



# Cabling Technician

QP Code: IAS/Q5603

Version: 1.0

NSQF Level: 4

Instrumentation, Automation, Surveillance & Communication Sector Skill Council || IASC SSC, 201-202,  
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## IAS/Q5603: Cabling Technician

### Brief Job Description

The Cabling Technician is a multi-skilled person who can plan and lay different types of cables and do the termination and interconnection work involved in diverse environments such as process plants, factory automation and building automation projects.

### Personal Attributes

This job requires the individual to be disciplined, pay attention to details, to have an interdisciplinary aptitude and ability to learn. The person should be willing to work for long hours to meet deadlines and be able to cope with pressure.

### Applicable National Occupational Standards (NOS)

#### Compulsory NOS:

1. [IAS/N5609: Plan, lay and connect/terminate different types of cables](#)
2. [IAS/N9001: Work effectively with teams](#)
3. [IAS/N9002: Health and safety in workplace](#)

### Qualification Pack (QP) Parameters

<b>Sector</b>	Instrumentation
<b>Sub-Sector</b>	Instrumentation & Automation
<b>Occupation</b>	Installation and Commissioning(Instrumentation and Automation)
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/NIL
<b>Minimum Educational Qualification &amp; Experience</b>	12th Class/I.T.I (Electronics/Electrician/Wireman) with NA of experience
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	NA

<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	22/04/2020
<b>Next Review Date</b>	22/04/2025
<b>Deactivation Date</b>	22/04/2025
<b>NSQC Approval Date</b>	
<b>Version</b>	1.0

## IAS/N5609: Plan, lay and connect/terminate different types of cables

### Description

This NOS unit is about planning, laying and performing termination and inter-connection of different types of cables as per the design, BoQ and the material provided.

### Scope

The scope covers the following :

- Perform preparatory work
- Lay conduits and pulling cables as per supplied drawings
- Perform termination and inter-connection for different types of cables

### Elements and Performance Criteria

#### *Perform preparatory work*

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

- PC1.** obtain all relevant documents related to cabling, wiring, connected equipment as well as plant layout and interpret the same
- PC2.** follow the wire colour codes as specified in drawings
- PC3.** verify whether concealed conduits exist and find out their route in the premises by reading the layout drawing and by physical verification in case of following types of cables: low voltage power cable, CCTV cable, copper/fibre LAN cable
- PC4.** prepare a plan for laying cable on the wall, if concealed conduit does not exist
- PC5.** prepare a plan for route instrumentation cable
- PC6.** estimate the quantity and type of cables, conduits, tools, electrical parts, testing devices and accessories required as per the requirement of the job and obtain the same from authorised sources
- PC7.** enlist the required lengths of raceways, cable trays, and conduits for each section of cabling
- PC8.** identify the position where conduiting needs to be done by referring to layout drawings and specifications
- PC9.** make drill holes for mounting brackets etc. in the supporting structure, for mounting the making cable trays, etc.
- PC10.** select and use appropriate personal protective equipment (PPE) suitable for the type of work specified and in line with health and safety guidelines PPE should include mats, gloves, rubber footwear, etc.

#### *Lay conduits and pulling cables as per supplied drawings*

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

- PC11.** install raceways, cable trays and conduits as per procedure and drawings for the wires/cables
- PC12.** run the cables through the conduits and raceways, along with earth wires if specified, as per approved drawings and procedures while ensuring that different types of cables are not run in same conduit or trench; this is done to avoid cross talk

- PC13.** route the cables to respective junction boxes / panels using flexible hoses or other approved methods, leaving adequate length of cable for termination
- PC14.** follow appropriate procedures such that the cables are inserted through glands in the receiving enclosure and fix them properly
- PC15.** strip the sheath / outer covering / shield to suitable length and dress the cable as per approved standard operating procedures (SOP)
- PC16.** mark all individual wires using standard ferrules with tag numbers / identification as provided in the drawing for ease of identification
- PC17.** seal the conduit ends using approved material/device

*Perform termination and inter-connection for different types of cables*

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

- PC18.** route the stripped end of the cable through the internal cable trays/guides to the appropriate terminals
- PC19.** route the various cables, such as instrumentation cables, low voltage power cables and copper/fibre LAN cables, through the internal cable trays/guides to the appropriate device
- PC20.** route CCTV cables (power and video/IP) to target devices and terminate on appropriate connectors using the right tools (crimping / soldering / screw, etc.)
- PC21.** check and identify types of termination inside panels
- PC22.** use cable ties appropriately to tie the wires neatly
- PC23.** terminate cables on appropriate connectors using the right tools (crimping/soldering/screw, etc.) and plug the connectors to the devices, ensuring proper mating
- PC24.** check if the shield connection is made to the specific terminal and ensure that the shield is not grounded at both ends, as it causes ground loop which is harmful for the signal
- PC25.** verify the availability of shielded cable testing equipment
- PC26.** cross-check with wiring list and follow the recommended verification procedure
- PC27.** perform continuity check of wires

## **Knowledge and Understanding (KU)**

The individual on the job needs to know and understand:

- KU1.** organisation's policies on customer care culture of the community
- KU2.** organisation's code of conduct medium of communication
- KU3.** organisation's culture and typical customer profile
- KU4.** organisation's reporting structure
- KU5.** organisation's documentation policy
- KU6.** organisation's sales and after-sales policy
- KU7.** organisation's website, contact personnel and related details
- KU8.** purpose of the project, the workflow and procedure involved
- KU9.** site conditions and how these impact the cabling work
- KU10.** rules and regulations to be followed under normal and emergency conditions
- KU11.** types of cables and wires and their material, gauges, current ratings, characteristics and usage

- KU12.** cabling tools, equipment and accessories used
- KU13.** types of cables used in CCTV applications as well as their characteristics and usage
- KU14.** process to check copper LAN cables, crimping tools, test equipment and accessories used
- KU15.** process to check the fibre LAN cables, connectors, splicing tools, test equipment and accessories used
- KU16.** standards and practices related to instrumentation cabling and low voltage power cabling
- KU17.** precautions to be taken in handling different types of cables
- KU18.** safety precautions to be taken in handling electrical equipment
- KU19.** usage of various tools and equipment

### **Generic Skills (GS)**

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

- GS1.** complete forms such as work orders, invoices and maintenance records
- GS2.** note problems and details of work done on job sheet
- GS3.** write emails and messages about site related issues
- GS4.** read warnings, instructions and other text material on product labels, components as well as the manuals
- GS5.** read and correctly interpret organisation's information about working practices at the site
- GS6.** read product and module serial numbers and interpret details such as make, date and availability
- GS7.** receive and ask for clarifications from supervisor on the job requirement
- GS8.** describe site conditions and issues to co-workers and supervisor
- GS9.** communicate in local language
- GS10.** communicate to the management in meetings about site issues
- GS11.** interact with co-workers and gather information related to process and site conditions
- GS12.** educate on precautions to be taken in order to avoid recurrence of problem
- GS13.** take decisions pertaining to the installation
- GS14.** take pragmatic decisions to keep the project on track when issues arise in the work done by partners or vendors, without compromising the quality
- GS15.** execute the plan for the installation and detail its activities so that it can be finished on time
- GS16.** help the I&C Engineer in preparing the installation plan
- GS17.** maintain personal grooming
- GS18.** be polite, patient and courteous under all circumstances and with all types of customers
- GS19.** decide on the spot on whether interaction of customer with superior is necessary or not
- GS20.** maintain proper etiquette including appropriate physical distance with customer during conversation, not entering bedroom without permission, etc.
- GS21.** put customer at ease and gain customer's confidence
- GS22.** identify needs of the customer and suggest most appropriate solution
- GS23.** support customers when needed
- GS24.** seek inputs to assess the problems

- GS25.** evaluate the possible solution(s) to a problem and suggest an optimum solution
- GS26.** use the existing information to arrive at course of actions
- GS27.** undertake and express new ideas and initiatives to others
- GS28.** analyse and evaluate the information gathered from observation, experience, reasoning or communication as a guide for thought and action
- GS29.** anticipate problems, risks and opportunities and utilise these for mitigation and business optimisation



## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Perform preparatory work</i>	<b>14</b>	<b>18</b>	-	<b>4</b>
<b>PC1.</b> obtain all relevant documents related to cabling, wiring, connected equipment as well as plant layout and interpret the same	1	3	-	-
<b>PC2.</b> follow the wire colour codes as specified in drawings	1	2	-	-
<b>PC3.</b> verify whether concealed conduits exist and find out their route in the premises by reading the layout drawing and by physical verification in case of following types of cables: low voltage power cable, CCTV cable, copper/fibre LAN cable	1	2	-	-
<b>PC4.</b> prepare a plan for laying cable on the wall, if concealed conduit does not exist	1	1	-	1
<b>PC5.</b> prepare a plan for route instrumentation cable	1	2	-	-
<b>PC6.</b> estimate the quantity and type of cables, conduits, tools, electrical parts, testing devices and accessories required as per the requirement of the job and obtain the same from authorised sources	2	2	-	1
<b>PC7.</b> enlist the required lengths of raceways, cable trays, and conduits for each section of cabling	1	2	-	-
<b>PC8.</b> identify the position where conduiting needs to be done by referring to layout drawings and specifications	2	1	-	1
<b>PC9.</b> make drill holes for mounting brackets etc. in the supporting structure, for mounting the making cable trays, etc.	2	2	-	-
<b>PC10.</b> select and use appropriate personal protective equipment (PPE) suitable for the type of work specified and in line with health and safety guidelines PPE should include mats, gloves, rubber footwear, etc.	2	1	-	1
<i>Lay conduits and pulling cables as per supplied drawings</i>	<b>11</b>	<b>14</b>	-	<b>2</b>

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> install raceways, cable trays and conduits as per procedure and drawings for the wires/cables	2	2	-	1
<b>PC12.</b> run the cables through the conduits and raceways, along with earth wires if specified, as per approved drawings and procedures while ensuring that different types of cables are not run in same conduit or trench; this is done to avoid cross talk	2	1	-	1
<b>PC13.</b> route the cables to respective junction boxes / panels using flexible hoses or other approved methods, leaving adequate length of cable for termination	2	2	-	-
<b>PC14.</b> follow appropriate procedures such that the cables are inserted through glands in the receiving enclosure and fix them properly	2	2	-	-
<b>PC15.</b> strip the sheath / outer covering / shield to suitable length and dress the cable as per approved standard operating procedures (SOP)	1	3	-	-
<b>PC16.</b> mark all individual wires using standard ferrules with tag numbers / identification as provided in the drawing for ease of identification	1	2	-	-
<b>PC17.</b> seal the conduit ends using approved material/device	1	2	-	-
<i>Perform termination and inter-connection for different types of cables</i>	<b>15</b>	<b>18</b>	-	<b>4</b>
<b>PC18.</b> route the stripped end of the cable through the internal cable trays/guides to the appropriate terminals	2	3	-	-
<b>PC19.</b> route the various cables, such as instrumentation cables, low voltage power cables and copper/fibre LAN cables, through the internal cable trays/guides to the appropriate device	2	2	-	1
<b>PC20.</b> route CCTV cables (power and video/IP) to target devices and terminate on appropriate connectors using the right tools (crimping / soldering / screw, etc.)	2	1	-	1
<b>PC21.</b> check and identify types of termination inside panels	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC22.</b> use cable ties appropriately to tie the wires neatly	1	2	-	-
<b>PC23.</b> terminate cables on appropriate connectors using the right tools (crimping/soldering/screw, etc.) and plug the connectors to the devices, ensuring proper mating	2	1	-	1
<b>PC24.</b> check if the shield connection is made to the specific terminal and ensure that the shield is not grounded at both ends, as it causes ground loop which is harmful for the signal	1	2	-	-
<b>PC25.</b> verify the availability of shielded cable testing equipment	1	2	-	-
<b>PC26.</b> cross-check with wiring list and follow the recommended verification procedure	2	1	-	1
<b>PC27.</b> perform continuity check of wires	1	2	-	-
<b>NOS Total</b>	<b>40</b>	<b>50</b>	<b>-</b>	<b>10</b>

**National Occupational Standards (NOS) Parameters**

<b>NOS Code</b>	IAS/N5609
<b>NOS Name</b>	Plan, lay and connect/terminate different types of cables
<b>Sector</b>	Instrumentation
<b>Sub-Sector</b>	Instrumentation & Automation
<b>Occupation</b>	Installation and Commissioning(Instrumentation and Automation)
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	NA
<b>NSQC Clearance Date</b>	

## **IAS/N9001: Work effectively with teams**

### **Description**

This NOS unit is about building relationships and working with people and groups inside and outside the organization, using skills and habits, to achieve the team goals and objectives.

### **Scope**

This unit/task covers the following:

- Creating team environment
- Communicating
- giving and receiving
- Working cooperatively
- Participating in team decision making
- Demonstrating Sense of Responsibility
- Showing respect for opinions, customs and preferences

### **Elements and Performance Criteria**

#### *Create Team Environment*

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

- PC1.** know and understand the team objectives and goals
- PC2.** know team members by name. Greet them appropriately and respond to their greetings.
- PC3.** know the roles and responsibilities of team members. Ensure others know about you and your role in the team
- PC4.** learn about the culture and preferences of team members especially if they belong to other organizations or nationalities
- PC5.** follow organizations policies and procedures for working with team members within and outside the organization especially relating to privacy, confidentiality and security.
- PC6.** create an environment of trust and mutual respect

#### *Communicate Give and Receive*

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

- PC7.** use appropriate mode of communication verbal, written, mail, phone or text and clearly articulate your message to ensure that the recipient understands the message
- PC8.** listen to team members and try to understand what they are wanting to say. Seek or provide clarifications if you see any gap in understanding
- PC9.** communicate professionally and follow organization protocols. Do not overload the team members with unnecessary and unsolicited information
- PC10.** share important information with the team timely.
- PC11.** respond to communications promptly.

#### *Work Cooperatively*

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

- PC12.** perform own role and produce output in time for other team members to consume

- PC13.** receive inputs from others and work upon it per role requirement
- PC14.** make adjustments within the permissible rules so that work flows smoothly
- PC15.** help team members to perform their role effectively and provide any clarifications and support they need
- PC16.** share tools and common resources fairly, taking cognizance of others needs and schedules
- PC17.** resolve any contentious issues amicably, involving the team lead or the supervisor if needed
- PC18.** let team members know in good time if you cannot carry out your commitments, explaining the reasons and alternate solutions, if any. Let the team lead know about this.

#### *Participate in Team Decision making*

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

- PC19.** think positively and make constructive suggestions to meet the goals
- PC20.** accept and give suggestions with open mind
- PC21.** take initiatives and volunteer to contribute
- PC22.** help team members with facts and figures to arrive at workable decisions
- PC23.** accept decisions professionally and support these, even if these do not match your suggestions and personal views

#### *Demonstrate Sense of Responsibility*

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

- PC24.** act in the interest of the team and the organization to ensure that things do not fall through the gap and team goals are achieved.
- PC25.** take initiative to correct the situation if something seems to be going wrong
- PC26.** seek help or escalate if the situation demands

#### *Show Respect for Opinions, Customs and Preferences*

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

- PC27.** follow organizations and statutory guidelines about making references or comments to social customs or preferences
- PC28.** refrain from making any comments to hurt sentiments
- PC29.** accommodate team members preferences to the extent feasible. If these come in the way of fulfilling team goals, discuss with the supervisor/ team leader
- PC30.** seek information and clarifications from others if you do not understand any customs

### **Knowledge and Understanding (KU)**

The individual on the job needs to know and understand:

- KU1.** the organizations policies and procedures for working with colleagues, roles and responsibilities in relation to this
- KU2.** the importance of effective communication and establishing good working relationships with colleagues
- KU3.** different methods of communication and the circumstances in which it is appropriate to use these
- KU4.** the importance of creating an environment of trust and mutual respect
- KU5.** the implications of own work on the work and schedule of others

- KU6.** different types of information that colleagues might need and the importance of providing this information when it is required
- KU7.** the importance of helping colleagues with problems, in order to meet quality and time standards as a team

### **Generic Skills (GS)**

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

- GS1.** complete written work with attention to detail
- GS2.** read instructions, guidelines/procedures
- GS3.** listen effectively and orally communicate information
- GS4.** ask for clarification and advice from the concerned person
- GS5.** make decisions on a suitable course of action or response keeping in view resource utilization while meeting commitments
- GS6.** plan and organize work to achieve targets and deadlines
- GS7.** understand real needs of the customer and suggest most appropriate solution
- GS8.** support customer when they need help
- GS9.** apply problem solving approaches in different situations
- GS10.** use the existing information to arrive at actionable decision points
- GS11.** use the existing information for improving the customer satisfaction
- GS12.** use the existing information to optimize solution and company business
- GS13.** analyze problems and identify causes and possible solutions
- GS14.** apply balanced judgments to different situations

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Create Team Environment</i>	<b>6</b>	<b>11</b>	-	-
<b>PC1.</b> know and understand the team objectives and goals	1	2	-	-
<b>PC2.</b> know team members by name. Greet them appropriately and respond to their greetings.	1	1	-	-
<b>PC3.</b> know the roles and responsibilities of team members. Ensure others know about you and your role in the team	1	1	-	-
<b>PC4.</b> learn about the culture and preferences of team members especially if they belong to other organizations or nationalities	1	4	-	-
<b>PC5.</b> follow organizations policies and procedures for working with team members within and outside the organization especially relating to privacy, confidentiality and security.	1	1	-	-
<b>PC6.</b> create an environment of trust and mutual respect	1	2	-	-
<i>Communicate Give and Receive</i>	<b>5</b>	<b>10</b>	-	-
<b>PC7.</b> use appropriate mode of communication verbal, written, mail, phone or text and clearly articulate your message to ensure that the recipient understands the message	1	1	-	-
<b>PC8.</b> listen to team members and try to understand what they are wanting to say. Seek or provide clarifications if you see any gap in understanding	1	2	-	-
<b>PC9.</b> communicate professionally and follow organization protocols. Do not overload the team members with unnecessary and unsolicited information	1	3	-	-
<b>PC10.</b> share important information with the team timely.	1	2	-	-
<b>PC11.</b> respond to communications promptly.	1	2	-	-



Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Work Cooperatively</i>	<b>7</b>	<b>8</b>	-	-
<b>PC12.</b> perform own role and produce output in time for other team members to consume	1	2	-	-
<b>PC13.</b> receive inputs from others and work upon it per role requirement	1	1	-	-
<b>PC14.</b> make adjustments within the permissible rules so that work flows smoothly	1	1	-	-
<b>PC15.</b> help team members to perform their role effectively and provide any clarifications and support they need	1	1	-	-
<b>PC16.</b> share tools and common resources fairly, taking cognizance of others needs and schedules	1	1	-	-
<b>PC17.</b> resolve any contentious issues amicably, involving the team lead or the supervisor if needed	1	1	-	-
<b>PC18.</b> let team members know in good time if you cannot carry out your commitments, explaining the reasons and alternate solutions, if any. Let the team lead know about this.	1	1	-	-
<i>Participate in Team Decision making</i>	<b>5</b>	<b>7</b>	-	-
<b>PC19.</b> think positively and make constructive suggestions to meet the goals	1	1	-	-
<b>PC20.</b> accept and give suggestions with open mind	1	1	-	-
<b>PC21.</b> take initiatives and volunteer to contribute	1	1	-	-
<b>PC22.</b> help team members with facts and figures to arrive at workable decisions	1	1	-	-
<b>PC23.</b> accept decisions professionally and support these, even if these do not match your suggestions and personal views	1	3	-	-
<i>Demonstrate Sense of Responsibility</i>	<b>3</b>	<b>5</b>	-	-

<b>Assessment Criteria for Outcomes</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>
<b>PC24.</b> act in the interest of the team and the organization to ensure that things do not fall through the gap and team goals are achieved.	1	3	-	-
<b>PC25.</b> take initiative to correct the situation if something seems to be going wrong	1	1	-	-
<b>PC26.</b> seek help or escalate if the situation demands	1	1	-	-
<i>Show Respect for Opinions, Customs and Preferences</i>	<b>4</b>	<b>4</b>	-	-
<b>PC27.</b> follow organizations and statutory guidelines about making references or comments to social customs or preferences	1	1	-	-
<b>PC28.</b> refrain from making any comments to hurt sentiments	1	1	-	-
<b>PC29.</b> accommodate team members preferences to the extent feasible. If these come in the way of fulfilling team goals, discuss with the supervisor/ team leader	1	1	-	-
<b>PC30.</b> seek information and clarifications from others if you do not understand any customs	1	1	-	-
<b>NOS Total</b>	<b>30</b>	<b>45</b>	-	-

**National Occupational Standards (NOS) Parameters**

<b>NOS Code</b>	IAS/N9001
<b>NOS Name</b>	Work effectively with teams
<b>Sector</b>	Instrumentation
<b>Sub-Sector</b>	Instrumentation & Automation
<b>Occupation</b>	Generic
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	02/05/2019
<b>Next Review Date</b>	01/05/2023
<b>NSQC Clearance Date</b>	

## IAS/N9002: Health and safety in workplace

### Description

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

### Scope

This unit/ task cover the following:

- Follow standard safety procedures of the company
- Maintain good health and posture

### Elements and Performance Criteria

#### *Follow standard safety procedures of the company and safety*

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

- PC1.** comply with general safety procedures followed in the company
- PC2.** Follow standard safety procedures while handling an equipment, hazardous material or tool
- PC3.** remove finger rings or any other metal objects which may interfere with the work before working on the unit
- PC4.** use safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc
- PC5.** escalate about any hazardous materials or things found in the premises
- PC6.** report about any breach of safety procedure in the company
- PC7.** ensure zero accidents at work
- PC8.** avoid damage of components due to negligence in ESD procedures
- PC9.** participate regularly in fire drills or other safety related workshops organized by the company
- PC10.** ensure no loss for company due to safety negligence

#### *Maintain good health and posture*

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

- PC11.** maintain appropriate posture, especially in long hours of sitting or standing position and in handling heavy materials
- PC12.** participate in company organized health sessions such as yoga, physiotherapy or games
- PC13.** handle heavy and hazardous materials with care and using appropriate tools and handling equipment such as trolleys, jacks and ladders

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: incentives, delivery standards, and personnel management
- KU2.** company occupational safety and health policy followed
- KU3.** company emergency evacuation procedure

- KU4.** companys medical policy
- KU5.** how to maintain the work area safe and secure
- KU6.** how to handle hazardous materials, tools and equipment
- KU7.** emergency procedures to be followed such as fire accidents, electrocution etc.
- KU8.** long term value of good posture and use of appropriate handling equipment
- KU9.** safety regulations and standards and how to apply these
- KU10.** electrical grounding practices

### **Generic Skills (GS)**

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

- GS1.** compose e mails, letters, memos, reminders, and other documents clearly
- GS2.** share knowledge, issues, problems and resolutions relating to safety and health
- GS3.** read mails, messages, alerts
- GS4.** read pictures, drawings, notes relating to safety and health
- 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.** make decisions about escalating safety and health issues at workplace to managers
- GS10.** plan and organize work conforming to the safety and health norms of the company
- GS11.** understand real needs of the customer and suggest most appropriate solution
- GS12.** support customers when they need help
- GS13.** discuss problems relating to the safety and health, evaluate the possible solution(s) and arrive at optimum /best possible solution(s)in consultation with concerned people
- GS14.** use the existing information to arrive at actionable decision points
- GS15.** use the existing information for improving the customer satisfaction
- GS16.** use the existing information to optimize solution and company business
- GS17.** analyze problems and identify causes and possible solutions
- GS18.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action
- GS19.** anticipate problems, risks and opportunities and utilize these for mitigation and business optimization

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Follow standard safety procedures of the company and safety</i>	<b>14</b>	<b>24</b>	-	-
<b>PC1.</b> comply with general safety procedures followed in the company	2	1	-	-
<b>PC2.</b> Follow standard safety procedures while handling an equipment, hazardous material or tool	1	1	-	-
<b>PC3.</b> remove finger rings or any other metal objects which may interfere with the work before working on the unit	2	2	-	-
<b>PC4.</b> use safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc	1	3	-	-
<b>PC5.</b> escalate about any hazardous materials or things found in the premises	1	3	-	-
<b>PC6.</b> report about any breach of safety procedure in the company	1	2	-	-
<b>PC7.</b> ensure zero accidents at work	2	3	-	-
<b>PC8.</b> avoid damage of components due to negligence in ESD procedures	1	3	-	-
<b>PC9.</b> participate regularly in fire drills or other safety related workshops organized by the company	2	3	-	-
<b>PC10.</b> ensure no loss for company due to safety negligence	1	3	-	-
<i>Maintain good health and posture</i>	<b>6</b>	<b>6</b>	-	-
<b>PC11.</b> maintain appropriate posture, especially in long hours of sitting or standing position and in handling heavy materials	2	2	-	-
<b>PC12.</b> participate in company organized health sessions such as yoga, physiotherapy or games	2	2	-	-

<b>Assessment Criteria for Outcomes</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>
<b>PC13.</b> handle heavy and hazardous materials with care and using appropriate tools and handling equipment such as trolleys, jacks and ladders	2	2	-	-
<b>NOS Total</b>	<b>20</b>	<b>30</b>	-	-

## 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>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	02/05/2019
<b>Next Review Date</b>	01/05/2023
<b>NSQC Clearance Date</b>	



## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down a proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on the knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

**Recommended Pass % : 70**

### Assessment Weightage

#### Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
IAS/N5609.Plan, lay and connect/terminate different types of cables	40	50	-	10	100	75
IAS/N9001.Work effectively with teams	30	45	-	-	75	15
IAS/N9002.Health and safety in workplace	20	30	-	-	50	10
<b>Total</b>	<b>90</b>	<b>125</b>	<b>-</b>	<b>10</b>	<b>225</b>	<b>100</b>

## 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
<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
<b>PM</b>	Preventive Maintenance
<b>SOP</b>	Standard Operating Procedures
<b>UUC</b>	Unit Under Calibration
<b>DM</b>	Dimensional Metrology
<b>RI</b>	Reference Instrument
<b>EA</b>	Environmental Accommodation

## 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.
<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.