

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR ELECTRONICS INDUSTRY



Contents

| | |
|--------------------------------------------|----|
| 1. Introduction and Contacts..... | 1 |
| 2. Qualifications Pack..... | 2 |
| 3. Glossary of Key Terms..... | 3 |
| 4. OS Units..... | 5 |
| 5. Annexure: Nomenclature for QP & OS..... | 20 |
| 6. Assessment Criteria..... | 22 |

What are Occupational Standards(OS)?

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

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Introduction

Qualifications Pack - Welding Operator

SECTOR/S: ELECTRONICS

SUB-SECTOR: Passive Components

OCCUPATION: Production

REFERENCE ID: ELE/Q0102

ALIGNED TO: NCO-2004/ NIL

The Welding Operator welds the copper lead wire to the resistor using welding machine.

Brief Job Description: The individual is responsible for welding the electro-tinned copper lead wire to the centre of steel and cap, bonding to the resistor by welding machine.

Personal Attributes: The job requires the individual to have attention to details and ability to work for long hours generally in a sitting position.

| | | | | |
|-------------|--------------------------|---------------------------------------------------------|------------------|------------|
| Job Details | Qualifications Pack Code | ELE/Q0102 | | |
| | Job Role | Welding Operator (Applicable for National Scenarios) | | |
| | Credits | TBD | Version number | 1.0 |
| | Sector | Electronics | Drafted on | 10/03/2014 |
| | Sub-sector | Passive Components | Last reviewed on | 24/03/2015 |
| | Occupation | Production | Next review date | 24/03/2016 |
| | NSQC Clearance on | 20/07/2016 | | |

| Job Role | Welding Operator |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Role Description | Operating the welding machine to weld the copper lead wire to resistor and checking visually to ensure conformance to specified standards. |
| NSQF level | 4 |
| Minimum Educational Qualifications | 10 th / 12 th standard passed, preferably |
| Maximum Educational Qualifications | ITI |
| Prerequisite License or Training | NA |
| Minimum Job Entry Age | 18 Years |
| Experience | NA |
| Applicable National Occupational Standards (NOS) | Compulsory: <ol style="list-style-type: none"> ELE/N0102 Weld the copper lead wire to resistor ELE/N9919 Work with superiors and colleagues ELE/N9921 Follow safety standards |
| Performance Criteria | As described in the relevant OS units |

Definitions

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

Acronyms

| Core Skills/ Generic Skills | Core skills or generic skills are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles. |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Keywords /Terms | Description |
| IPR | Intellectual Property Rights |
| NOS | National Occupational Standard(s) |
| NSQF | National Skills Qualifications Framework |
| PCB | Printed Circuit Board |
| QP | Qualifications Pack |

ELE/N0102

Weld the copper lead wire to resistor

National Occupational Standard



Overview

This unit is about welding copper lead wire to the resistor using welding machine and ensuring conformance to specified standards.

ELE/N0102

Weld the copper lead wire to resistor

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| National Occupational Standard | Unit Code | ELE/N0102 |
| | Unit Title (Task) | Weld the copper lead wire to resistor |
| | Description | This OS unit is about welding the electro-tinned copper lead wire to the centre of steel and cap, bonding to the resistor by welding equipment as per specifications. |
| | Scope | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Understand the work requirement • Set up and operate the welding equipment • Check visually on the welding quality • Undertake preventive maintenance of welding equipment • Achieve productivity and quality of standards |
| | Performance Criteria(PC) w.r.t. the Scope | |
| Element | Performance Criteria | |
| Understand the work requirement | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. collect the required materials and equipment for welding</p> <p>PC2. record the number received</p> <p>PC3. read the job sheet to for specifications of the lot received</p> | |
| Set up and operate the welding equipment | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC4. assess welding parameters such as temperature, pressure, electrode type, electrode distance or gap, welding current, voltage, process time, etc.</p> <p>PC5. compare the thickness of copper wire, filler material and flux required for welding process</p> <p>PC6. program operating instructions into the computers to adjust and start welding machine</p> <p>PC7. install welding work pieces to the welding machine aligning in a way that work pieces do not turn or fall down</p> <p>PC8. add chemicals to work pieces to ensure bonding</p> <p>PC9. fix work pieces such as grinder, cutter, drills and flux into welding machine</p> <p>PC10. set the machine based on size of cap and load on the machine</p> <p>PC11. insert the lead wire through the hole provided in the top plate of the upper moving portion above the welding electrode</p> <p>PC12. push the wire until it comes out of the bottom of the upper moving portion</p> <p>PC13. set the variance and voltage depending upon the cap size</p> <p>PC14. choose and fix the bottom electrode according to cap size</p> <p>PC15. adjust welding heads and tooling according to work specifications</p> <p>PC16. place the materials onto the machine</p> <p>PC17. operate the welding machine as specified in work order to weld the electro tinned copper lead wire to the centre of steel and cap</p> <p>PC18. remove completed work pieces from the machine using handling tools</p> <p>PC19. monitor the machine constantly to obtain desired weld</p> <p>PC20. check gauge, dials, and other indicators of the machine</p> | |

ELE/N0102

Weld the copper lead wire to resistor

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| Check visually on the welding quality | To be competent, the user/individual on the job must be able to: PC21. check visually on the completed weld to ensure conformance to company specifications PC22. maintain and perform minor repairs on welding, if needed |
| Undertake preventive maintenance of welding equipment | To be competent, the user/individual on the job must be able to: PC23. perform regular cleaning of machine, equipment and work area as prescribed by machine manufacturer using air hoses, cleaning fluids and hand tools PC24. ensure damage and defect-free machine with zero unscheduled downtime |
| Achieve productivity and quality of standards | To be competent, the user/individual on the job must be able to: PC25. achieve 100% target number to be welded PC26. ensure zero defective welding PC27. ensure conformance to specification of the company PC28. document the outcome of weld performed PC29. deliver to the next stage on time |
| Knowledge and Understanding (K) | |
| A. Organizational Context (Knowledge of the company /organization and its processes) | The individual on the job needs to know and understand: KA1. company's policies on: incentives, delivery standards and personnel management KA2. work flow involved in production process of the company KA3. importance of the individual's role in the workflow KA4. reporting structure KA5. profile of clients KA6. component stocking policy KA7. safety and quality standards followed in the organization |
| B. Technical Knowledge | The user/individual on the job needs to know and understand: KB1. basic electronics and component identification KB2. welding machine functioning and controls KB3. basic programming, setting up and loading the work pieces KB4. different types of welding processes, parameters and associated equipment KB5. different cleaning methods for electrodes, metal surfaces, etc. KB6. welding versus soldering KB7. ohm value and tolerances KB8. colour codes and polarity of components KB9. raw materials, production processes, quality control, costs, and other techniques KB10. machines and tools, including their designs, uses, repair, and maintenance KB11. electro-static discharge (ESD) precautions and 5S standards KB12. commonly occurring machine and component defects KB13. how to operate compute KB14. how to use basic math skills for setting up of welding machine KB15. how to operate the welding machine and equipment to weld the copper lead wire to resistor KB16. how to use measuring instruments like callipers, micro-meters |

ELE/N0102

Weld the copper lead wire to resistor

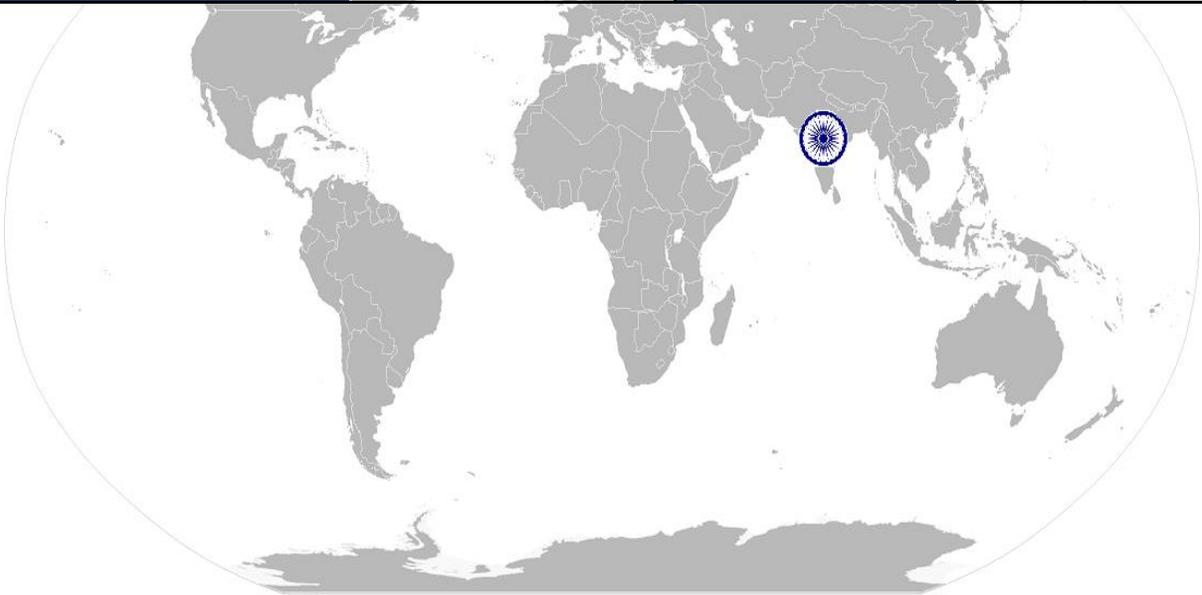
| Skills (S) | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A. Core Skills/ Generic Skills | Writing Skills |
| | The user/ individual on the job needs to know and understand how to: SA1. note problems on job sheet and details of work done SA2. maintain necessary logs and records SA3. document the outcome |
| | Reading Skills |
| | The user/ individual on the job needs to know and understand how to: SA4. read job sheets, process, production schedules, machine operations manuals SA5. read the standard operating procedures SA6. interpret instructions furnished in written, oral or schedule form |
| | Oral Communication (Listening and Speaking skills) |
| | The user/ individual on the job needs to know and understand how to: SA7. communicate in local language SA8. effectively communicate with the supervisor on the process issues SA9. effectively communicate maintenance issues to the maintenance personnel |
| B. Professional Skills | Decision Making |
| | NA |
| | Plan and Organize |
| | The user/individual on the job needs to know and understand how to: SB1. be able to work on multiple lots at a time, as instructed SB2. work as a team and deliver on time to next work process |
| | Customer Centricity |
| | The user/individual on the job needs to know and understand how to: SB3. maintain personal grooming |
| | Problem Solving |
| | The user/individual on the job needs to know and understand how to: SB4. identify and resolve problem during sorting process SB5. troubleshoot and correct mechanical problems and any other problem with the machine with adjusting or even stopping, right on the spot |
| | Analytical Thinking |
| | NA |
| Critical Thinking | |
| The user/ individual on the job needs to know and understand how to: SB6. reduce repetitive errors SB7. improve work process SB8. spot process disruptions and delays | |

ELE/N0102

Weld the copper lead wire to resistor

NOS Version Control

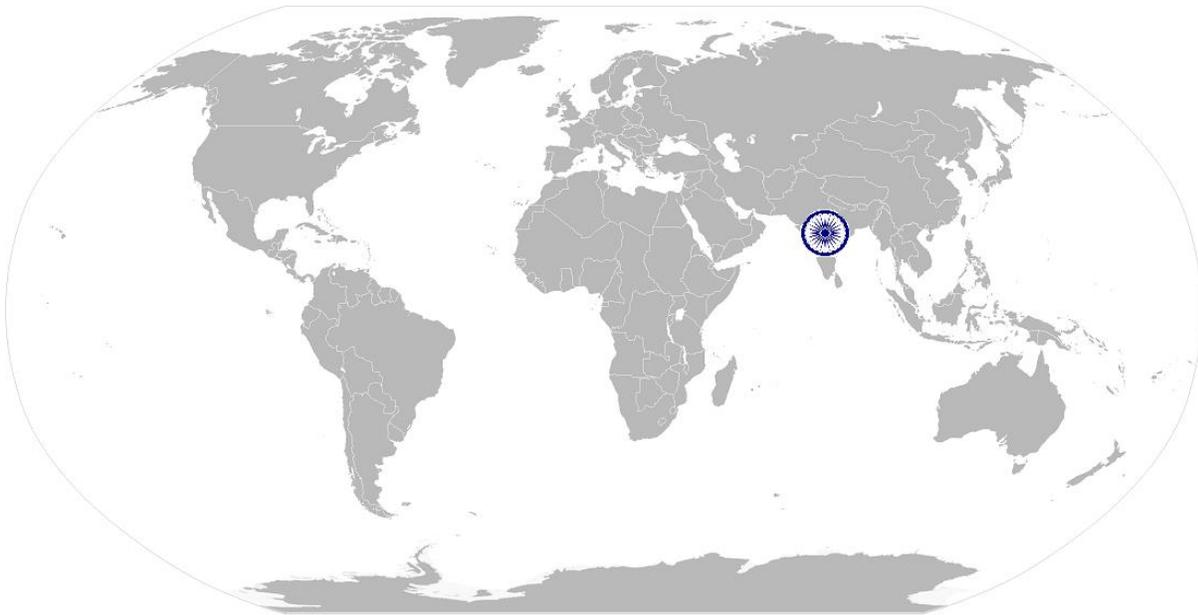
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| NOS Code | ELE/N0102 | | |
| Credits | TBD | Version number | 1.0 |
| Industry | Electronics | Drafted on | 10/03/2014 |
| Industry Sub-sector | Passive Components | Last reviewed on | 24/03/2015 |
| Occupation | Production | Next review date | 24/03/2016 |



ELE/N9919

Work with superiors and colleagues

National Occupational Standard



Overview

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

ELE/N9919

Work with superiors and colleagues

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| National Occupational Standard | Unit Code | ELE/N9919 |
| | Unit Title (Task) | Work with superiors and colleagues |
| | Description | This OS unit is about communicating, coordinating and maintaining proper relationship with colleagues and seniors in order to achieve smooth work flow. |
| | Scope | This unit/ task covers the following: <ul style="list-style-type: none"> Interact with supervisor or superior Coordinate with colleagues |
| | Performance Criteria(PC) w.r.t. the Scope | |
| | Element | Performance Criteria |
| | Interact with supervisor or superior | To be competent, the user / individual on the job must be able to: <ul style="list-style-type: none"> PC1. analyse work requirements by receiving instructions from reporting supervisor PC2. identify standard operating procedure of the company PC3. escalate problems that cannot be handled including repetitive PCB defects, machine failures, potential hazards, process disruptions, repairs and maintenance of machine PC4. report work completed and receive feedback on work done PC5. resolve personnel issues PC6. rectify errors as per feedback and minimize mistakes to zero in future PC7. communicate about process flow improvements, quality of output, product defects received from previous process, repairs and maintenance of tools and machinery as required and find technical solutions on specific issues PC8. handover completed work and deliver the work of expected quality despite constraints |
| | Coordinate with colleagues | To be competent, the user / individual on the job must be able to: <ul style="list-style-type: none"> PC9. collect required spares and raw materials from tool room or stores PC10. deposit unused or faulty materials, parts and tools to stores PC11. assist colleagues where necessary and as per capability PC12. resolve conflicts with colleagues at work to achieve smooth workflow PC13. complete rework in time based on feedback from quality or process departments PC14. put team over individual goals |
| | Knowledge and Understanding (K) | |
| | A. Organizational Context (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> KA1. company's policies on: incentives, delivery standards, and personnel management KA2. work flow involved in company's process KA3. importance of the individual's role in the workflow KA4. reporting structure |
| B. Technical | The user/individual on the job needs to know and understand: | |

ELE/N9919

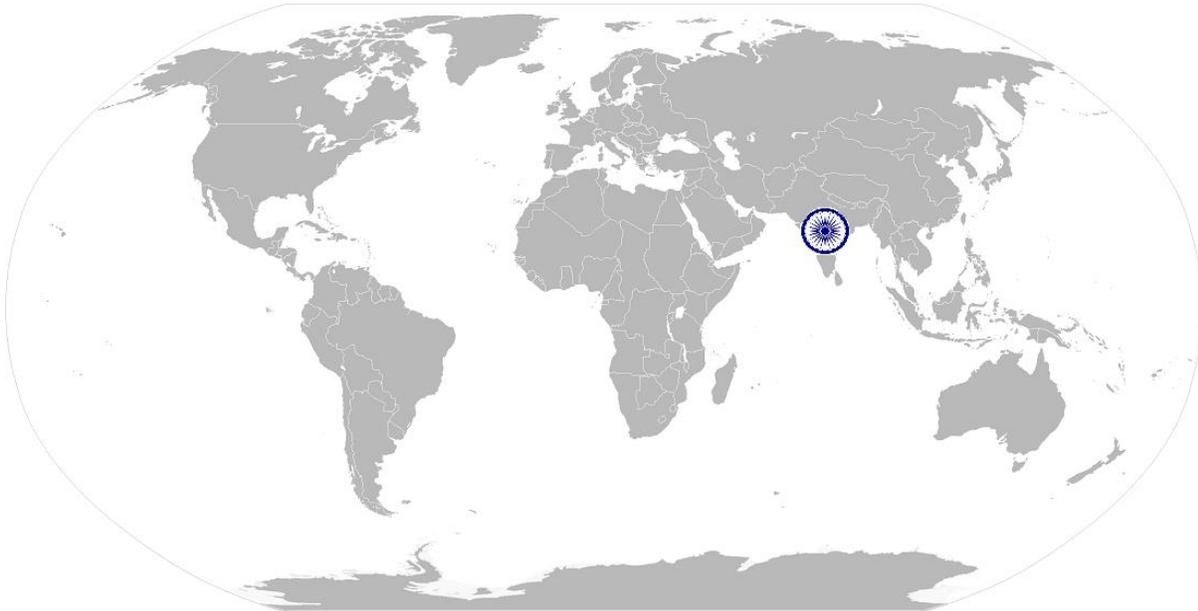
Work with superiors and colleagues

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Knowledge | KB1. how to communicate effectively KB2. how to build team coordination |
| Skills (S) | |
| A. Core Skills/ Generic Skills | Writing Skills |
| | The user/ individual on the job needs to know and understand how to: SA1. complete forms such as work orders, invoices, maintenance records SA2. note problems on job sheet and details of work done |
| | Reading Skills |
| | The user/ individual on the job needs to know and understand how to: SA3. read warnings, instructions and other text material on product labels, components, etc. SA4. read job sheets or work orders SA5. read product and module serial numbers and interpret details such as make, date, availability |
| | Oral Communication (Listening and Speaking skills) |
| | The user/ individual on the job needs to know and understand how to: SA6. receive and ask for clarifications from supervisor on the job requirement SA7. communicate in local language SA8. educate on precautions to be taken in order to avoid recurrence of problem |
| | B. Professional Skills |
| | Decision Making |
| The user/individual on the job needs to know and understand how to: SB1. follow standard operating procedures while making decisions SB2. take approval from supervisor in case the decision has to be made for exceptions | |
| Plan and Organize | |
| The user/individual on the job needs to know and understand how to: SB3. work with supervisor and co-workers to achieve smooth workflow SB4. work with superiors and co-workers to share knowledge and learning | |
| Customer Centricity | |
| The user/individual on the job needs to know and understand how to: SB5. maintain personal grooming SB6. be polite, patient and courteous under all circumstances with all types of customers SB7. decide on the spot on whether interaction of customer with superior is necessary or not SB8. maintain proper etiquette with customer during conversation SB9. seek permission before entering customer's premises SB10. put customer at ease and generate customer's confidence | |
| Problem Solving | |
| The user/individual on the job needs to know and understand how to: SB11. seek inputs at assess the problems | |
| Analytical Thinking | |

ELE/N9919

Work with superiors and colleagues

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| | NA |
| | Critical Thinking |
| | The user/ individual on the job needs to know and understand how to: SB12. improve work processes |

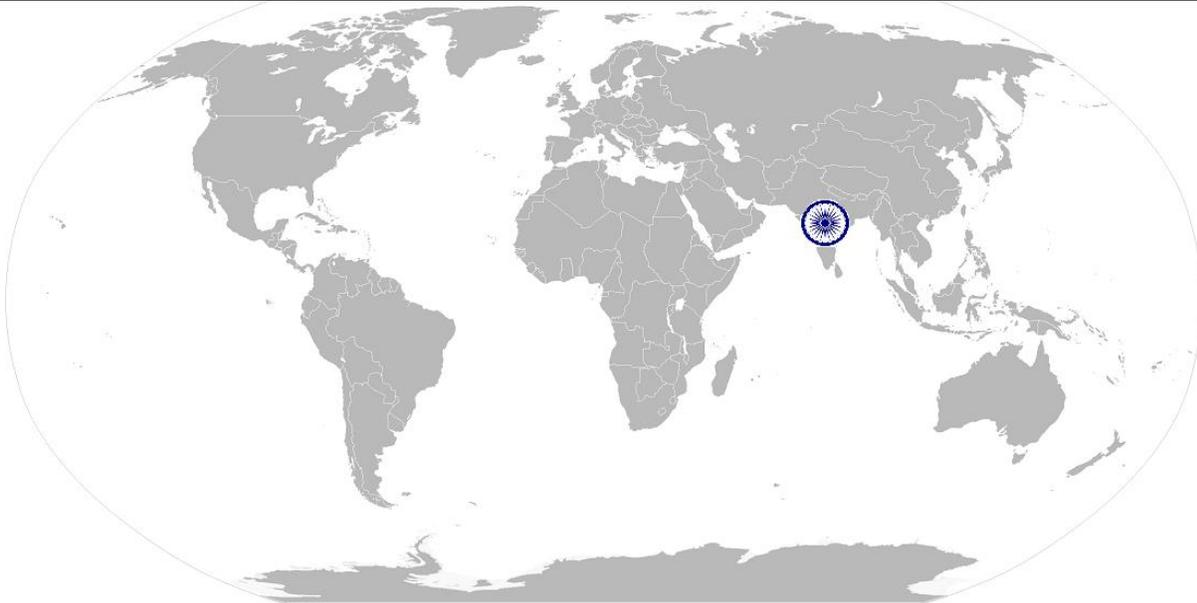


ELE/N9919

Work with superiors and colleagues

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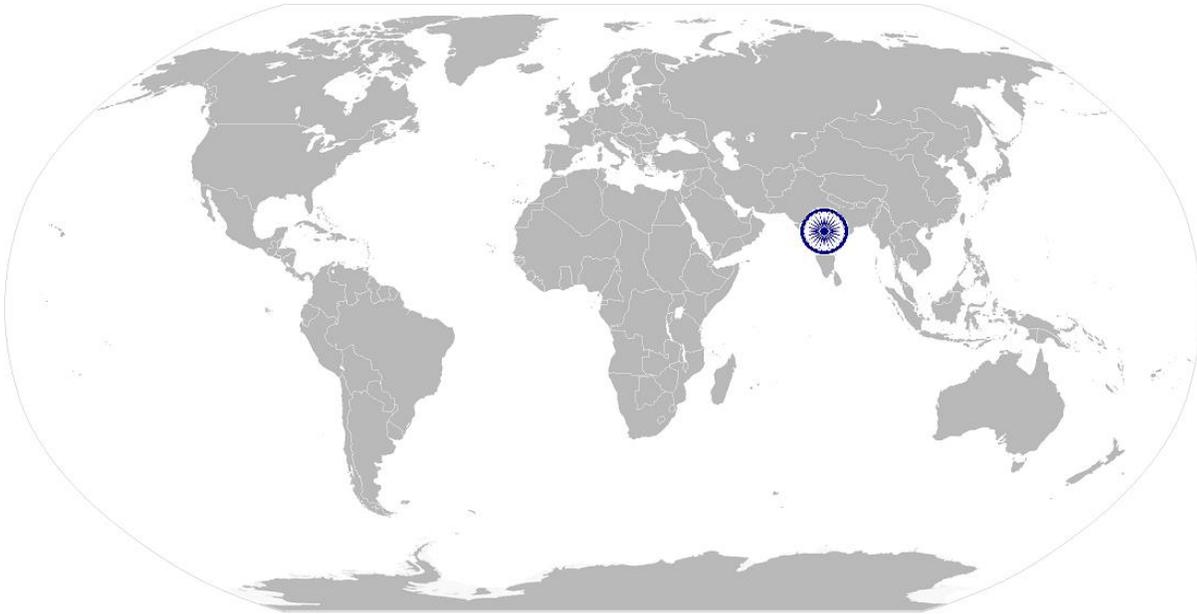
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| NOS Code | ELE/N9919 | | |
| Credits | TBD | Version number | 1.0 |
| Industry | Electronics | Drafted on | 10/03/2014 |
| Industry Sub-sector | Passive Components | Last reviewed on | 24/03/2015 |
| Occupation | Production | Next review date | 24/03/2016 |



ELE/N9921

Follow safety standards

National Occupational Standard



Overview

This unit is about the worker's commitment towards reporting potential hazards and containing accidents in order to make the work environment safe, healthy and secure, for self and colleagues.

ELE/N9921

Follow safety standards

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|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| National Occupational Standard | Unit Code | ELE/N9921 |
| | Unit Title (Task) | Follow safety standards |
| | Description | This OS unit is about following safety procedures, communicating potential hazards and dangers of accidents on the job. |
| | Scope | <p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> • Understand potential sources of accidents • Use safety gear to avoid accidents • Understand the safety procedures followed by the company • Follow daily safety measure • Communicate to supervisor |
| | Performance Criteria(PC) w.r.t. the Scope | |
| | Element | Performance Criteria |
| | Understand potential sources of accidents | <p>To be competent, the user / individual on the job must be able to:</p> <p>PC1. spot and report potential hazards on time</p> <p>PC2. follow company policy and rules regarding hazardous materials</p> <p>PC3. avoid accidents related to use of potentially dangerous chemicals, gases, sharp tools and hazards from machines which involves exposure to possible injuries such as cuts, bites, stings, minor burns, etc.</p> <p>PC4. handle with care when using an electrical drill and sharp cutting objects</p> |
| | Use safety gear to avoid accidents | <p>To be competent, the user / individual on the job must be able to:</p> <p>PC5. identify which safety gear must be used for a particular task</p> <p>PC6. eye, respiratory and hearing protection as per company policy</p> <p>PC7. use safety gear such as respirator, mask, skull caps, gloves, goggles, jacket, etc., as prescribed for the job</p> |
| | Understand the safety procedures followed by the company | <p>To be competent, the user / individual on the job must be able to:</p> <p>PC8. comply with standard health and safety procedure followed in the company while handling an equipment and hazardous materials and tools or situations</p> <p>PC9. identify and follow the evacuation procedure properly such as fire drills, emergency evacuation procedures, first aid to self and others, etc., which help in case of an emergency</p> |
| | Follow daily safety measure | <p>To be competent, the user / individual on the job must be able to:</p> <p>PC10. take adequate safety measures while on work to prevent accidents</p> <p>PC11. ensure zero accidents in work</p> <p>PC12. avoid damage of components due to negligence in ESD procedures</p> <p>PC13. ensure no loss for company due to safety negligence</p> <p>PC14. ensure proper machine maintenance, work process achieving quality outputs as per the company standard</p> |
| Communicate to supervisor | <p>To be competent, the user / individual on the job must be able to:</p> <p>PC15. improve process flow to reduce anticipated or repetitive hazards</p> <p>PC16. report on mishandling of tools, machines or hazardous materials and on</p> | |

ELE/N9921

Follow safety standards

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| | <p>electrical problems that could result in accident</p> <p>PC17. escalate about any hazardous materials or things found in the premises</p> <p>PC18. report about any breach of safety procedure in the company</p> <p>PC19. follow electrostatic discharge (ESD) measures for electronic component safety</p> |
| Knowledge and Understanding (K) | |
| A. Organizational Context (Knowledge of the company / organization and its processes) | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. company's policies on handling: harmful chemicals and sharp tools, safety and hazards of machines, fire safety/drill, first aid and, disposal of harmful chemicals and materials, quality standards</p> <p>KA2. company occupational safety and health policy followed</p> <p>KA3. company emergency evacuation procedure</p> <p>KA4. company's medical policy</p> |
| B. Technical Knowledge | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. how to maintain the work area safe and secure</p> <p>KB2. how to handle hazardous material</p> <p>KB3. how to follow safety procedures while operating hazardous tools and equipment</p> <p>KB4. emergency procedures to be followed such as fire accidents and fire safety education</p> <p>KB5. how to use machines and tools without causing bodily harm</p> <p>KB6. first aid execution</p> <p>KB7. disposal of hazardous chemicals, tools and materials by following prescribed environmental norms or as per company policy</p> |
| Skills (S) | |
| A. Core Skills/ Generic Skills | Writing Skills |
| | <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. complete forms such as work orders, invoices, maintenance records</p> <p>SA2. note problems on job sheet and details of work done</p> |
| | Reading Skills |
| | <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA3. read warnings, instructions and other text material on product labels, components, etc.</p> <p>SA4. read job sheets or work orders</p> <p>SA5. read product and module serial numbers and interpret details such as make, date, availability</p> |
| B. Professional Skills | Oral Communication (Listening and Speaking skills) |
| | <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA6. receive and ask for clarifications from supervisor on the job requirement</p> <p>SA7. communicate in local language</p> <p>SA8. educate on precautions to be taken in order to avoid recurrence of problem</p> |
| | Decision Making |
| | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. follow standard operating procedures while making decisions</p> |

ELE/N9921

Follow safety standards

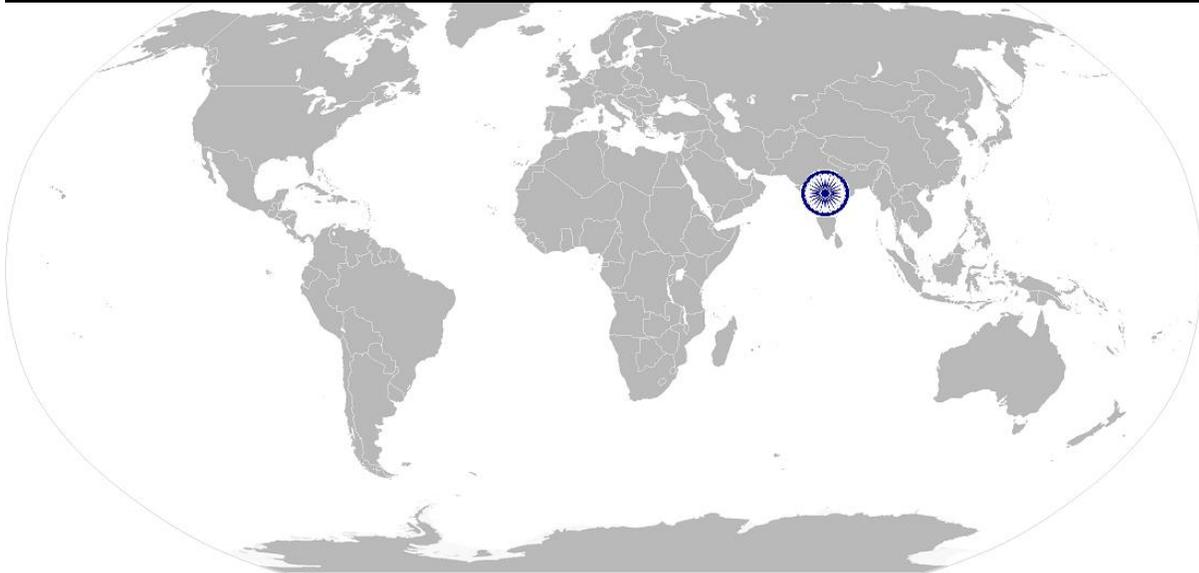
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| | SB2. take approval from supervisor in case the decision has to be made for exceptions |
| | Plan and Organize |
| | The user/individual on the job needs to know and understand how to: SB3. work with supervisor and co-workers to achieve smooth workflow SB4. work with superiors and co-workers to share knowledge and learning |
| | Customer Centricity |
| | The user/individual on the job needs to know and understand how to: SB5. maintain personal grooming SB6. be polite, patient and courteous under all circumstances with all types of customers SB7. decide on the spot on whether interaction of customer with superior is necessary or not SB8. maintain proper etiquette with customer during conversation SB9. seek permission before entering customer's premises SB10. put customer at ease and generate customer's confidence |
| | Problem Solving |
| | The user/individual on the job needs to know and understand how to: SB11. seek inputs at assess the problems |
| | Analytical Thinking |
| | NA |
| | Critical Thinking |
| | The user/ individual on the job needs to know and understand how to: SB12. improve work processes |

ELE/N9921

Follow safety standards

NOS Version Control

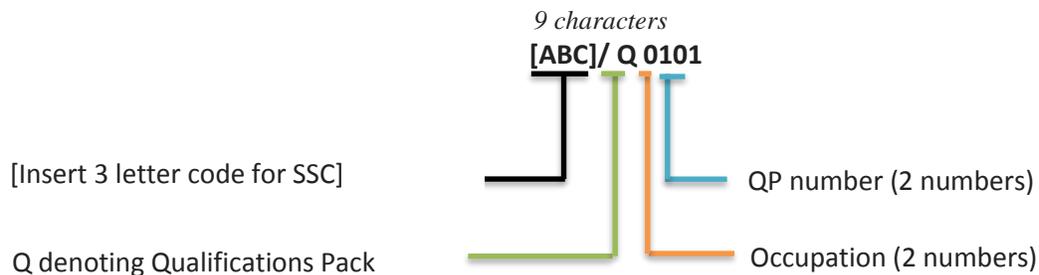
| | | | |
|----------------------------|---------------------------|-------------------------|-------------------|
| NOS Code | ELE/N9921 | | |
| Credits | TBD | Version number | 1.0 |
| Industry | Electronics | Drafted on | 10/03/2014 |
| Industry Sub-sector | Passive Components | Last reviewed on | 24/03/2015 |
| Occupation | Production | Next review date | 24/03/2016 |



Annexure

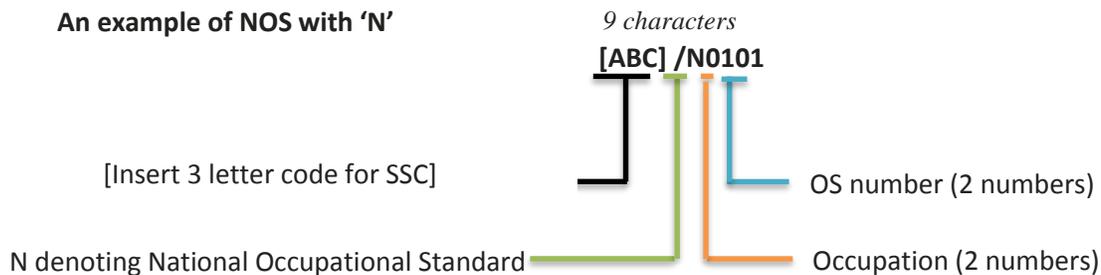
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



[Back to top...](#)

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

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

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

Criteria For Assessment Of Trainees

Job Role: Welding Operator

Qualification Pack: ELE/Q0102

Sector Skill Council: Electronics Sector Skill Council of India

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (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. 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 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 this criterion.
5. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

| Compulsory NOS | | | | Marks Allocation | |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|------------------|------------------|
| Total Marks: 300 | | | | | |
| Assessment outcomes | Assessment Criteria for outcomes | Total Marks | Out of | Theory | Skills Practical |
| ELE/N0102 Weld the copper lead wire to resistor | PC1.collect the required materials and equipment for welding | 100 | 4 | 2 | 2 |
| | PC2.record the number received | | 4 | 2 | 2 |
| | PC3.read the job sheet to for specifications of the lot received | | 4 | 2 | 2 |
| | PC4.assess welding parameters such as temperature, pressure, electrode type, electrode distance or gap, welding current, voltage, process time, etc. | | 4 | 2 | 2 |
| | PC5.compare the thickness of copper wire, filler material and flux required for welding process | | 4 | 2 | 2 |
| | PC6.program operating instructions into the computers to adjust and start welding machine | | 4 | 2 | 2 |

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| PC7.install welding work pieces to the welding machine aligning in a way that work pieces do not turn or fall down | 4 | 2 | 2 |
| PC8.add chemicals to work pieces to ensure bonding | 4 | 2 | 2 |
| PC9.fix work pieces such as grinder, cutter, drills and flux into welding machine | 4 | 2 | 2 |
| PC10.set the machine based on size of cap and load on the machine | 4 | 2 | 2 |
| PC11.insert the lead wire through the hole provided in the top plate of the upper moving portion above the welding electrode | 4 | 2 | 2 |
| PC12.push the wire until it comes out of the bottom of the upper moving portion | 4 | 1 | 3 |
| PC13.set the variance and voltage depending upon the cap size | 4 | 1 | 3 |
| PC14.choose and fix the bottom electrode according to cap size | 3 | 1 | 2 |
| PC15.adjust welding heads and tooling according to work specifications | 3 | 1 | 2 |
| PC16.place the materials onto the machine | 3 | 1 | 2 |
| PC17.operate the welding machine as specified in work order to weld the electro tinned copper lead wire to the centre of steel and cap | 3 | 1 | 2 |
| PC18.remove completed work pieces from the machine using handling tools | 3 | 1 | 2 |
| PC19.monitor the machine constantly to obtain desired weld | 3 | 1 | 2 |
| PC20.check gauge, dials, and other indicators of the machine | 3 | 1 | 2 |
| PC21.check visually on the completed weld to ensure conformance to company specifications | 3 | 1 | 2 |
| PC22.maintain and perform minor repairs on welding, if needed | 3 | 1 | 2 |
| PC23.perform regular cleaning of machine, equipment and work area as prescribed by machine manufacturer using air hoses, cleaning fluids and hand tools | 3 | 1 | 2 |
| PC24.ensure damage and defect-free machine with zero unscheduled downtime | 3 | 1 | 2 |
| PC25.achieve 100% target number to be welded | 3 | 1 | 2 |
| PC26.ensure zero defective welding | 3 | 1 | 2 |
| PC27.ensure conformance to specification of the company | 3 | 1 | 2 |

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| | PC28.document the outcome of weld performed | | 3 | 1 | 2 |
| | PC29.deliver to the next stage on time | | 3 | 1 | 2 |
| | | Total | 100 | 40 | 60 |
| ELE/N9919 Work with superiors and colleagues | PC1.analyse work requirements by receiving instructions from reporting supervisor | 100 | 8 | 3 | 5 |
| | PC2.identify standard operating procedure of the company | | 8 | 3 | 5 |
| | PC3.escalate problems that cannot be handled including repetitive PCB defects, machine failures, potential hazards, process disruptions, repairs and maintenance of machine | | 7 | 3 | 4 |
| | PC4.report work completed and receive feedback on work done | | 7 | 3 | 4 |
| | PC5.resolve personnel issues | | 7 | 3 | 4 |
| | PC6.rectify errors as per feedback and minimize mistakes to zero in future | | 7 | 3 | 4 |
| | PC7.communicate about process flow improvements, quality of output, product defects received from previous process, repairs and maintenance of tools and machinery as required and find technical solutions on specific issues | | 7 | 3 | 4 |
| | PC8.handover completed work and deliver the work of expected quality despite constraints | | 7 | 3 | 4 |
| | PC9.collect required spares and raw materials from tool room or stores | | 7 | 2 | 5 |
| | PC10.deposit unused or faulty materials, parts and tools to stores | | 7 | 2 | 5 |
| | PC11.assist colleagues where necessary and as per capability | | 7 | 3 | 4 |
| | PC12.resolve conflicts with colleagues at work to achieve smooth workflow | | 7 | 3 | 4 |
| | PC13.complete rework in time based on feedback from quality or process departments | | 7 | 3 | 4 |
| | PC14.put team over individual goals | | 7 | 3 | 4 |
| | | Total | 100 | 40 | 60 |
| ELE/N9921 Follow safety standards | PC1.spot and report potential hazards on time | 100 | 5 | 2 | 3 |
| | PC2.follow company policy and rules regarding hazardous materials | | 5 | 2 | 3 |

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| PC3.avoid accidents related to use of potentially dangerous chemicals, gases, sharp tools and hazards from machines which involves exposure to possible injuries such as cuts, bites, stings, minor burns, etc. | 5 | 2 | 3 |
| PC4.handle with care when using an electrical drill and sharp cutting objects | 5 | 2 | 3 |
| PC5.understand which safety gear must be used for a particular task | 5 | 2 | 3 |
| PC6.eye, respiratory and hearing protection as per company policy | 5 | 2 | 3 |
| PC7.use safety gear such as respirator, mask, skull caps, gloves, goggles, jacket, etc., as prescribed for the job | 5 | 2 | 3 |
| PC8.comply with standard health and safety procedure followed in the company while handling an equipment and hazardous materials and tools or situations | 5 | 2 | 3 |
| PC9.understand and follow the evacuation procedure properly such as fire drills, emergency evacuation procedures, first aid to self and others, etc., which help in case of an emergency | 5 | 2 | 3 |
| PC10.take adequate safety measures while on work to prevent accidents | 5 | 2 | 3 |
| PC11.ensure zero accidents in work | 5 | 2 | 3 |
| PC12.avoid damage of components due to negligence in ESD procedures | 5 | 2 | 3 |
| PC13.ensure no loss for company due to safety negligence | 5 | 2 | 3 |
| PC14.ensure proper machine maintenance, work process achieving quality outputs as per the company standard | 5 | 2 | 3 |
| PC15.improve process flow to reduce anticipated or repetitive hazards | 6 | 2 | 4 |
| PC16.report on mishandling of tools, machines or hazardous materials and on electrical problems that could result in accident | 6 | 2 | 4 |
| PC17.escalate about any hazardous materials or things found in the premises | 6 | 2 | 4 |
| PC18.report about any breach of safety procedure in the company | 6 | 3 | 3 |
| PC19.follow electrostatic discharge (ESD) measures for electronic component safety | 6 | 3 | 3 |
| Total | 100 | 40 | 60 |