

Qualification Pack



Assistant Welding Operator (Electronics)

QP Code: ELE/Q0102

Version: 5.0

NSQF Level: 3

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ELE/Q0102: Assistant Welding Operator (Electronics)

Brief Job Description

A Assistant Welding Operator Electronics is responsible for bonding the electro-tinned copper lead wire to the center of steel and cap, of the resistor by welding process.

Personal Attributes

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

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [ELE/N0171: Welding Preparation and Setup](#)
2. [ELE/N0170: Welding Execution and Quality Control](#)
3. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Electronics
Sub-Sector	Semiconductor & Components
Occupation	Production-S&C
Country	India
NSQF Level	3
Credits	14
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3122.4702

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Minimum Educational Qualification & Experience	10th grade pass (10th grade or equivalent) with NA of experience OR 8th grade pass (8th grade) with 3 Years of experience Relevant Experience in Semiconductor & Components OR Previous relevant Qualification of NSQF Level 2.5 with 1.5 years of experience Relevant Experience in Semiconductor & Components
Minimum Level of Education for Training in School	8th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	16 Years
Last Reviewed On	NA
Next Review Date	07/10/2028
NSQC Approval Date	07/10/2025
Version	5.0
Reference code on NQR	QG-03-EH-044792025-V2-ESSCI
NQR Version	2

Remarks:

NA

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ELE/N0171: Welding Preparation and Setup

Description

This NOS is about to perform preparation and setup of welding machines, materials, and work environment in accordance with welding specifications and safety standards.

Scope

The scope covers the following :

- Introduction and Identify the work requirement
- Set up and operate welding equipment

Elements and Performance Criteria

Introduction and Identify the work requirement

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

- PC1.** Describe the role and responsibilities of a Welding Operator – Electronics; explain the scope of welding in the electronics industry and identify common welding types such as TIG, MIG, spot welding, and micro-welding used for assembling enclosures, frames, and electronic components.
- PC2.** Read and interpret job sheets, instructions, and SOPs and collect required materials and equipment.
- PC3.** Identify welding parameters such as temperature, pressure, and voltage.
- PC4.** Ensure compliance with safety standards and use PPE.
- PC5.** Inspect tools and equipment for defects.

Set up and operate welding equipment

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

- PC6.** Compare thickness of copper wire, filler material, and flux.
- PC7.** Use ESD-safe setups, automated material handling systems for Setup welding machine and accessories based on job requirements.
- PC8.** Align work pieces securely on the welding apparatus.
- PC9.** Add chemicals to ensure proper bonding.
- PC10.** Program and adjust the welding machine.
- PC11.** Perform a trial weld to verify machine settings.
- PC12.** Identify and use welding tools, machines, electrodes, gases, and consumables for TIG, MIG, SMAW, and other welding processes.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Understand the role, functions, and applications of a Welding Operator Electronics in assembling electronic systems and enclosures.

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- KU2.** Know various welding processes (TIG, MIG, spot, micro-welding) and their suitability for different materials and joints.
- KU3.** Interpret job sheets, technical drawings, and SOPs to identify welding parameters and material requirements.
- KU4.** Understand machine setup, programming, and control parameters like voltage, pressure, and temperature.
- KU5.** Be aware of ESD-safe practices, PPE usage, and safety regulations for welding operations.

Generic Skills (GS)

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

- GS1.** Collect, inspect, and prepare materials, tools, and consumables required for the welding task.
- GS2.** Set up, program, and operate welding machines accurately as per job requirements.
- GS3.** Align and secure workpieces properly to achieve precise joints and avoid defects.
- GS4.** Perform trial welds and make parameter adjustments to ensure quality bonding.
- GS5.** Follow workplace safety protocols and maintain an organized, ESD-safe work environment.

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction and Identify the work requirement</i>	16	24	-	-
PC1. Describe the role and responsibilities of a Welding Operator – Electronics; explain the scope of welding in the electronics industry and identify common welding types such as TIG, MIG, spot welding, and micro-welding used for assembling enclosures, frames, and electronic components.	-	-	-	-
PC2. Read and interpret job sheets, instructions, and SOPs and collect required materials and equipment.	-	-	-	-
PC3. Identify welding parameters such as temperature, pressure, and voltage.	-	-	-	-
PC4. Ensure compliance with safety standards and use PPE.	-	-	-	-
PC5. Inspect tools and equipment for defects.	-	-	-	-
<i>Set up and operate welding equipment</i>	24	36	-	-
PC6. Compare thickness of copper wire, filler material, and flux.	-	-	-	-
PC7. Use ESD-safe setups, automated material handling systems for Setup welding machine and accessories based on job requirements.	-	-	-	-
PC8. Align work pieces securely on the welding apparatus.	-	-	-	-
PC9. Add chemicals to ensure proper bonding.	-	-	-	-
PC10. Program and adjust the welding machine.	-	-	-	-
PC11. Perform a trial weld to verify machine settings.	-	-	-	-
PC12. Identify and use welding tools, machines, electrodes, gases, and consumables for TIG, MIG, SMAW, and other welding processes.	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	40	60	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ELE/N0171
NOS Name	Welding Preparation and Setup
Sector	Electronics
Sub-Sector	
Occupation	Production-S&C
NSQF Level	3
Credits	5.5
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

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ELE/N0170: Welding Execution and Quality Control

Description

This NOS is about execute welding operations as per specifications and conduct quality control checks to ensure accuracy, strength, and compliance with standards.

Scope

The scope covers the following :

- Perform welding operations
- Check the welding quality
- Undertake preventive maintenance
- Achieve productivity and quality standards

Elements and Performance Criteria

Perform welding operations

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

- PC1.** Operate the welding machine as per SOPs while adhering to safety norms and demonstrating disciplined work behavior.
- PC2.** Monitor welding process to ensure quality output, maintaining focus, honesty, and responsibility.
- PC3.** Unload completed workpieces safely, using proper handling tools and following safety procedures.
- PC4.** Conduct in-process quality checks while complying with environmental and safety standards.

Check the welding quality

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

- PC5.** Inspect welded workpieces for defects with accuracy and professional integrity.
- PC6.** Use advanced testing methods if needed, ensuring safe usage of tools and equipment.
- PC7.** Repair defects and document rework honestly, maintaining transparency and quality records.

Undertake preventive maintenance

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

- PC8.** Clean and maintain machines regularly, ensuring safe disposal of waste and sustainable use of resources.
- PC9.** Ensure zero unscheduled downtime through proactive and responsible maintenance practices.
- PC10.** Report recurring machine issues promptly and truthfully, supporting a safe and ethical work environment.

Achieve productivity and quality standards

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

- PC11.** Check final workpieces to avoid rejections, ensuring quality and accountability.

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- PC12.** Ensure timely delivery of defect-free workpieces while maintaining work discipline and ethical standards.
- PC13.** Maintain records and follow organisational procedures with accuracy and honesty.
- PC14.** Implement process improvements for efficiency, focusing on resource conservation and safe practices.
- PC15.** Use measuring instruments and safety gear like multimeters, calipers, helmets, gloves, and respirators during welding operations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Understand standard operating procedures (SOPs) and safety norms for welding operations.
- KU2.** Know the methods and parameters for maintaining welding quality and identifying common defects.
- KU3.** Understand inspection and testing techniques for verifying welded joint integrity.
- KU4.** Be aware of preventive maintenance procedures for welding machines and safe waste disposal practices.
- KU5.** Understand productivity, quality standards, and documentation requirements in welding processes.

Generic Skills (GS)

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

- GS1.** Operate and monitor welding machines efficiently while adhering to safety and quality standards.
- GS2.** Inspect, identify, and repair welding defects using proper tools and testing methods.
- GS3.** Perform preventive maintenance and maintain equipment in good condition to minimize downtime.
- GS4.** Record and report work details, rework, and issues accurately and ethically.
- GS5.** Demonstrate discipline, accountability, and resource-efficient practices to achieve quality and productivity goals.

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Perform welding operations</i>	10	13	-	-
PC1. Operate the welding machine as per SOPs while adhering to safety norms and demonstrating disciplined work behavior.	-	-	-	-
PC2. Monitor welding process to ensure quality output, maintaining focus, honesty, and responsibility.	-	-	-	-
PC3. Unload completed workpieces safely, using proper handling tools and following safety procedures.	-	-	-	-
PC4. Conduct in-process quality checks while complying with environmental and safety standards.	-	-	-	-
<i>Check the welding quality</i>	9	12	-	-
PC5. Inspect welded workpieces for defects with accuracy and professional integrity.	-	-	-	-
PC6. Use advanced testing methods if needed, ensuring safe usage of tools and equipment.	-	-	-	-
PC7. Repair defects and document rework honestly, maintaining transparency and quality records.	-	-	-	-
<i>Undertake preventive maintenance</i>	9	21	-	-
PC8. Clean and maintain machines regularly, ensuring safe disposal of waste and sustainable use of resources.	-	-	-	-
PC9. Ensure zero unscheduled downtime through proactive and responsible maintenance practices.	-	-	-	-
PC10. Report recurring machine issues promptly and truthfully, supporting a safe and ethical work environment.	-	-	-	-
<i>Achieve productivity and quality standards</i>	12	14	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. Check final workpieces to avoid rejections, ensuring quality and accountability.	-	-	-	-
PC12. Ensure timely delivery of defect-free workpieces while maintaining work discipline and ethical standards.	-	-	-	-
PC13. Maintain records and follow organisational procedures with accuracy and honesty.	-	-	-	-
PC14. Implement process improvements for efficiency, focusing on resource conservation and safe practices.	-	-	-	-
PC15. Use measuring instruments and safety gear like multimeters, calipers, helmets, gloves, and respirators during welding operations	-	-	-	-
NOS Total	40	60	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ELE/N0170
NOS Name	Welding Execution and Quality Control
Sector	Electronics
Sub-Sector	
Occupation	Production-S&C
NSQF Level	3
Credits	7.5
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

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DGT/VSQ/N0101: Employability Skills (30 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
- 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. understand the significance of employability skills in meeting the job requirements

Constitutional values – Citizenship

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

PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

Basic English Skills

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

PC4. speak with others using some basic English phrases or sentences

Communication Skills

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

PC5. follow good manners while communicating with others

PC6. work with others in a team

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Diversity & Inclusion

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

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

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

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

PC11. approach the concerned authorities for any exploitation as per legal rights and laws

Essential Digital Skills

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

PC12. operate digital devices and use its features and applications securely and safely

PC13. use internet and social media platforms securely and safely

Entrepreneurship

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

PC14. identify and assess opportunities for potential business

PC15. identify sources for arranging money and associated financial and legal challenges

Customer Service

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

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

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 basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

KU8. different types of disabilities and appropriate communication and behaviour towards PwD

KU9. different types of financial products and services

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- KU10.** how to compute income and expenses
- KU11.** importance of maintaining safety and security in financial transactions
- KU12.** different legal rights and laws
- KU13.** how to operate digital devices and applications safely and securely
- KU14.** ways to identify business opportunities
- KU15.** types of customers and their needs
- KU16.** how to apply for a job and prepare for an interview
- KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

- GS1.** communicate effectively using appropriate language
- GS2.** behave politely and appropriately with all
- GS3.** perform basic calculations
- GS4.** solve problems effectively
- GS5.** be careful and attentive at work
- GS6.** use time effectively
- GS7.** maintain hygiene and sanitisation to avoid infection

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values – Citizenship</i>	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	1	3	-	-
PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	20	30	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ 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 Element/ 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).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass 50 % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

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Minimum Aggregate Passing % at QP Level : 50

(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
ELE/N0171.Welding Preparation and Setup	40	60	-	-	100	40
ELE/N0170.Welding Execution and Quality Control	40	60	-	-	100	40
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	20
Total	100	150	-	-	250	100

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Acronyms

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

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Glossary

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.
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 (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	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.

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Knowledge and Understanding (KU)	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.
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.
Core Skills/ Generic Skills (GS)	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.
Electives	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.
Options	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.