

## Qualification Pack



# Industrial Automation Specialist

QP Code: IAS/Q8005

Version: 5.0

NSQF Level: 5

Instrumentation, Automation, Surveillance & Communication Sector Skill Council || IASC SSC, 201-202,  
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## Qualification Pack

### Contents

IAS/Q8005: Industrial Automation Specialist .....	3
<i>Brief Job Description</i> .....	3
Applicable National Occupational Standards (NOS) .....	3
<i>Compulsory NOS</i> .....	3
<i>Qualification Pack (QP) Parameters</i> .....	3
IAS/N2000: Design and Assemble Automation System .....	5
IAS/N2001: Technical Support for installation and commissioning of control panel .....	16
IAS/N2002: Coordination with Different Stakeholders .....	24
IAS/N9002: Health and safety in workplace .....	34
DGT/VSQ/N0102: Employability Skills (60 Hours) .....	42
Assessment Guidelines and Weightage .....	49
<i>Assessment Guidelines</i> .....	49
<i>Assessment Weightage</i> .....	50
Acronyms .....	51
Glossary .....	52

## Qualification Pack

### IAS/Q8005: Industrial Automation Specialist

#### Brief Job Description

The individual must have interdisciplinary aptitude, pay attention to details, does logical thinking and has ability to work within the factory and customer sites in a team environment and under deadlines.

#### Personal Attributes

Key attributes for Aircraft Powerplant Technician would include good communication skills, excellent written communication skills and good interpersonal skills with a keen eye for details.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [IAS/N2000: Design and Assemble Automation System](#)
2. [IAS/N2001: Technical Support for installation and commissioning of control panel](#)
3. [IAS/N2002: Coordination with Different Stakeholders](#)
4. [IAS/N9002: Health and safety in workplace](#)
5. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Instrumentation
<b>Sub-Sector</b>	Instrumentation & Automation
<b>Occupation</b>	Product Engineering/System Design
<b>Country</b>	India
<b>NSQF Level</b>	5
<b>Credits</b>	19
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/ NIL

## Qualification Pack

<b>Minimum Educational Qualification &amp; Experience</b>	10th Class (+ 3 Years Engineering diploma in relevant field) OR 10th Class ( + 2 year NTC/NAC) with 1 Year of experience relevant field OR Completed 1st year of 3-year diploma (after 10th) and pursuing regular diploma (or Pursuing 2nd Year in relevant field (after 12th / 2 years NTC)) OR Completed 1st year of UG (UG Certificate) (or Pursuing 2nd year of BE/B-Tech in relevant field)
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	21 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	25/06/2025
<b>NSQC Approval Date</b>	25/06/2020
<b>Version</b>	5.0
<b>Reference code on NQR</b>	2022/AUT/IASC/06500
<b>NQR Version</b>	5

## Qualification Pack

# IAS/N2000: Design and Assemble Automation System

## Description

This OS unit is about capturing user requirements, designing the system and testing it to conform to the user specifications.

## Scope

The scope covers the following :

- The systems include components of different types: electrical components, electronic assemblies, instrumentation and sensors electro-mechanical, pneumatic and hydraulic components, wiring, Control Panels, PLCs, SCADA, communication components and associated software. This unit/ task covers the following:
  1. Capturing the industry process
  2. Capturing user requirements and specifications
  3. Assist in deciding on deliverables and timelines
  4. Designing and developing control system application.
  5. Testing the system developed.
  6. Achieving quality and productivity standards

## Elements and Performance Criteria

### *Capture the industry process*

To be competent, the user/individual on the job must be able to:

- PC1.** Understand and capture the general value chain of the end user industry
- PC2.** Understand and capture the manufacturing process/system in the end user industry
- PC3.** Understand and capture the equipment used in different stages of the process
- PC4.** Understand and capture the critical stages in the process
- PC5.** Explain about the possible automation in the existing processes and global trends in automation

### *Capture user requirements and specifications*

To be competent, the user/individual on the job must be able to:

- PC6.** Capture the client requirement at broad level from the proposal
- PC7.** Plan for a site visit to capture detailed requirements
- PC8.** Capture the process flow involved and the critical stages in the process during site visit
- PC9.** Deduce the safety aspect required in the critical stages of the process
- PC10.** Capture the industrial and infrastructure process involved and the integration requirement of the processes
- PC11.** Discuss with client and Capture the automation requirement in the control system
- PC12.** Capture the purpose for automation and explain to the user about the possible outcomes
- PC13.** Collect the details of the equipment installed or to be installed

## Qualification Pack

- PC14.** Collect the requirement specification if already prepared by the user and clarify on technical aspects
- PC15.** Suggest globally practised and accepted automation systems if the user is not aware of the technical specifications
- PC16.** Capture the sub systems that are involved in the process
- PC17.** Capture sensors and actuators requirement.
- PC18.** Collect information on process logic
- PC19.** Collect information for operator station screens
- PC20.** Probe the user by asking multiple questions to have clarity on the user requirement
- PC21.** Summarize the user requirement specifications and confirm with the client on their understanding

### *Assist in deciding on deliverables and timelines*

To be competent, the user/individual on the job must be able to:

- PC22.** Decide on whether the system can be developed as per the user requirement
- PC23.** Support the project manager in calculating the time required for each stage to ensure completion of project
- PC24.** Assist in preparing the work plan with deliverables and timelines
- PC25.** Explain the expected output to the user

### *Design and develop control system application*

To be competent, the user/individual on the job must be able to:

- PC26.** Develop control system application as per user requirement by following the standard operating procedure (SOP) of the organization
- PC27.** Apply approved engineering concepts, processes and principles in developing the control panel application
- PC28.** Use organization approved software (system and application software) to develop the system
- PC29.** Identify the requirement of indications, switchgears and accessories
- PC30.** Develop the control circuit drawing
- PC31.** Prepare general arrangement diagram
- PC32.** Prepare wiring plans
- PC33.** Integrate the main process system with the sub-systems as per the user requirement (e.g., using communication protocol)
- PC34.** Ensure that safety aspect of the process is captured in the design plan
- PC35.** Send the designed panel diagram for review to the customer
- PC36.** Ensure timely resolution of issues arising during the application development process
- PC37.** Elevate any issues as soon as identified to reporting manager
- PC38.** Get concurrence on function design specifications
- PC39.** Program PLC as per FDF
- PC40.** Program SCADA Application
- PC41.** PLC-SCADA Communication
- PC42.** Complete the application development and get approval of the application developed from the customer engineer

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- PC43.** Calculate the number of days needed for commissioning of the panel at site
- PC44.** Create backup copies of all designs developed for control panel and store in a secure location
- PC45.** Document the usage of product (product manual) and store them for future references

### *Test the system developed*

To be competent, the user/individual on the job must be able to:

- PC46.** Locate field devices and their interface to PLC
- PC47.** Test the system in off line mode using simulator
- PC48.** Verify that the system conforms with all the user specifications during testing
- PC49.** Rework if there are any issues found and fix them
- PC50.** Test for integration of main system with the sub-systems (if applicable)
- PC51.** Send the test report for review to the customer
- PC52.** Perform Factory Acceptance Test (FAT)
- PC53.** Perform site acceptance test plan

### *Achieve quality and productivity standards*

To be competent, the user/individual on the job must be able to:

- PC54.** Ensure timely delivery of the control panel design as per agreed timeline
- PC55.** Ensure that total cost and man hours spent is as per the budget planned
- PC56.** Ensure compliance with relevant regulations, standards and codes of practices
- PC57.** Ensure compliance of the application with manufacturing requirements and process capabilities analysis of the organization
- PC58.** Ensure that the design conforms with normal safety standards
- PC59.** Develop reliable panels so that the system does not fail during the usage

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Companys code of conduct
- KU2.** Organization culture
- KU3.** Companys reporting structure
- KU4.** Companys documentation policy
- KU5.** Companys line of business and product offerings
- KU6.** Companys production policy
- KU7.** Departments involved with production
- KU8.** Quality and standards system followed in the company
- KU9.** Electrical, electronics and instrumentation
- KU10.** Basics of computers and human machine interface (HMI)
- KU11.** Standard operating procedure (SOP) of the organization for control panel development process
- KU12.** Basics of machine safety (including electrical) and normal safety processes

## Qualification Pack

- KU13.** Quality, standards and guidelines to be followed during design development
- KU14.** Control system module and technologies used in the automation process
- KU15.** PLC, DCS programming software
- KU16.** SCADA, HMI development software
- KU17.** Application software, installation and debugging
- KU18.** General arrangement drawing
- KU19.** Electrical load calculations
- KU20.** Piping and instrumentation diagram/drawing (P&ID)
- KU21.** Basics on industrial process involved (example: oil and gas, refinery, etc.) And the stages involved in the process
- KU22.** Basics on infrastructure process involved in the industry (example: water treatment plant, chilling units, etc.)
- KU23.** Safety aspects to be inbuilt in the control panel system as per the process requirement
- KU24.** Instrumentation used in the factory and its wiring concept
- KU25.** Electrical panel and wiring knowledge
- KU26.** Testing process and parameters involved in the testing
- KU27.** Electronics indicators, switchgears and panel accessories
- KU28.** Sources and methods for obtaining required technical information for the control panel being developed
- KU29.** IEC standards
- KU30.** Relevant regulations, standards and codes of practice and their implications on the panel
- KU31.** How to communicate with shop floor technicians in order to resolve any discrepancies during commissioning
- KU32.** Basic power systems, motor fundamentals, drive system fundamentals
- KU33.** Relevant documents and documentation procedures used in the process

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** Compose e mails, letters and other official documents clearly
- GS2.** Write user requirements
- GS3.** Write technical specifications
- GS4.** Write test reports
- GS5.** Write technical documentation
- GS6.** Write schedules and timelines
- GS7.** Read user requirements
- GS8.** Read technical specifications
- GS9.** Read standards and regulatory compliance documents
- GS10.** Read schedules and timelines
- GS11.** Read drawings



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- GS12.** Question customers appropriately in order to understand the application and the requirements
- GS13.** Discuss task lists, schedules, and work-loads with co-workers
- GS14.** Give clear directions to customers
- GS15.** Keep customers informed about progress
- GS16.** Avoid using jargon, slang or acronyms when communicating with a customer
- GS17.** Question customers appropriately in order to understand the nature of the problem and make a diagnosis
- GS18.** Report issues and problems to managers in clear terms
- GS19.** Make decisions pertaining to the scope of work
- GS20.** Make decisions pertaining to the appropriate solution to customer problem
- GS21.** Make decisions pertaining to readiness of the system for supply
- GS22.** Make decisions pertaining to readiness of customer site for installation
- GS23.** Make decisions pertaining to work around for a problem
- GS24.** Plan and organize project - including requirements, design and integration, testing, installation and commissioning, Customer Acceptance Test and customer feedback
- GS25.** Anticipate issues and have alternate strategy
- GS26.** Understand real needs of the customer and suggest most appropriate solution
- GS27.** Support customer when they need help
- GS28.** Make customer happy and make them want to work with the company
- GS29.** Manage relationships with customers who may be stressed, frustrated, confused, or angry
- GS30.** Build customer relationships and rapport which promotes two way business
- GS31.** Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s)
- GS32.** Deal with clients lacking the technical background to solve the problem on their behalf
- GS33.** Identify immediate or temporary solutions to resolve delays - and implement the proper solution when possible
- GS34.** Use the existing information to arrive at actionable decision points
- GS35.** Use the existing information for improving the customer satisfaction
- GS36.** Use the existing information to optimize solution and company business
- GS37.** Analyze problems and identify causes and possible solutions
- GS38.** Apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action
- GS39.** Anticipate problems, risks and opportunities and utilize these for mitigation and business optimization

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Capture the industry process</i>	<b>7</b>	<b>10</b>	-	-
<b>PC1.</b> Understand and capture the general value chain of the end user industry	1	2	-	-
<b>PC2.</b> Understand and capture the manufacturing process/system in the end user industry	2	2	-	-
<b>PC3.</b> Understand and capture the equipment used in different stages of the process	1	2	-	-
<b>PC4.</b> Understand and capture the critical stages in the process	1	2	-	-
<b>PC5.</b> Explain about the possible automation in the existing processes and global trends in automation	2	2	-	-
<i>Capture user requirements and specifications</i>	<b>28</b>	<b>47</b>	-	-
<b>PC6.</b> Capture the client requirement at broad level from the proposal	2	2	-	-
<b>PC7.</b> Plan for a site visit to capture detailed requirements	1	2	-	-
<b>PC8.</b> Capture the process flow involved and the critical stages in the process during site visit	1	3	-	-
<b>PC9.</b> Deduce the safety aspect required in the critical stages of the process	2	2	-	-
<b>PC10.</b> Capture the industrial and infrastructure process involved and the integration requirement of the processes	2	2	-	-
<b>PC11.</b> Discuss with client and Capture the automation requirement in the control system	2	3	-	-
<b>PC12.</b> Capture the purpose for automation and explain to the user about the possible outcomes	2	3	-	-
<b>PC13.</b> Collect the details of the equipment installed or to be installed	1	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC14.</b> Collect the requirement specification if already prepared by the user and clarify on technical aspects	1	3	-	-
<b>PC15.</b> Suggest globally practised and accepted automation systems if the user is not aware of the technical specifications	1	3	-	-
<b>PC16.</b> Capture the sub systems that are involved in the process	1	3	-	-
<b>PC17.</b> Capture sensors and actuators requirement.	2	3	-	-
<b>PC18.</b> Collect information on process logic	2	3	-	-
<b>PC19.</b> Collect information for operator station screens	2	3	-	-
<b>PC20.</b> Probe the user by asking multiple questions to have clarity on the user requirement	2	3	-	-
<b>PC21.</b> Summarize the user requirement specifications and confirm with the client on their understanding	4	6	-	-
<i>Assist in deciding on deliverables and timelines</i>	<b>5</b>	<b>10</b>	-	-
<b>PC22.</b> Decide on whether the system can be developed as per the user requirement	2	3	-	-
<b>PC23.</b> Support the project manager in calculating the time required for each stage to ensure completion of project	1	3	-	-
<b>PC24.</b> Assist in preparing the work plan with deliverables and timelines	1	1	-	-
<b>PC25.</b> Explain the expected output to the user	1	3	-	-
<i>Design and develop control system application</i>	<b>50</b>	<b>77</b>	-	-
<b>PC26.</b> Develop control system application as per user requirement by following the standard operating procedure (SOP) of the organization	2	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC27.</b> Apply approved engineering concepts, processes and principles in developing the control panel application	2	3	-	-
<b>PC28.</b> Use organization approved software (system and application software) to develop the system	1	3	-	-
<b>PC29.</b> Identify the requirement of indications, switchgears and accessories	2	3	-	-
<b>PC30.</b> Develop the control circuit drawing	4	6	-	-
<b>PC31.</b> Prepare general arrangement diagram	2	3	-	-
<b>PC32.</b> Prepare wiring plans	2	3	-	-
<b>PC33.</b> Integrate the main process system with the sub-systems as per the user requirement (e.g., using communication protocol)	2	3	-	-
<b>PC34.</b> Ensure that safety aspect of the process is captured in the design plan	2	3	-	-
<b>PC35.</b> Send the designed panel diagram for review to the customer	2	2	-	-
<b>PC36.</b> Ensure timely resolution of issues arising during the application development process	1	3	-	-
<b>PC37.</b> Elevate any issues as soon as identified to reporting manager	1	2	-	-
<b>PC38.</b> Get concurrence on function design specifications	1	1	-	-
<b>PC39.</b> Program PLC as per FDF	4	6	-	-
<b>PC40.</b> Program SCADA Application	4	6	-	-
<b>PC41.</b> PLC-SCADA Communication	4	6	-	-
<b>PC42.</b> Complete the application development and get approval of the application developed from the customer engineer	4	6	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC43.</b> Calculate the number of days needed for commissioning of the panel at site	4	6	-	-
<b>PC44.</b> Create backup copies of all designs developed for control panel and store in a secure location	4	6	-	-
<b>PC45.</b> Document the usage of product (product manual) and store them for future references	2	3	-	-
<i>Test the system developed</i>	<b>14</b>	<b>20</b>	-	-
<b>PC46.</b> Locate field devices and their interface to PLC	4	6	-	-
<b>PC47.</b> Test the system in off line mode using simulator	1	2	-	-
<b>PC48.</b> Verify that the system conforms with all the user specifications during testing	2	2	-	-
<b>PC49.</b> Rework if there are any issues found and fix them	1	2	-	-
<b>PC50.</b> Test for integration of main system with the sub-systems (if applicable)	1	3	-	-
<b>PC51.</b> Send the test report for review to the customer	1	2	-	-
<b>PC52.</b> Perform Factory Acceptance Test (FAT)	2	2	-	-
<b>PC53.</b> Perform site acceptance test plan	2	1	-	-
<i>Achieve quality and productivity standards</i>	<b>11</b>	<b>21</b>	-	-
<b>PC54.</b> Ensure timely delivery of the control panel design as per agreed timeline	1	3	-	-
<b>PC55.</b> Ensure that total cost and man hours spent is as per the budget planned	1	3	-	-
<b>PC56.</b> Ensure compliance with relevant regulations, standards and codes of practices	1	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC57.</b> Ensure compliance of the application with manufacturing requirements and process capabilities analysis of the organization	4	6	-	-
<b>PC58.</b> Ensure that the design conforms with normal safety standards	2	3	-	-
<b>PC59.</b> Develop reliable panels so that the system does not fail during the usage	2	3	-	-
<b>NOS Total</b>	<b>115</b>	<b>185</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	IAS/N2000
<b>NOS Name</b>	Design and Assemble Automation System
<b>Sector</b>	Instrumentation
<b>Sub-Sector</b>	Instrumentation & Automation
<b>Occupation</b>	Product Engineering/System Design
<b>NSQF Level</b>	5
<b>Credits</b>	5
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	25/06/2025
<b>NSQC Clearance Date</b>	25/06/2020

## Qualification Pack

# IAS/N2001: Technical Support for installation and commissioning of control panel

## Description

This OS unit is about providing Technical Support for commissioning and installing the control panel at the project site identified and ensuring its integration with the customer system and proper operation

## Scope

The scope covers the following :

- This unit/ task covers the following: Capturing work requirement Providing Technical Support for installation and commissioning Rectifying identified errors Achieving productivity, quality and safety standards as per company's norms

## Elements and Performance Criteria

### *Capture work requirement*

To be competent, the user/individual on the job must be able to:

- PC1.** Interact with the customer in order to understand and capture the site requirements, readiness and commissioning time schedule
- PC2.** Plan the commissioning activities in consultation with the installation and commissioning team, based on customers requirements
- PC3.** Understand the design drawing and clarify doubts/issues before going to the site
- PC4.** Use prescribed drawings, job instructions or work manuals
- PC5.** Check availability of panel and tools required for installation
- PC6.** Check availability of resources at customer site

### *Provide Technical Support for Installation and Commissioning*

To be competent, the user/individual on the job must be able to:

- PC7.** Ensure adequacy of working space, access and maintenance facilities at the site
- PC8.** Supervise technicians to visually check the internal panel wiring and ensure that it is in accordance with the design drawing
- PC9.** Carry out insulation check of internal panel wiring and devices within the panel
- PC10.** Ensure that all devices in the panel are dirt free and the packaging has been completely removed
- PC11.** Check if batteries and chargers have been assembled in accordance with the manufacturers recommended procedures
- PC12.** Prepare the work sites test report and document for future use
- PC13.** Ensure required tools for technicians to carry out the commissioning process
- PC14.** Identify the conductors size and capacity for installation
- PC15.** Ensure that the panel is positioned as prescribed, following safety norms



## Qualification Pack

- PC16.** Supervise technicians to connect with attention to socket outlets, switches and protective conductors
- PC17.** Perform settings as per customer requirements on the equipment in each of the panels
- PC18.** Test all control system interlocks
- PC19.** Check each digital control point by comparing the command at the control panel and status of the device that it controls
- PC20.** Ensure that fuses, switches and other protective devices are labelled correctly
- PC21.** Instruct to follow grounding and earthing procedures while commissioning
- PC22.** Instruct to put up danger and warning notices, if necessary
- PC23.** Ensure to follow company approved standard procedures by technicians in erection and commissioning process
- PC24.** Test continuity, insulation resistance, functions of all devices, etc., after completion of installation
- PC25.** Assist technicians for commissioning control panel
- PC26.** Assist the customer in any tests to carry out on the installed panel
- PC27.** Use the wiring diagram accurately to meet the specifications
- PC28.** Ensure that applicable local electrical codes and standards are used

### *Rectify identified errors*

To be competent, the user/individual on the job must be able to:

- PC29.** Give technical support immediately to the technicians to rectify any errors identified
- PC30.** Report defective material or inadequate numbers to seniors
- PC31.** Check the physical condition of the instruments
- PC32.** Report about inadequate quantity of consumables such as connectors, screws, nuts, etc.

### *Achieve productivity, quality and safety standards as per company's norms*

To be competent, the user/individual on the job must be able to:

- PC33.** Achieve 100% work schedule as planned for the week
- PC34.** Meet 100% daily or monthly target
- PC35.** Achieve zero errors in commissioning as per company policy
- PC36.** Achieve zero component damage
- PC37.** Keep work area clean and organized
- PC38.** Identify problems and alert in time
- PC39.** Achieve 100% compliance with health and safety guidelines and rules

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Company's policies on: incentives, delivery standards and personnel management, customer management
- KU2.** Reporting and documentation processes
- KU3.** Importance of the individual's role in the workflow

## Qualification Pack

- KU4.** Reporting structure
- KU5.** Electrical, electronics and instrumentation
- KU6.** Electro-mechanical assembly and wiring instructions
- KU7.** General principles of wiring and assembly
- KU8.** Generation, transmission and distribution principles of electricity
- KU9.** Automation and electro mechanical control systems
- KU10.** Operation of PLCs, relays, contactors, circuit breakers, solenoids, actuators, controllers etc.
- KU11.** Motors, generators, starters and their controls
- KU12.** Safety norms in handling electrical/electronic components and electrostatic discharge
- KU13.** Customer safety requirements and other applicable safety standards
- KU14.** Fundamentals of electricity such as Ohms law, difference between AC and DC, series and parallel connections
- KU15.** Specific safety precautions while working in an electronic assembly unit
- KU16.** Protective gear such as helmets, goggles, gloves, rubber shoes, etc.
- KU17.** Selection and maintenance of various tools used during the installation process
- KU18.** Frequently occurring errors, causes and preventive measures

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** Compose e mails, letters and other official documents clearly
- GS2.** Write site requirements
- GS3.** Write acceptance test reports
- GS4.** Write / modify technical documentation
- GS5.** Write schedules and timelines
- GS6.** Write issues, problems and resolutions
- GS7.** Read user requirements
- GS8.** Read technical specifications
- GS9.** Read standards and regulatory compliance documents
- GS10.** Read schedules and timelines
- GS11.** Read drawings
- GS12.** Question customers in order to understand the site requirements and readiness
- GS13.** Discuss task lists, schedules, and work-loads with co-workers
- GS14.** Give clear directions to customers
- GS15.** Keep customers informed about progress
- GS16.** Avoid using jargon, slang or acronyms when communicating with a customer
- GS17.** Question customers appropriately in order to understand the nature of the problem and make a diagnosis
- GS18.** Report issues and problems to managers in clear terms

## Qualification Pack

- GS19.** Make decisions pertaining to the scope of work
- GS20.** Make decisions pertaining to the appropriate solution to customer problem
- GS21.** Make decisions pertaining to readiness of the system for supply
- GS22.** Make decisions pertaining to readiness of customer site for installation
- GS23.** Make decisions pertaining to work around for a problem
- GS24.** Plan and organize installation and commissioning, Customer Acceptance Test and customer feedback
- GS25.** Anticipate issues and have alternate strategy
- GS26.** Understand real needs of the customer and suggest most appropriate solution
- GS27.** Support customer when they need help
- GS28.** Make customer happy and make them want to work with the company
- GS29.** Manage relationships with customers who may be stressed, frustrated, confused, or angry
- GS30.** Build customer relationships and rapport which promotes two way business
- GS31.** Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s)
- GS32.** Deal with clients lacking the technical background to solve the problem on their behalf
- GS33.** Identify immediate or temporary solutions to resolve delays - and implement the proper solution when possible
- GS34.** Use the existing information to arrive at actionable decision points
- GS35.** Use the existing information for improving the customer satisfaction
- GS36.** Use the existing information to optimize solution and company business
- GS37.** Analyze problems and identify causes and possible solutions
- GS38.** Apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action
- GS39.** Anticipate problems, risks and opportunities and utilize these for mitigation and business optimization

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Capture work requirement</i>	<b>10</b>	<b>12</b>	-	-
<b>PC1.</b> Interact with the customer in order to understand and capture the site requirements, readiness and commissioning time schedule	2	3	-	-
<b>PC2.</b> Plan the commissioning activities in consultation with the installation and commissioning team, based on customers requirements	2	2	-	-
<b>PC3.</b> Understand the design drawing and clarify doubts/issues before going to the site	2	3	-	-
<b>PC4.</b> Use prescribed drawings, job instructions or work manuals	2	2	-	-
<b>PC5.</b> Check availability of panel and tools required for installation	1	1	-	-
<b>PC6.</b> Check availability of resources at customer site	1	1	-	-
<i>Provide Technical Support for Installation and Commissioning</i>	<b>41</b>	<b>91</b>	-	-
<b>PC7.</b> Ensure adequacy of working space, access and maintenance facilities at the site	4	6	-	-
<b>PC8.</b> Supervise technicians to visually check the internal panel wiring and ensure that it is in accordance with the design drawing	1	4	-	-
<b>PC9.</b> Carry out insulation check of internal panel wiring and devices within the panel	1	2	-	-
<b>PC10.</b> Ensure that all devices in the panel are dirt free and the packaging has been completely removed	2	3	-	-
<b>PC11.</b> Check if batteries and chargers have been assembled in accordance with the manufacturers recommended procedures	1	4	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> Prepare the work sites test report and document for future use	1	2	-	-
<b>PC13.</b> Ensure required tools for technicians to carry out the commissioning process	2	3	-	-
<b>PC14.</b> Identify the conductors size and capacity for installation	1	1	-	-
<b>PC15.</b> Ensure that the panel is positioned as prescribed, following safety norms	1	3	-	-
<b>PC16.</b> Supervise technicians to connect with attention to socket outlets, switches and protective conductors	1	4	-	-
<b>PC17.</b> Perform settings as per customer requirements on the equipment in each of the panels	3	7	-	-
<b>PC18.</b> Test all control system interlocks	4	6	-	-
<b>PC19.</b> Check each digital control point by comparing the command at the control panel and status of the device that it controls	1	4	-	-
<b>PC20.</b> Ensure that fuses, switches and other protective devices are labelled correctly	1	2	-	-
<b>PC21.</b> Instruct to follow grounding and earthing procedures while commissioning	1	1	-	-
<b>PC22.</b> Instruct to put up danger and warning notices, if necessary	1	4	-	-
<b>PC23.</b> Ensure to follow company approved standard procedures by technicians in erection and commissioning process	3	7	-	-
<b>PC24.</b> Test continuity, insulation resistance, functions of all devices, etc., after completion of installation	2	3	-	-
<b>PC25.</b> Assist technicians for commissioning control panel	3	7	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC26.</b> Assist the customer in any tests to carry out on the installed panel	3	7	-	-
<b>PC27.</b> Use the wiring diagram accurately to meet the specifications	1	4	-	-
<b>PC28.</b> Ensure that applicable local electrical codes and standards are use	3	7	-	-
<i>Rectify identified errors</i>	<b>6</b>	<b>16</b>	-	-
<b>PC29.</b> Give technical support immediately to the technicians to rectify any errors identified	1	4	-	-
<b>PC30.</b> Report defective material or inadequate numbers to seniors	3	7	-	-
<b>PC31.</b> Check the physical condition of the instruments	1	2	-	-
<b>PC32.</b> Report about inadequate quantity of consumables such as connectors, screws, nuts, etc.	1	3	-	-
<i>Achieve productivity, quality and safety standards as per company's norms</i>	<b>8</b>	<b>16</b>	-	-
<b>PC33.</b> Achieve 100% work schedule as planned for the week	1	2	-	-
<b>PC34.</b> Meet 100% daily or monthly target	1	2	-	-
<b>PC35.</b> Achieve zero errors in commissioning as per company policy	1	4	-	-
<b>PC36.</b> Achieve zero component damage	1	2	-	-
<b>PC37.</b> Keep work area clean and organized	1	2	-	-
<b>PC38.</b> Identify problems and alert in time	1	2	-	-
<b>PC39.</b> Achieve 100% compliance with health and safety guidelines and rules	2	2	-	-
<b>NOS Total</b>	<b>65</b>	<b>135</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	IAS/N2001
<b>NOS Name</b>	Technical Support for installation and commissioning of control panel
<b>Sector</b>	Instrumentation
<b>Sub-Sector</b>	Instrumentation & Automation
<b>Occupation</b>	Product Engineering/System Design
<b>NSQF Level</b>	5
<b>Credits</b>	6
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	25/06/2025
<b>NSQC Clearance Date</b>	25/06/2020

## Qualification Pack

### IAS/N2002: Coordination with Different Stakeholders

#### Description

This OS unit is about Coordination with stakeholders inside and outside the organization to achieve smooth workflow and customer satisfaction. The stakeholders are client teams and vendors and within the organization - sales, purchase, fabrication, testing, installation, support departments/groups, colleagues and seniors.

#### Scope

The scope covers the following :

- This unit/ task covers the following: Interacting with client teams to understand the needs Coordinating with the Sales team and Project Manager, if any, to have a clear understanding of scope, deliverables, cost, and timelines. Coordinating with other vendors involved in the client project and ensuring that the scopes and interfaces match Coordinating with other teams and departments in the organization such as Purchase, Mechanical, Hydraulic, Electrical, Electronic, Assembly, Testing, Support, and Software Coordinating with vendors and subcontractors selected for the fulfillment of the order Communicating with colleagues and supervisor for timely and quality execution

#### Elements and Performance Criteria

##### *Interact with ClientTeams*

To be competent, the user/individual on the job must be able to:

- PC1.** Listen to client stakeholders and understand their needs. Note conflicting needs of different stakeholders, if any.
- PC2.** Ask questions to clarify points and make sure that there are no significant unknowns about the requirements and the application
- PC3.** Identify different solution options that meet client needs and present these options to the client with pros and cons.
- PC4.** Get client preference for the solution
- PC5.** Enquire about other vendors involved in the project and ensure their scope and interfaces are compatible with the proposed solution
- PC6.** Develop detailed design of the solution, cost and time (in consultation with internal teams) and present this to the client stakeholders
- PC7.** Finalize ordering in coordination with the sales team
- PC8.** Finalize specifications of the User Acceptance test with the client
- PC9.** Prepare Project Plan and share with the client
- PC10.** Inform client about site requirements and ensure that it is understood and accepted
- PC11.** Coordinate with the client about site readiness
- PC12.** Coordinate installation and commissioning of the solution at site
- PC13.** Demonstrate the system performance at the site and get client report of acceptance



## Qualification Pack

**PC14.** Maintain communication with the client about usability and other issues and provide timely resolution. Obtain feedback and ensure positive outlook

### *Coordinate with SalesTeam*

To be competent, the user/individual on the job must be able to:

**PC15.** Understand the client account, the organization goals and high level needs of the client from the frontline sales team

**PC16.** Identify and meet important stakeholders in the client organization

**PC17.** Discuss different solution options that meet client needs with pros and cons

**PC18.** Provide the technical specifications and the cost/time estimates to the sales team to help them make client proposal

**PC19.** Assist the sales team to win the order, by making presentations and with supporting data and documentation

**PC20.** Study the purchase order in detail and make sure that this is in line with the proposal. Point out any discrepancies and resolve

**PC21.** Prepare Specifications and Project Plan and share with the sales team

**PC22.** Keep sales team informed about system performance at the site and client report of acceptance

**PC23.** Share client feedback and resolve issues if any

**PC24.** Coordinate with the sales team about service contract and AMC

### *Coordinate with other Teams and Departments in the Organization*

To be competent, the user/individual on the job must be able to:

**PC25.** Communicate and Coordinate with the Project Manager or any other manager if required, per organization structure and practices

**PC26.** Prepare detailed BOQ and share with the Purchase department to facilitate procurement

**PC27.** Coordinate with the Purchase department to finalize vendors and subcontractors

**PC28.** Share Project Specifications and Project Plan and with the concerned departments/ groups in the organization Purchase, Fabrication, Assembly, Software Development / Programming / Testing and Documentation etc.

**PC29.** Share site requirements with the Installation & Commissioning (I&C) team

**PC30.** Receive parts and spares from stores

**PC31.** Deposit unused material / faulty material / tools to stores

**PC32.** Coordinate with the Integration and Testing team for the factory inspection by client, if specified in the order

**PC33.** Coordinate factory inspection by the client, and follow up rectifications of shortcomings, if any

**PC34.** Coordinate installation and commissioning of the system after receipt confirmed at site.

**PC35.** Coordinate with I&C team for system performance test at the site.

**PC36.** Coordinate with I&C team for the user training.

**PC37.** Share client feedback with all teams and resolve issues if any

### *Coordinate with Vendors and Subcontractors*

To be competent, the user/individual on the job must be able to:

## Qualification Pack

- PC38.** Explain the specifications, scope and timelines of the parts/services to vendors and subcontractors and ensure that they understand and accept
- PC39.** Guide / assist the vendors technically as required to ensure quality and timely delivery
- PC40.** Inspect vendor / subcontractor facilities to ensure that they have the right expertise, infrastructure and capacity to deliver
- PC41.** Prepare alternate plans in consultation with procurement department for outsourced work
- PC42.** Perform intermediate and pre-dispatch tests at vendor premises, if required.
- PC43.** Support vendors to deliver quality products and services in time.

### *Coordinate with Colleagues*

To be competent, the user/individual on the job must be able to:

- PC44.** Have clearly defined responsibilities and backup plans for all team members
- PC45.** Share plans, deliverables and expectations with concerned team members
- PC46.** Have regular team meetings to share progress, issues and resolutions
- PC47.** Share and celebrate team success
- PC48.** Help new members to settle down and perform
- PC49.** Support team members in delivering performance
- PC50.** Resolve inter-personnel conflicts and achieve smooth workflow
- PC51.** Pass on customer complaints to colleagues in respective geographical area
- PC52.** Share knowledge and experience gained through every day work

### *Communicate with Supervisor / Manager*

To be competent, the user/individual on the job must be able to:

- PC53.** Communicate and Coordinate with the Project Manager or any other manager if required, per organization structure and practices.
- PC54.** Report problems identified in the field
- PC55.** Escalate customer concerns that are not being handled properly in the field
- PC56.** Resolve personnel issues
- PC57.** Receive feedback on work standards and customer satisfaction
- PC58.** Communicate any potential hazards at a particular location
- PC59.** Deliver work of expected quality despite constraints
- PC60.** Provide feedback to seniors about a happy or dissatisfied customer

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Company's policies on: incentives, delivery standards, and personnel management
- KU2.** Importance of the individual's role in the workflow
- KU3.** Reporting structure
- KU4.** How to communicate effectively using the organization specified tools and methods
- KU5.** How to build team coordination for installation, commissioning and customer support
- KU6.** To deliver product to next work process on time

## Qualification Pack

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** Compose e mails, letters, memos, reminders, schedules and other team documents clearly
- GS2.** Share issues, problems and resolutions
- GS3.** Share knowledge and information with team mates
- GS4.** Read mails, messages, alerts, schedules and timelines
- GS5.** Read pictures, drawings, notes relating to site and teamwork
- GS6.** Question co-workers in order to understand the needs and issues
- GS7.** Discuss task lists, schedules, and work-loads with co-workers
- GS8.** Give clear directions and solutions to co-workers
- GS9.** Keep co-workers informed about progress
- GS10.** Report issues and problems to co-workers and managers in clear terms
- GS11.** Make decisions pertaining to role of self and co-workers, in line with company policies
- GS12.** Make decisions pertaining to the appropriate solution to customer problem in discussion with co-workers
- GS13.** Plan and organize installation and commissioning, Customer Acceptance Test and customer feedback involving co-workers
- GS14.** Discuss issues and have alternate strategy with co-workers
- GS15.** Discuss customer needs with co-workers and identify most appropriate solution
- GS16.** Discuss problems with co-workers, evaluate the possible solution(s) and arrive at optimum /best possible solution(s)
- GS17.** Discuss immediate or temporary solutions with co-workers to resolve delays
- GS18.** Discuss use the available information with co-workers to arrive at actionable decision points
- GS19.** Analyze problems in team and identify causes and possible solutions
- GS20.** Collaborate with co-workers to analyses , and evaluate the information gathered from collective observation, experience, reasoning, or communication, as a guide to teamwork

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Interact with ClientTeams</i>	<b>26</b>	<b>40</b>	-	-
<b>PC1.</b> Listen to client stakeholders and understand their needs. Note conflicting needs of different stakeholders, if any.	2	3	-	-
<b>PC2.</b> Ask questions to clarify points and make sure that there are no significant unknowns about the requirements and the application	2	3	-	-
<b>PC3.</b> Identify different solution options that meet client needs and present these options to the client with pros and cons.	4	4	-	-
<b>PC4.</b> Get client preference for the solution	1	2	-	-
<b>PC5.</b> Enquire about other vendors involved in the project and ensure their scope and interfaces are compatible with the proposed solution	1	2	-	-
<b>PC6.</b> Develop detailed design of the solution, cost and time (in consultation with internal teams) and present this to the client stakeholders	4	6	-	-
<b>PC7.</b> Finalize ordering in coordination with the sales team	1	2	-	-
<b>PC8.</b> Finalize specifications of the User Acceptance test with the client	2	3	-	-
<b>PC9.</b> Prepare Project Plan and share with the client	2	3	-	-
<b>PC10.</b> Inform client about site requirements and ensure that it is understood and accepted	1	2	-	-
<b>PC11.</b> Coordinate with the client about site readiness	2	3	-	-
<b>PC12.</b> Coordinate installation and commissioning of the solution at site	2	3	-	-
<b>PC13.</b> Demonstrate the system performance at the site and get client report of acceptance	1	2	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC14.</b> Maintain communication with the client about usability and other issues and provide timely resolution. Obtain feedback and ensure positive outlook	1	2	-	-
<i>Coordinate with SalesTeam</i>	<b>20</b>	<b>30</b>	-	-
<b>PC15.</b> Understand the client account, the organization goals and high level needs of the client from the frontline sales team	2	3	-	-
<b>PC16.</b> Identify and meet important stakeholders in the client organization	1	2	-	-
<b>PC17.</b> Discuss different solution options that meet client needs with pros and cons	2	3	-	-
<b>PC18.</b> Provide the technical specifications and the cost/time estimates to the sales team to help them make client proposal	3	3	-	-
<b>PC19.</b> Assist the sales team to win the order, by making presentations and with supporting data and documentation	4	6	-	-
<b>PC20.</b> Study the purchase order in detail and make sure that this is in line with the proposal. Point out any discrepancies and resolve	2	3	-	-
<b>PC21.</b> Prepare Specifications and Project Plan and share with the sales team	1	2	-	-
<b>PC22.</b> Keep sales team informed about system performance at the site and client report of acceptance	1	2	-	-
<b>PC23.</b> Share client feedback and resolve issues if any	2	3	-	-
<b>PC24.</b> Coordinate with the sales team about service contract and AMC	2	3	-	-
<i>Coordinate with other Teams and Departments in the Organization</i>	<b>23</b>	<b>37</b>	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC25.</b> Communicate and Coordinate with the Project Manager or any other manager if required, per organization structure and practices	2	3	-	-
<b>PC26.</b> Prepare detailed BOQ and share with the Purchase department to facilitate procurement	2	3	-	-
<b>PC27.</b> Coordinate with the Purchase department to finalize vendors and subcontractors	2	3	-	-
<b>PC28.</b> Share Project Specifications and Project Plan and with the concerned departments/ groups in the organization Purchase, Fabrication, Assembly, Software Development / Programming / Testing and Documentation etc.	2	4	-	-
<b>PC29.</b> Share site requirements with the Installation & Commissioning (I&C) team	1	2	-	-
<b>PC30.</b> Receive parts and spares from stores	1	2	-	-
<b>PC31.</b> Deposit unused material / faulty material / tools to stores	1	2	-	-
<b>PC32.</b> Coordinate with the Integration and Testing team for the factory inspection by client, if specified in the order	2	3	-	-
<b>PC33.</b> Coordinate factory inspection by the client, and follow up rectifications of shortcomings, if any	2	3	-	-
<b>PC34.</b> Coordinate installation and commissioning of the system after receipt confirmed at site.	2	3	-	-
<b>PC35.</b> Coordinate with I&C team for system performance test at the site.	2	3	-	-
<b>PC36.</b> Coordinate with I&C team for the user training.	2	3	-	-
<b>PC37.</b> Share client feedback with all teams and resolve issues if any	2	3	-	-
<i>Coordinate with Vendors and Subcontractors</i>	<b>12</b>	<b>18</b>	-	-

**Qualification Pack**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC38.</b> Explain the specifications, scope and timelines of the parts/services to vendors and subcontractors and ensure that they understand and accept	2	3	-	-
<b>PC39.</b> Guide / assist the vendors technically as required to ensure quality and timely delivery	2	3	-	-
<b>PC40.</b> Inspect vendor / subcontractor facilities to ensure that they have the right expertise, infrastructure and capacity to deliver	2	3	-	-
<b>PC41.</b> Prepare alternate plans in consultation with procurement department for outsourced work	2	3	-	-
<b>PC42.</b> Perform intermediate and pre-dispatch tests at vendor premises, if required.	2	3	-	-
<b>PC43.</b> Support vendors to deliver quality products and services in time.	2	3	-	-
<i>Coordinate with Colleagues</i>	<b>15</b>	<b>24</b>	-	-
<b>PC44.</b> Have clearly defined responsibilities and backup plans for all team members	2	3	-	-
<b>PC45.</b> Share plans, deliverables and expectations with concerned team members	2	3	-	-
<b>PC46.</b> Have regular team meetings to share progress, issues and resolutions	2	3	-	-
<b>PC47.</b> Share and celebrate team success	1	2	-	-
<b>PC48.</b> Help new members to settle down and perform	2	3	-	-
<b>PC49.</b> Support team members in delivering performance	1	2	-	-
<b>PC50.</b> Resolve inter-personnel conflicts and achieve smooth workflow	2	3	-	-
<b>PC51.</b> Pass on customer complaints to colleagues in respective geographical area	2	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC52.</b> Share knowledge and experience gained through every day work	1	2	-	-
<i>Communicate with Supervisor / Manager</i>	<b>16</b>	<b>24</b>	-	-
<b>PC53.</b> Communicate and Coordinate with the Project Manager or any other manager if required, per organization structure and practices.	2	3	-	-
<b>PC54.</b> Report problems identified in the field	2	3	-	-
<b>PC55.</b> Escalate customer concerns that are not being handled properly in the field	2	3	-	-
<b>PC56.</b> Resolve personnel issues	2	3	-	-
<b>PC57.</b> Receive feedback on work standards and customer satisfaction	2	3	-	-
<b>PC58.</b> Communicate any potential hazards at a particular location	2	3	-	-
<b>PC59.</b> Deliver work of expected quality despite constraints	2	3	-	-
<b>PC60.</b> Provide feedback to seniors about a happy or dissatisfied customer	2	3	-	-
<b>NOS Total</b>	<b>112</b>	<b>173</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	IAS/N2002
<b>NOS Name</b>	Coordination with Different Stakeholders
<b>Sector</b>	Instrumentation
<b>Sub-Sector</b>	Instrumentation & Automation
<b>Occupation</b>	Product Engineering/System Design
<b>NSQF Level</b>	5
<b>Credits</b>	3
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	25/06/2025
<b>NSQC Clearance Date</b>	25/06/2020

## Qualification Pack

### IAS/N9002: Health and safety in workplace

#### Description

This OS unit is about following adequate safety procedures to make work environment safe

#### Scope

The scope covers the following :

- Adhere to standard safety procedures of the company
- Maintain good health and posture
- Effective waste management/recycling practices
- Adopt learning and self-direction
- Develop system thinking in problem solving
- Material/Resources conservation practices

#### Elements and Performance Criteria

##### *Adhere to standard safety procedures of the company*

To be competent, the user/individual on the job must be able to:

- PC1.** comply with general safety procedures and those for handling an equipment, hazardous material or tool, followed in the company
- PC2.** remove finger rings or any other metal objects likely to interfere with the work before working on the unit
- PC3.** use of safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc.
- PC4.** escalate the issue about hazardous materials or things found in the premises or any breach of safety procedure in the company
- PC5.** ensure zero accidents at work
- PC6.** avoid damage of components due to negligence in ESD procedures or any other loss due to safety negligence
- PC7.** participate regularly in fire drills or other safety related workshops organised by the company

##### *Maintain good health and posture*

To be competent, the user/individual on the job must be able to:

- PC8.** maintain appropriate posture, especially in long hours of sitting or standing position and in handling heavy materials
- PC9.** participate in company organised health sessions such as yoga, physiotherapy or games
- PC10.** handle heavy and hazardous materials with care, while maintaining appropriate posture, using suitable tools and handling equipment such as trolleys, jacks and ladders

##### *Effective waste management/recycling practices*

To be competent, the user/individual on the job must be able to:

- PC11.** identify recyclable and non-recyclable, and hazardous waste generated to be segregated accordingly

## Qualification Pack

**PC12.** dispose non-recyclable waste and hazardous waste as per recommended processes

**PC13.** deposit recyclable and reusable material at identified location

### *Adopt learning and self-direction*

To be competent, the user/individual on the job must be able to:

**PC14.** understand importance of skill advancement and develop mastery

**PC15.** adapt product / service to meet success criteria

**PC16.** understand accountability for timely completion of tasks

**PC17.** manage to express emotions in appropriate ways at workplace and understand the cause for the emotions

### *Develop system thinking in problem solving*

To be competent, the user/individual on the job must be able to:

**PC18.** analyse the problem accurately and communicate different possible solutions to the problem

**PC19.** manage to estimate the cause of the problem and validate

### *Material/Resources conservation practices*

To be competent, the user/individual on the job must be able to:

**PC20.** identify ways to optimize usage of material including water and electricity / energy in various tasks/activities/processes

**PC21.** check for spills/leakages in various tasks/activities/processes and plug them or escalate to appropriate authority

**PC22.** carry out routine cleaning of tools, machines and equipment

**PC23.** check if the equipment/machine is functioning normally before commencing work and rectify wherever required and report malfunctioning (fumes/sparks/emission/vibration/noise) or any lapse in maintenance of equipment

**PC24.** ensure electrical equipment and appliances are properly connected and turned off when not in use

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** company's policies on incentives, delivery standards, and personnel management

**KU2.** company occupational safety and health policy

**KU3.** company emergency evacuation procedure

**KU4.** Company's medical policy

**KU5.** how to maintain the work area safe and secure

**KU6.** how to handle hazardous materials, tools and equipment

**KU7.** procedures to be followed during emergencies such as fire accidents, electrocution, etc.

**KU8.** long term value of good posture and use of appropriate handling equipment

**KU9.** electrical grounding practices

**KU10.** safety regulations and standards and how to apply these

**KU11.** common sources of pollution and ways to minimize it

## Qualification Pack

- KU12.** categorisation of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics
- KU13.** usage of different colours of dustbins
- KU14.** waste management and methods of waste disposal
- KU15.** organisation's procedures for minimizing mistakes
- KU16.** strategies pertinent to their field (such as internet searches, asking peers and managers, enrolling for courses and certifications, etc.) that can be used to pursue an advancement in their skills
- KU17.** one should be able to identify the key performance indicators for the new tasks
- KU18.** seek feedback from supervisor and deal in constructive manner
- KU19.** understand that emotions are accompanied by a physical state, thought and feeling
- KU20.** one should be able to interpret timelines and goals set by the manager and break them into sub-goals and tasks
- KU21.** importance of quality and timely delivery of the product/service
- KU22.** potential hazards, risks and threats based on the nature of work
- KU23.** ways of efficiently managing material and water in the process
- KU24.** layout of the workstation and electrical and thermal equipment used
- KU25.** efficient and inefficient utilization of material and water
- KU26.** basics of electricity and prevalent energy efficient devices
- KU27.** ways to recognize common electrical problems
- KU28.** common practices of conserving electricity

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** fill up appropriate forms, activity logs and attendance sheets as per organisation's format in English and/or local language
- GS2.** write basic accident or incident report as witnessed in appropriate format to relevant authority
- GS3.** read/listen and interpret information correctly from relevant instruction documents, manuals, health and safety instructions, memos, etc. applicable to the job, in English and/or local language
- GS4.** read relevant signage, warnings, labels or descriptions on equipment, etc. while carrying out work activities
- GS5.** question co-workers in order to understand the safety and health issues
- GS6.** inform co-workers about safety and health issues
- GS7.** report issues and problems relating to safety and health to managers in clear terms
- GS8.** make decisions pertaining to safety and health issues at workplace
- GS9.** plan and organise work conforming to the safety and health norms of the company
- GS10.** make decisions about escalating safety and health issues at workplace to managers

## Qualification Pack

- GS11.** discuss problems related to safety and health, evaluate the possible solution(s) and arrive at optimum /best possible solution(s) in consultation with concerned people
- GS12.** use the existing information to arrive at actionable decision points
- GS13.** use the existing information for improving customer satisfaction
- GS14.** use the existing information to optimise solution and company business
- GS15.** analyse problems and identify causes and possible solutions
- GS16.** apply, analyse and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action
- GS17.** anticipate problems, risks and opportunities and utilise these for mitigation and business optimisation
- GS18.** communicate with colleagues on the significance of greening of jobs
- GS19.** identify cause and effect of greening of jobs
- GS20.** record data on waste disposal at workplace
- GS21.** demonstrate commitment towards self, and initiative to advance skills levels by exploring various pathways to expand one's own learning
- GS22.** incorporate feedback into one's mental model of task, and bring it into practice
- GS23.** be punctual, utilize time and manage workload efficiently
- GS24.** evaluate strategies to maintain, enhance or reduce the intensity of heightened emotional response
- GS25.** test a hypothesis about the cause of the problem
- GS26.** identify and ask significant questions to clarify the various points of view on the problem to better understand the problem
- GS27.** record data on waste disposal at workplace
- GS28.** make timely decisions for efficient utilization of resources
- GS29.** complete statutory documents relevant to safety and hygiene
- GS30.** read Standard Operating Practices (SOP) documents
- GS31.** communicate with colleagues on the significance of greening of jobs
- GS32.** complete tasks efficiently and accurately within stipulated time
- GS33.** work with supervisors/team members to carry out work related tasks
- GS34.** identify cause and effect of greening of jobs

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Adhere to standard safety procedures of the company</i>	<b>13</b>	<b>12</b>	-	<b>5</b>
<b>PC1.</b> comply with general safety procedures and those for handling an equipment, hazardous material or tool, followed in the company	2	2	-	1
<b>PC2.</b> remove finger rings or any other metal objects likely to interfere with the work before working on the unit	2	4	-	-
<b>PC3.</b> use of safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc.	4	2	-	1
<b>PC4.</b> escalate the issue about hazardous materials or things found in the premises or any breach of safety procedure in the company	1	1	-	-
<b>PC5.</b> ensure zero accidents at work	1	1	-	1
<b>PC6.</b> avoid damage of components due to negligence in ESD procedures or any other loss due to safety negligence	1	1	-	1
<b>PC7.</b> participate regularly in fire drills or other safety related workshops organised by the company	2	1	-	1
<i>Maintain good health and posture</i>	<b>6</b>	<b>8</b>	-	<b>1</b>
<b>PC8.</b> maintain appropriate posture, especially in long hours of sitting or standing position and in handling heavy materials	2	3	-	1
<b>PC9.</b> participate in company organised health sessions such as yoga, physiotherapy or games	2	1	-	-
<b>PC10.</b> handle heavy and hazardous materials with care, while maintaining appropriate posture, using suitable tools and handling equipment such as trolleys, jacks and ladders	2	4	-	-
<i>Effective waste management/recycling practices</i>	<b>4</b>	<b>5</b>	-	<b>1</b>

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> identify recyclable and non-recyclable, and hazardous waste generated to be segregated accordingly	2	1	-	1
<b>PC12.</b> dispose non-recyclable waste and hazardous waste as per recommended processes	1	3	-	-
<b>PC13.</b> deposit recyclable and reusable material at identified location	1	1	-	-
<i>Adopt learning and self-direction</i>	<b>4</b>	<b>5</b>	-	<b>1</b>
<b>PC14.</b> understand importance of skill advancement and develop mastery	1	1	-	1
<b>PC15.</b> adapt product / service to meet success criteria	1	2	-	-
<b>PC16.</b> understand accountability for timely completion of tasks	1	1	-	-
<b>PC17.</b> manage to express emotions in appropriate ways at workplace and understand the cause for the emotions	1	1	-	-
<i>Develop system thinking in problem solving</i>	<b>2</b>	<b>2</b>	-	<b>1</b>
<b>PC18.</b> analyse the problem accurately and communicate different possible solutions to the problem	1	1	-	-
<b>PC19.</b> manage to estimate the cause of the problem and validate	1	1	-	1
<i>Material/Resources conservation practices</i>	<b>11</b>	<b>18</b>	-	<b>1</b>
<b>PC20.</b> identify ways to optimize usage of material including water and electricity / energy in various tasks/activities/processes	2	2	-	-
<b>PC21.</b> check for spills/leakages in various tasks/activities/processes and plug them or escalate to appropriate authority	1	2	-	-
<b>PC22.</b> carry out routine cleaning of tools, machines and equipment	3	6	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC23.</b> check if the equipment/machine is functioning normally before commencing work and rectify wherever required and report malfunctioning (fumes/sparks/emission/vibration/noise) or any lapse in maintenance of equipment	3	4	-	-
<b>PC24.</b> ensure electrical equipment and appliances are properly connected and turned off when not in use	2	4	-	1
<b>NOS Total</b>	<b>40</b>	<b>50</b>	<b>-</b>	<b>10</b>



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	IAS/N9002
<b>NOS Name</b>	Health and safety in workplace
<b>Sector</b>	Instrumentation
<b>Sub-Sector</b>	Instrumentation & Automation
<b>Occupation</b>	Generic
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	11/08/2025
<b>NSQC Clearance Date</b>	11/08/2020

## Qualification Pack

### DGT/VSQ/N0102: Employability Skills (60 Hours)

#### Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

#### Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

#### Elements and Performance Criteria

##### *Introduction to Employability Skills*

To be competent, the user/individual on the job must be able to:

- PC1.** identify employability skills required for jobs in various industries
- PC2.** identify and explore learning and employability portals

##### *Constitutional values - Citizenship*

To be competent, the user/individual on the job must be able to:

- PC3.** recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.
- PC4.** follow environmentally sustainable practices

##### *Becoming a Professional in the 21st Century*

To be competent, the user/individual on the job must be able to:

- PC5.** recognize the significance of 21st Century Skills for employment
- PC6.** practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

##### *Basic English Skills*

## Qualification Pack

To be competent, the user/individual on the job must be able to:

- PC7.** use basic English for everyday conversation in different contexts, in person and over the telephone
- PC8.** read and understand routine information, notes, instructions, mails, letters etc. written in English
- PC9.** write short messages, notes, letters, e-mails etc. in English

### *Career Development & Goal Setting*

To be competent, the user/individual on the job must be able to:

- PC10.** understand the difference between job and career
- PC11.** prepare a career development plan with short- and long-term goals, based on aptitude

### *Communication Skills*

To be competent, the user/individual on the job must be able to:

- PC12.** follow verbal and non-verbal communication etiquette and active listening techniques in various settings
- PC13.** work collaboratively with others in a team

### *Diversity & Inclusion*

To be competent, the user/individual on the job must be able to:

- PC14.** communicate and behave appropriately with all genders and PwD
- PC15.** escalate any issues related to sexual harassment at workplace according to POSH Act

### *Financial and Legal Literacy*

To be competent, the user/individual on the job must be able to:

- PC16.** select financial institutions, products and services as per requirement
- PC17.** carry out offline and online financial transactions, safely and securely
- PC18.** identify common components of salary and compute income, expenses, taxes, investments etc
- PC19.** identify relevant rights and laws and use legal aids to fight against legal exploitation

### *Essential Digital Skills*

To be competent, the user/individual on the job must be able to:

- PC20.** operate digital devices and carry out basic internet operations securely and safely
- PC21.** use e- mail and social media platforms and virtual collaboration tools to work effectively
- PC22.** use basic features of word processor, spreadsheets, and presentations

### *Entrepreneurship*

To be competent, the user/individual on the job must be able to:

- PC23.** identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research
- PC24.** develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion
- PC25.** identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

### *Customer Service*

To be competent, the user/individual on the job must be able to:

## Qualification Pack

**PC26.** identify different types of customers

**PC27.** identify and respond to customer requests and needs in a professional manner.

**PC28.** follow appropriate hygiene and grooming standards

*Getting ready for apprenticeship & Jobs*

To be competent, the user/individual on the job must be able to:

**PC29.** create a professional Curriculum vitae (Résumé)

**PC30.** search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

**PC31.** apply to identified job openings using offline /online methods as per requirement

**PC32.** answer questions politely, with clarity and confidence, during recruitment and selection

**PC33.** identify apprenticeship opportunities and register for it as per guidelines and requirements

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** need for employability skills and different learning and employability related portals

**KU2.** various constitutional and personal values

**KU3.** different environmentally sustainable practices and their importance

**KU4.** Twenty first (21st) century skills and their importance

**KU5.** how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

**KU6.** importance of career development and setting long- and short-term goals

**KU7.** about effective communication

**KU8.** POSH Act

**KU9.** Gender sensitivity and inclusivity

**KU10.** different types of financial institutes, products, and services

**KU11.** how to compute income and expenditure

**KU12.** importance of maintaining safety and security in offline and online financial transactions

**KU13.** different legal rights and laws

**KU14.** different types of digital devices and the procedure to operate them safely and securely

**KU15.** how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

**KU16.** how to identify business opportunities

**KU17.** types and needs of customers

**KU18.** how to apply for a job and prepare for an interview

**KU19.** apprenticeship scheme and the process of registering on apprenticeship portal

## Generic Skills (GS)

User/individual on the job needs to know how to:

## Qualification Pack

- GS1.** read and write different types of documents/instructions/correspondence
- GS2.** communicate effectively using appropriate language in formal and informal settings
- GS3.** behave politely and appropriately with all
- GS4.** how to work in a virtual mode
- GS5.** perform calculations efficiently
- GS6.** solve problems effectively
- GS7.** pay attention to details
- GS8.** manage time efficiently
- GS9.** maintain hygiene and sanitization to avoid infection

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	<b>1</b>	<b>1</b>	-	-
<b>PC1.</b> identify employability skills required for jobs in various industries	-	-	-	-
<b>PC2.</b> identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values - Citizenship</i>	<b>1</b>	<b>1</b>	-	-
<b>PC3.</b> recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
<b>PC4.</b> follow environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	<b>2</b>	<b>4</b>	-	-
<b>PC5.</b> recognize the significance of 21st Century Skills for employment	-	-	-	-
<b>PC6.</b> practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
<i>Basic English Skills</i>	<b>2</b>	<b>3</b>	-	-
<b>PC7.</b> use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
<b>PC8.</b> read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
<b>PC9.</b> write short messages, notes, letters, e-mails etc. in English	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Career Development &amp; Goal Setting</i>	<b>1</b>	<b>2</b>	-	-
<b>PC10.</b> understand the difference between job and career	-	-	-	-
<b>PC11.</b> prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	<b>2</b>	<b>2</b>	-	-
<b>PC12.</b> follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
<b>PC13.</b> work collaboratively with others in a team	-	-	-	-
<i>Diversity &amp; Inclusion</i>	<b>1</b>	<b>2</b>	-	-
<b>PC14.</b> communicate and behave appropriately with all genders and PwD	-	-	-	-
<b>PC15.</b> escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
<i>Financial and Legal Literacy</i>	<b>2</b>	<b>3</b>	-	-
<b>PC16.</b> select financial institutions, products and services as per requirement	-	-	-	-
<b>PC17.</b> carry out offline and online financial transactions, safely and securely	-	-	-	-
<b>PC18.</b> identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
<b>PC19.</b> identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
<i>Essential Digital Skills</i>	<b>3</b>	<b>4</b>	-	-
<b>PC20.</b> operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
<b>PC21.</b> use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC22.</b> use basic features of word processor, spreadsheets, and presentations	-	-	-	-
<i>Entrepreneurship</i>	<b>2</b>	<b>3</b>	-	-
<b>PC23.</b> identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
<b>PC24.</b> develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
<b>PC25.</b> identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
<i>Customer Service</i>	<b>1</b>	<b>2</b>	-	-
<b>PC26.</b> identify different types of customers	-	-	-	-
<b>PC27.</b> identify and respond to customer requests and needs in a professional manner.	-	-	-	-
<b>PC28.</b> follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship &amp; Jobs</i>	<b>2</b>	<b>3</b>	-	-
<b>PC29.</b> create a professional Curriculum vitae (Résumé)	-	-	-	-
<b>PC30.</b> search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
<b>PC31.</b> apply to identified job openings using offline /online methods as per requirement	-	-	-	-
<b>PC32.</b> answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
<b>PC33.</b> identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
<b>NOS Total</b>	<b>20</b>	<b>30</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	DGT/VSQ/N0102
<b>NOS Name</b>	Employability Skills (60 Hours)
<b>Sector</b>	Cross Sectoral
<b>Sub-Sector</b>	Professional Skills
<b>Occupation</b>	Employability
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	17/11/2025
<b>NSQC Clearance Date</b>	17/11/2022

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

### Minimum Aggregate Passing % at QP Level : 70

## Qualification Pack

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

### Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
IAS/N2000.Design and Assemble Automation System	115	185	-	-	300	20
IAS/N2001.Technical Support for installation and commissioning of control panel	65	135	-	-	200	25
IAS/N2002.Coordination with Different Stakeholders	112	173	-	-	285	35
IAS/N9002.Health and safety in workplace	40	50	-	10	100	10
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
<b>Total</b>	<b>352</b>	<b>573</b>	<b>-</b>	<b>10</b>	<b>935</b>	<b>100</b>

## Qualification Pack

### Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training

## Qualification Pack

### Glossary

<b>Sector</b>	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.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	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.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	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.
<b>Scope</b>	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.

## Qualification Pack

<b>Knowledge and Understanding (KU)</b>	Knowledge and Understanding (KU) 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.
<b>Organisational Context</b>	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.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	Core skills or Generic Skills (GS) 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.
<b>Electives</b>	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
<b>Options</b>	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.