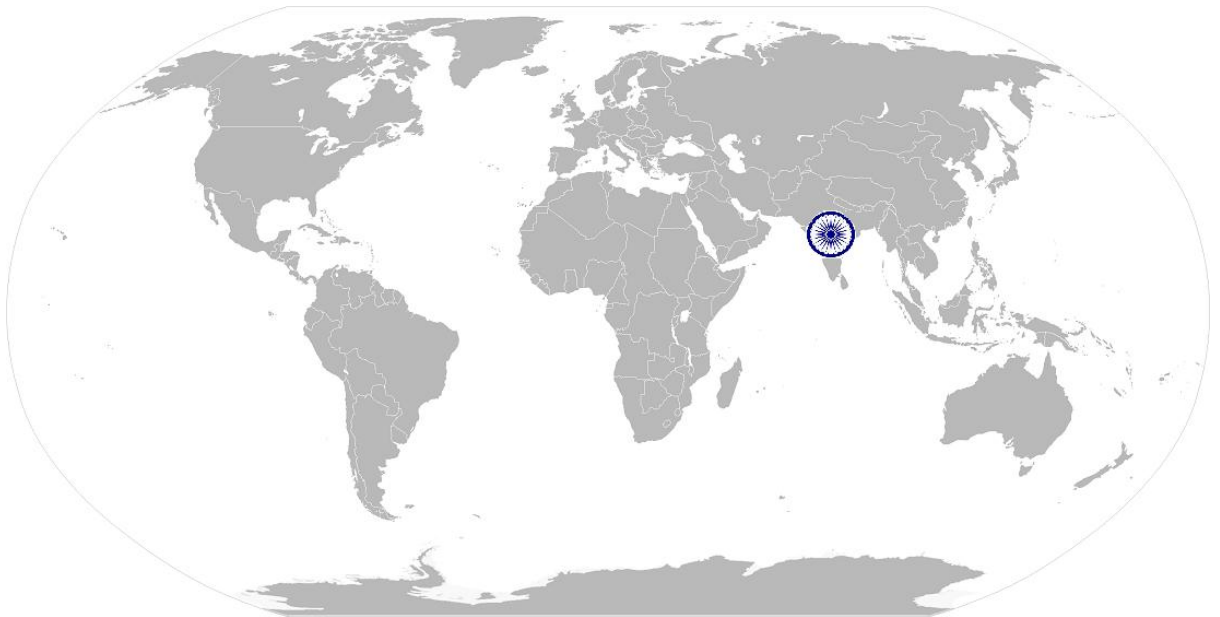
NOS Version Control

NOS Code	ELE/N8105		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Electronics	Drafted on	19/07/13
Industry Sub-sector	Communication & Broadcasting	Last reviewed on	24/03/14
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ELE/N8102

Comprehend customer's requirement

National Occupational Standard



Engage customerOverview

This unit is about interacting with customers to understand their service requirements.

ELE/N8102

Comprehend customer's requirement

Unit Code	ELE/N8102
Unit Title (Task)	Comprehend customer's requirement
Description	This OS unit is about interacting with customer to understand their requirement with respect to problem in the appliance
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> Interact with the customer prior to visit Interact with customer at their premises Suggest possible solutions to customer Achieve productivity and quality as per company's norms
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Interacting with customer prior to visit	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. check customer complaint registered at customer care or installation schedule</p> <p>PC2. call customer to confirm problem and fix time for visit</p> <p>PC3. greet the customer and confirm the problem registered</p> <p>PC4. be polite and patient when interacting with customer</p> <p>PC5. check about warranty status of appliance and annual maintenance contract</p> <p>PC6. anticipate possible problems to carry tools and parts accordingly</p> <p>PC7. ascertain customer location in order to make the route plan for the day</p>
Interacting with customer at their premises	<p>To be competent, the user/ individual must be able to:</p> <p>PC8. enquire about the symptoms and history of problems in the appliance</p> <p>PC9. ask about the age of appliance and status of upkeep</p> <p>PC10. identify the problem based on customer's information</p> <p>PC11. communicate the problems identified and educate on possible reasons</p> <p>PC12. inform about costs involved</p>
Suggesting solutions to customer	<p>To be competent, the user/ individual must be able to:</p> <p>PC13. discuss the problem(s) identified with customer</p> <p>PC14. suggest possible solutions and costs involved</p> <p>PC15. explain the time required and methodology for servicing necessary</p> <p>PC16. seek customer's approval on further action</p>
Achieving productivity and quality	<p>To be competent, the user/ individual must be able to:</p> <p>PC17. accurately assess the problem and solution(s) necessary</p> <p>PC18. offer most appropriate and cost-effective service as per customer's requirement</p>

ELE/N8102

Comprehend customer requirement

	<p>PC19. communicate problem effectively in order to secure customer's confidence</p> <p>PC20. ensure customer satisfaction and positive feedback</p> <p>PC21. record minimum customer complaints post service</p> <p>PC22. avoid repeat problem post service</p> <p>PC23. prepare most optimum route plan to complete daily target visits</p>
Knowledge and Understanding (K)	
B. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on: customer care</p> <p>KA2. company's code of conduct</p> <p>KA3. organisation culture and typical customer profile</p> <p>KA4. company's reporting structure</p> <p>KA5. company's documentation policy</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. company's products and recurring problems reported in consumer appliances</p> <p>KB2. how to communicate with customers in order to put them at ease</p> <p>KB3. basic electrical and mechanical modules of various products</p> <p>KB4. electronics involved in the type of product</p> <p>KB5. models of different appliances and their common and distinguishing features</p> <p>KB6. etiquette to be followed at customer's premises</p> <p>KB7. precautions to be taken while handling field calls and dealing with customers</p> <p>KB8. relevant reference sheets, manuals and documents to carry in the field</p>
Skills (S)	
C. Core Skills/ Generic Skills	Reading and writing skills
	<p>The individual on the job needs to know and understand:</p> <p>SA1. how to read product and module serial numbers and interpret details such as make, date, availability</p> <p>SA2. how to note problems on job sheet and details of work done</p>
D. Professional Skills	Interpersonal skills
	<p>The individual on the job needs to know and understand how:</p> <p>SB1. to put customer at ease and generate customer's confidence</p> <p>SB2. to listen carefully and interpret their statement of symptoms</p>
	Communication skills
	<p>The individual on the job needs to know and understand how:</p> <p>SB3. to seek inputs at assess the problems</p> <p>SB4. how to communicate in local language</p> <p>SB5. how to educate and inform customer about contractual issues such as warranty, cost of service and module replacement</p> <p>SB6. to educate on precautions to be taken post repairs to avoid recurrence of problem</p>

ELE/N8102

Comprehend customer requirement

	Behavioural skills
	<p>The individual on the job needs to know and understand:</p> <p>SB7. importance of personal grooming</p> <p>SB8. significance of etiquette such as maintaining the appropriate physical distance with customer during conversation, not entering bedroom without permission</p> <p>SB9. importance of being patient and courteous with all types of customers</p> <p>SB10. being polite and courteous under all circumstances</p> <p>SB11. importance of maintaining clean surface/work area</p>
	Decision making skills
	<p>SB12. decide on the spot on whether interaction of customer with supervisor is necessary or not</p> <p>SB13. when to call customer care and close the call after work is done to customer's satisfaction and documentation is complete</p>

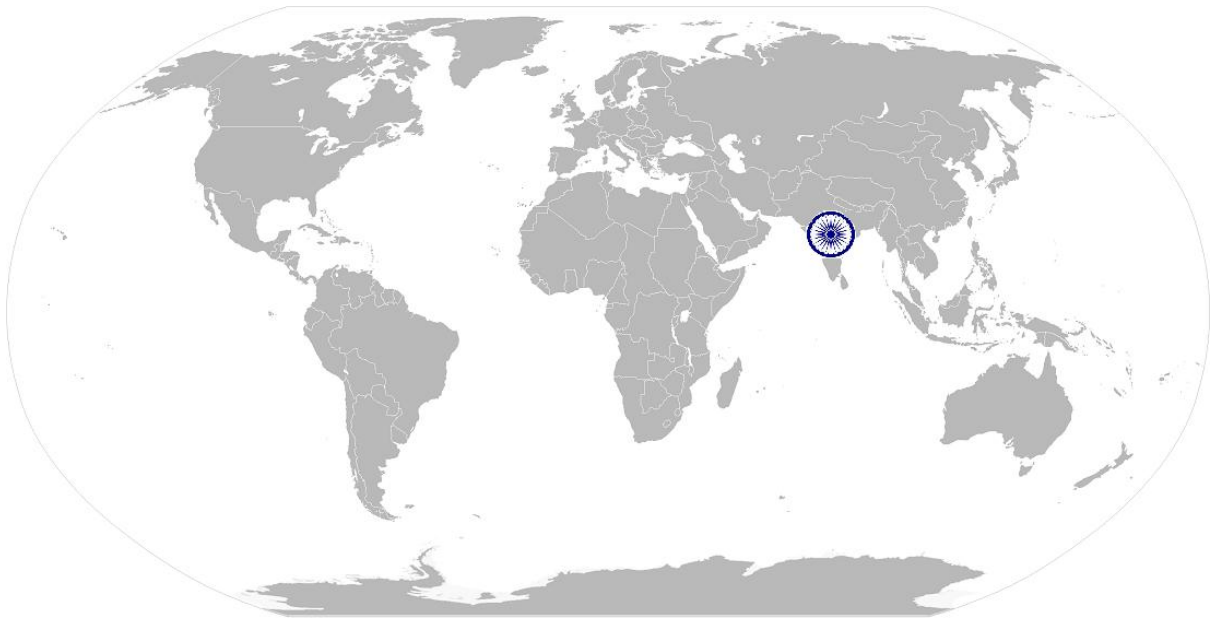
ELE/N8102

Comprehend customer requirement

NOS Version Control

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Industry	Electronics	Drafted on	19/07/13
Industry Sub-sector	Communication & Broadcasting	Last reviewed on	24/03/14
		Next review date	24/03/15

National Occupational Standard



Overview

This unit is about the individual's level of communication with co employees and other departments within the organisation. It determines the ability to work as a team member to achieve the required deliverables on schedule.

ELE/N9951

Interact with other employees

National Occupational Standard

Unit Code	ELE/N9951
Unit Title (Task)	Interact with other employees
Description	This OS unit is about communicating with colleagues and seniors in order to achieve smooth work flow
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> Interact with supervisor or superior Coordinate with colleagues
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Interacting with supervisor	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. understand work requirements, targets and incentives</p> <p>PC2. report problems identified in the field</p> <p>PC3. escalate customer concerns that cannot be handled on field</p> <p>PC4. resolve personnel issues</p> <p>PC5. receive feedback on work standards and customer satisfaction</p> <p>PC6. communicate any potential hazards at a particular location</p> <p>PC7. meet given targets</p> <p>PC8. deliver work of expected quality despite constraints</p> <p>PC9. have feedback from a happy and satisfied customer</p>
Interacting with colleagues	<p>To be competent, the user/ individual must be able to:</p> <p>PC10. resolve inter-personnel conflicts and achieve smooth workflow</p> <p>PC11. receive spares from tool room or stores</p> <p>PC12. deposit faulty modules and tools to stores</p> <p>PC13. pass on customer complaints to colleagues in a respective geographical area</p> <p>PC14. assist colleagues with resolving field problems</p> <p>PC15. clearly demarcate roles of each team member</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on: incentives, delivery standards, and personnel management</p> <p>KA2. importance of the individual's role in the workflow</p> <p>KA3. reporting structure</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. how to communicate effectively</p> <p>KB2. how to build team coordination</p>

ELE/N9951

Interact with other employees

Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Teamwork and multitasking
	The individual on the job needs to know and understand how: SA1. to deliver product to next work process on time
B. Professional Skills	Decision making
	The individual on the job needs to know and understand: SB1. how to report potential areas of disruptions to work process SB2. when to report to supervisor and when to deal with a colleague depending on the type of concern
	Reflective thinking
	The individual on the job needs to know and understand: SB3. how to improve work process
	Critical thinking
	The individual on the job needs to know and understand: SB4. how to spot process disruptions and delays

Interact with other employees

NOS Version Control

NOS Code	ELE/N9951		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Electronics	Drafted on	19/07/13
Industry Sub-sector	Communication & Broadcasting	Last reviewed on	24/03/14
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Definitions

Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or an area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Sub-function	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance criteria are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (OS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding	Knowledge and understanding are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.

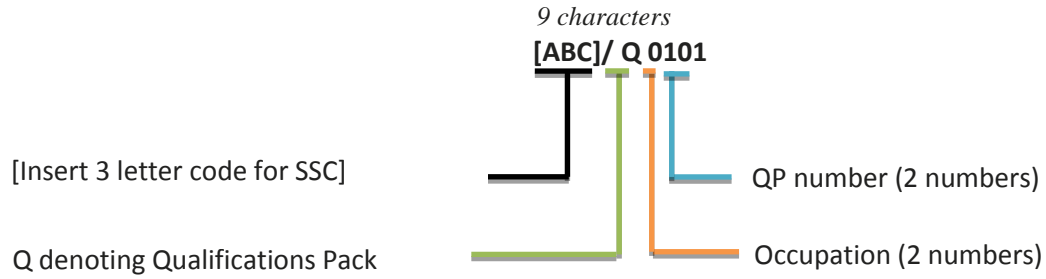
Acronyms

Core Skills/ Generic Skills	Core skills or generic skills are a group of skills that are the key to learning and working in today’s world. These skills are typically needed in any work environment in today’s world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Keywords /Terms	Description
AC	Alternating current
BER	Bit Error rate
DAS	Digital Addressable System
DC	Direct current
DTH	Direct to home
HDMI	High definition multimedia interface
LNBC	Low Noise block down converter
MER	Modulation error ratio
NOS	National Occupational Standard(s)
NSQF	National Qualifications Framework
NVEQF	National Vocational Education Qualifications Framework
NVQF	National Vocational Qualifications Framework
QP	Qualifications Pack
RF	Radio frequency
STB	Set top box
USB	Universal serial bus
VGA	Video Graphics Array

Annexure

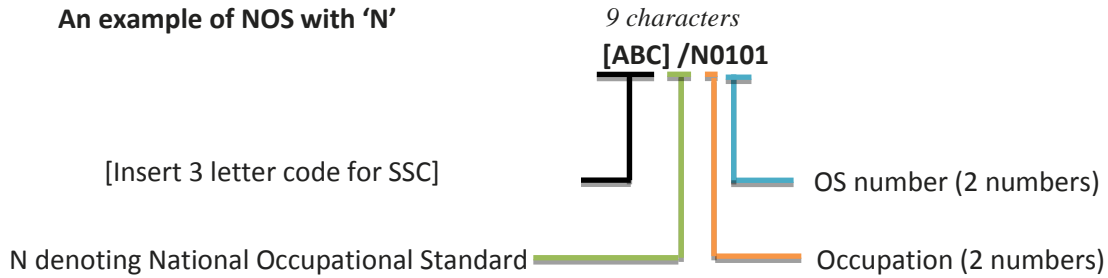
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



The following acronyms/codes have been used in the nomenclature above:

Sub-sector	Range of Occupation numbers
Passive Components	01 - 10
Semiconductors	11 - 20
PCB Manufacturing	21 - 30
Consumer Electronics	31 - 40
IT Hardware	41 - 50
PCB Assembly	51 - 55
Solar Electronics	56 - 60
Strategic Electronics	61 - 65
Automotive Electronics	66 - 70
Industrial Electronics	71 - 75
Medical Electronics	76 - 80
Communication Electronics	81 - 85
PCB Design	86 - 90
LED	91 - 95

Sequence	Description	Example
Three letters	Industry name	ELE
Slash	/	/
Next letter	Whether QP or NOS	Q
Next two numbers	Occupation code	01
Next two numbers	OS number	01