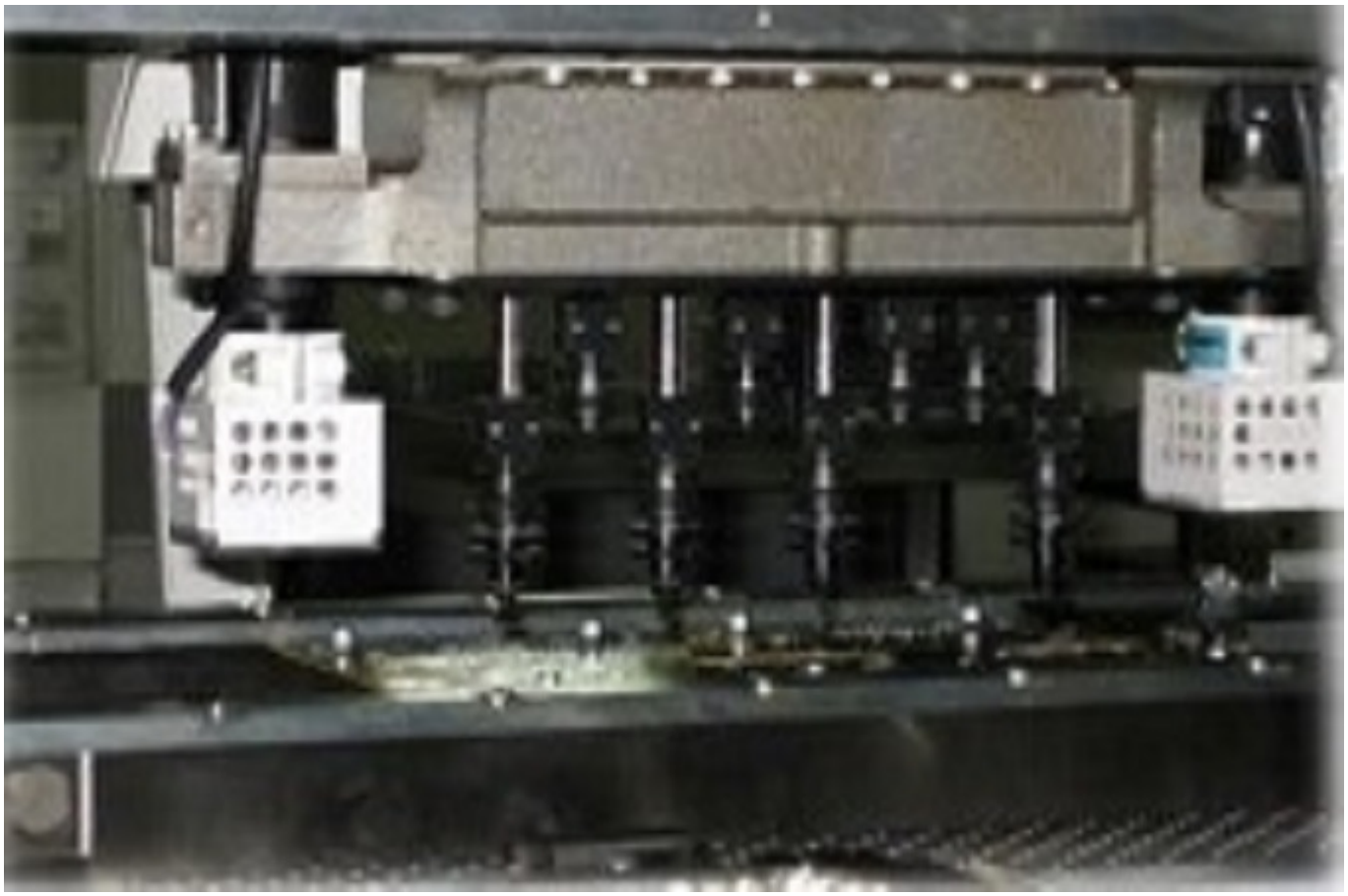
Qualification Pack



Electronics Manufacturing Services (EMS) Technician

QP Code: ELE/Q5315

Version: 4.0

NSQF Level: 4

Electronics Sector Skills Council of India || 155, 2nd Floor, ESC House Okhla Industrial Area-Phase 3
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Contents

Qualification Pack

ELE/Q5315: Electronics Manufacturing Services (EMS) Technician

Brief Job Description

Electronics Manufacturing Services (EMS) Technician in this job job works on SMT machines, circuit boards and soldering equipment. The individual is responsible for the maintenance and troubleshooting of SMT equipment and also assists in the assembly and programming of SMT equipment.

Personal Attributes

The job requires the individual to work in a process driven environment mostly in a standing position. The job requires the individual to have: attention to details, good eyesight and visual accuracy and to work for long hours generally in a standing position.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. ELE/N5304: Operate reflow-oven soldering machine
2. ELE/N5201: Apply solder paste
3. ELE/N5104: Operate pick-and-place machine for PCB assembly
4. DGT/VSQ/N0101: Employability Skills (30 Hours)

Qualification Pack (QP) Parameters

Sector	Electronics
Sub-Sector	Electronics Manufacturing System
Occupation	Assembly-EMS
Country	India
NSQF Level	4
Credits	15
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3114.9900

Qualification Pack

Minimum Educational Qualification & Experience	12th grade Pass (12th grade or equivalent) with NA of experience OR 10th grade pass (10th grade or equivalent) with 3 Years of experience Relevant Experience in Electronics Manufacturing Services OR Previous relevant Qualification of NSQF Level (Level-3 in relevant domain) with 3 Years of experience Relevant Experience in Electronics Manufacturing Services
Minimum Level of Education for Training in School	10th 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	4.0
Reference code on NQR	QG-04-EH-044942025-V2-ESSCI
NQR Version	2

Remarks:

NA

ELE/N5304: Operate reflow-oven soldering machine

Description

This NOS unit is about loading, setting, operating and maintaining the reflow oven in order to solder different lots of PCBs with SMT components

Scope

The scope covers the following :

- Program and operate the reflow- oven machine
- Perform quality inspection
- Perform preventive maintenance of the machine

Elements and Performance Criteria

Program and operate the reflow- oven machine

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

PC1. Discuss about how to Operate, maintain, and troubleshoot SMT machines and equipment, and assist in the assembly and programming of SMT systems as per operational requirements.

PC2. check the daily PCB loading list

PC3. identify and load specified program for the type of PCB assembled

PC4. set temperature and time profile of heaters and coolers

PC5. inspect the assembled boards for no defects before loading

PC6. ensure the conveyer is adjusted according to the size of PCB and start the oven for the soldering schedule

PC7. monitor soldering process until boards come out of the machine after soldering

PC8. examine soldered boards to ensure quality

PC9. follow ESD precautions and contamination prevention handling practices

Perform quality inspection

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

PC10. ensure that components are soldered using programmable reflow ovens with real-time thermal profiling for precise soldering

PC11. check placement and solder of components

PC12. check for any loose or damaged components or board

Perform preventive maintenance of the machine

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

PC13. maintain reflow oven machine to avoid downtime

PC14. perform regular cleaning as prescribed by machine manufacturer

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Understand the working principle, components, and programming procedures of reflow oven and SMT machines

KU2. Know how to set and control temperature profiles, conveyor speed, and timing parameters for soldering operations.

KU3. Understand quality inspection methods for detecting soldering defects and component misplacements.

KU4. Be aware of ESD protection, contamination control, and machine safety protocols.

KU5. Know preventive maintenance procedures and cleaning requirements as per the manufacturers guidelines.

Generic Skills (GS)

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

GS1. Operate and program reflow ovens using digital controls and software interfaces accurately.

GS2. Perform visual and technical inspections to ensure soldering quality and board integrity.

GS3. Identify and troubleshoot process or machine-related issues promptly.

GS4. Communicate effectively with team members and supervisors to maintain smooth production flow

GS5. Maintain documentation of process parameters, inspection results, and maintenance activities systematically.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Program and operate the reflow- oven machine	**26**	**30**	**-**	**5**
PC1. Discuss about how to Operate, maintain, and troubleshoot SMT machines and equipment, and assist in the assembly and programming of SMT systems as per operational requirements.	-	-	-	-
PC2. check the daily PCB loading list	-	-	-	-
PC3. identify and load specified program for the type of PCB assembled	-	-	-	-
PC4. set temperature and time profile of heaters and coolers	-	-	-	-
PC5. inspect the assembled boards for no defects before loading	-	-	-	-
PC6. ensure the conveyer is adjusted according to the size of PCB and start the oven for the soldering schedule	-	-	-	-
PC7. monitor soldering process until boards come out of the machine after soldering	-	-	-	-
PC8. examine soldered boards to ensure quality	-	-	-	-
PC9. follow ESD precautions and contamination prevention handling practices	-	-	-	-
Perform quality inspection	**7**	**12**	**-**	**3**
PC10. ensure that components are soldered using programmable reflow ovens with real-time thermal profiling for precise soldering	-	-	-	-
PC11. check placement and solder of components	-	-	-	-
PC12. check for any loose or damaged components or board	-	-	-	-
Perform preventive maintenance of the machine	**7**	**8**	**-**	**2**
PC13. maintain reflow oven machine to avoid downtime	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. perform regular cleaning as prescribed by machine manufacturer	-	-	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N5304
NOS Name	Operate reflow-oven soldering machine
Sector	Electronics
Sub-Sector	Electronics Manufacturing System
Occupation	Assembly & Soldering
NSQF Level	4
Credits	4
Version	3.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

ELE/N5201: Apply solder paste

Description

This NOS unit is about applying solder paste on the PCBs, using a screen printer or manually before mounting SMT components in order to achieve soldering

Scope

The scope covers the following :

- Perform pre-screen printing activities
- Apply solder paste
- Perform preventive maintenance of the machine

Elements and Performance Criteria

Perform pre-screen printing activities

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

PC1. collate the right stencil from stores and verify the correct screens and design to print

PC2. use a roller to clean off the dust particles from the PCBs

PC3. examine PCBs under microscopes for defects and dust

PC4. change the sheet in the roller for every 10 boards

PC5. inspect overall cleanliness to avoid defects such as solder bridging and poor wetting

PC6. ensure that PCB surface does not come in contact with hand

PC7. set up printing machine and program it based on the performance flow chart

PC8. measure and mark pallets to ensure proper placement

Apply solder paste

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

PC9. Identify and load specified programs on machine’s computer

PC10. develop program overlay as precision fixture for automated paste application

PC11. use framed stencil for machine application and prototype stencil for hand application of solder paste

PC12. attach the stencil and board to printing machine

PC13. ensure that solder paste is applied as per specifications

PC14. monitor print speed, print pressure, separation speed and distance and printer alignment for controlled application of solder paste

PC15. ensure there are no solder opens or bridging to prevent leakage through stencil holes to areas other than those intended

PC16. confirm even release of paste with electro polished finish

PC17. confirm that PCBs are sent for mounting in less than five hours after stencil printing

Perform preventive maintenance of the machine

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

PC18. perform regular cleaning as prescribed by machine manufacturer

PC19. follow checklist for preventive maintenance schedules

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Understand the pre-screen printing process, stencil types, and solder paste application methods.

KU2. Know the importance of PCB cleanliness, inspection standards, and dust control in printing operations.

KU3. Understand machine setup parameters such as print speed, pressure, and alignment.

KU4. Be familiar with types of solder paste, stencil materials, and handling procedures to prevent defects

KU5. Know preventive maintenance procedures, schedules, and cleaning techniques for printing machines

Generic Skills (GS)

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

GS1. Operate and program screen-printing machines accurately based on specified design parameters.

GS2. Perform visual and microscopic inspection to detect dust, defects, or solder bridging.

GS3. Handle PCBs and stencils carefully to maintain product quality and avoid contamination.

GS4. Monitor and control printing parameters for consistent and precise solder paste deposition.

GS5. Maintain machine upkeep through regular cleaning and preventive maintenance as per SOPs.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Perform pre-screen printing activities	**18**	**21**	**-**	**6**
PC1. collate the right stencil from stores and verify the correct screens and design to print	-	-	-	-
PC2. use a roller to clean off the dust particles from the PCBs	-	-	-	-
PC3. examine PCBs under microscopes for defects and dust	-	-	-	-
PC4. change the sheet in the roller for every 10 boards	-	-	-	-
PC5. inspect overall cleanliness to avoid defects such as solder bridging and poor wetting	-	-	-	-
PC6. ensure that PCB surface does not come in contact with hand	-	-	-	-
PC7. set up printing machine and program it based on the performance flow chart	-	-	-	-
PC8. measure and mark pallets to ensure proper placement	-	-	-	-
Apply solder paste	**17**	**25**	**-**	**4**
PC9. Identify and load specified programs on machine’s computer	-	-	-	-
PC10. develop program overlay as precision fixture for automated paste application	-	-	-	-
PC11. use framed stencil for machine application and prototype stencil for hand application of solder paste	-	-	-	-
PC12. attach the stencil and board to printing machine	-	-	-	-
PC13. ensure that solder paste is applied as per specifications	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. monitor print speed, print pressure, separation speed and distance and printer alignment for controlled application of solder paste	-	-	-	-
PC15. ensure there are no solder opens or bridging to prevent leakage through stencil holes to areas other than those intended	-	-	-	-
PC16. confirm even release of paste with electro polished finish	-	-	-	-
PC17. confirm that PCBs are sent for mounting in less than five hours after stencil printing	-	-	-	-
Perform preventive maintenance of the machine	**5**	**4**	**-**	**-**
PC18. perform regular cleaning as prescribed by machine manufacturer	-	-	-	-
PC19. follow checklist for preventive maintenance schedules	-	-	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N5201
NOS Name	Apply solder paste
Sector	Electronics
Sub-Sector	Electronics Manufacturing System
Occupation	Assembly & Soldering
NSQF Level	4
Credits	4
Version	3.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

ELE/N5104: Operate pick-and-place machine for PCB assembly

Description

This NOS unit is about assembling surface-mount components on the printed circuit boards (PCB) by operating the automated pick-and-place machine after loading with reels of components and program as well as maintaining the machine

Scope

The scope covers the following :

- Program and load the pick-and-place machine
- Perform assembling on PCBs
- Visually inspect after assembly cycle
- Perform preventive maintenance of the machine
- Maintain Safe and Efficient Work Practices

Elements and Performance Criteria

Program and load the pick-and-place machine

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

PC1. inspect printed solder paste for accuracy

PC2. install specified programs on machine's computer according to PCB assembly plan

PC3. program the coordinates as per customer specified design chart or as per the design of the board

PC4. identify components accurately and decide where/how to place them on the reel

PC5. perform troubleshoot and optimize the program

Perform assembling on PCBs

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

PC6. warm up machine for prescribed time period and set up tools and parts to operate the machine

PC7. check and place all components to the feeders according to program

PC8. adjust PCB transport rails for all machines

PC9. ensure specified gap between two boards for secure placing of components on each PCB

PC10. check and update the daily PCB-loading list

PC11. observe proper ESD and contamination prevention handling practices

PC12. monitor the operation of equipment to ensure that assemblies are in compliance with standards

PC13. hand over the finished boards to reflow machine operator

PC14. reload the components as and when the reel or tray becomes empty

PC15. monitor the pick-and-place assembling and soldering process

PC16. clear the reel path if it gets stuck due to improper flow of components

Visually inspect after assembly cycle

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

PC17. cross check the PCB and components received from screen printing section prior to assembly

PC18. use the design chart to visually check the assembled board for components missed out

PC19. inspect solder paste to check if it is as per specifications before starting the pick-and-place operation

Perform preventive maintenance of the machine

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

PC20. maintain machine to avoid downtime

PC21. perform regular cleaning as prescribed by machine manufacturer

PC22. perform weekly greasing and cleaning of nozzles

Maintain Safe and Efficient Work Practices

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

PC23. Maintain a clean, organized, and safe work area, and follow workplace discipline.

PC24. Use personal protective equipment (PPE) and follow ESD precautions while handling electronic components.

PC25. Identify and report safety hazards or emergencies to the appropriate authority

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Understand the programming principles and operational workflow of pick-and-place machines used in SMT assembly.

KU2. Know PCB design layouts, coordinate mapping, and component placement sequences.

KU3. Understand ESD protection, contamination control, and safety protocols during PCB assembly.

KU4. Be familiar with machine troubleshooting, optimization, and preventive maintenance procedures.

KU5. Understand quality inspection parameters for solder paste accuracy and component alignment.

Generic Skills (GS)

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

GS1. Program, load, and operate the pick-and-place machine efficiently as per design and production schedules.

GS2. Accurately identify, load, and position electronic components onto feeders and PCBs.

GS3. Perform visual inspection and cross-verification of assembled boards to ensure quality compliance.

GS4. Apply problem-solving and troubleshooting skills to address component flow or placement issues.

GS5. Maintain a safe, clean, and organized workstation while adhering to ESD and safety standards.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Program and load the pick-and-place machine	**6**	**11**	**-**	**5**
PC1. inspect printed solder paste for accuracy	-	-	-	-
PC2. install specified programs on machine's computer according to PCB assembly plan	-	-	-	-
PC3. program the coordinates as per customer specified design chart or as per the design of the board	-	-	-	-
PC4. identify components accurately and decide where/how to place them on the reel	-	-	-	-
PC5. perform troubleshoot and optimize the program	-	-	-	-
Perform assembling on PCBs	**22**	**26**	**-**	**5**
PC6. warm up machine for prescribed time period and set up tools and parts to operate the machine	-	-	-	-
PC7. check and place all components to the feeders according to program	-	-	-	-
PC8. adjust PCB transport rails for all machines	-	-	-	-
PC9. ensure specified gap between two boards for secure placing of components on each PCB	-	-	-	-
PC10. check and update the daily PCB-loading list	-	-	-	-
PC11. observe proper ESD and contamination prevention handling practices	-	-	-	-
PC12. monitor the operation of equipment to ensure that assemblies are in compliance with standards	-	-	-	-
PC13. hand over the finished boards to reflow machine operator	-	-	-	-
PC14. reload the components as and when the reel or tray becomes empty	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. monitor the pick-and-place assembling and soldering process	-	-	-	-
PC16. clear the reel path if it gets stuck due to improper flow of components	-	-	-	-
Visually inspect after assembly cycle	**6**	**6**	**-**	**-**
PC17. cross check the PCB and components received from screen printing section prior to assembly	-	-	-	-
PC18. use the design chart to visually check the assembled board for components missed out	-	-	-	-
PC19. inspect solder paste to check if it is as per specifications before starting the pick-and-place operation	-	-	-	-
Perform preventive maintenance of the machine	**3**	**4**	**-**	**-**
PC20. maintain machine to avoid downtime	-	-	-	-
PC21. perform regular cleaning as prescribed by machine manufacturer	-	-	-	-
PC22. perform weekly greasing and cleaning of nozzles	-	-	-	-
Maintain Safe and Efficient Work Practices	**3**	**3**	**-**	**-**
PC23. Maintain a clean, organized, and safe work area, and follow workplace discipline.	-	-	-	-
PC24. Use personal protective equipment (PPE) and follow ESD precautions while handling electronic components.	-	-	-	-
PC25. Identify and report safety hazards or emergencies to the appropriate authority	-	-	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N5104
NOS Name	Operate pick-and-place machine for PCB assembly
Sector	Electronics
Sub-Sector	Electronics Manufacturing System
Occupation	Assembly-EMS
NSQF Level	4
Credits	6
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

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

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

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	**1**	**1**	**-**	**-**
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
Constitutional values – Citizenship	**1**	**1**	**-**	**-**
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	**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.	-	-	-	-
Basic English Skills	**2**	**3**	**-**	**-**
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
Communication Skills	**1**	**1**	**-**	**-**
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
Diversity & Inclusion	**1**	**1**	**-**	**-**
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
Financial and Legal Literacy	**3**	**4**	**-**	**-**
PC9. use various financial products and services safely and securely	-	-	-	-

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	-	-	-	-
Essential Digital Skills	**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	-	-	-	-
Entrepreneurship	**3**	**5**	**-**	**-**
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
Customer Service	**2**	**2**	**-**	**-**
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	**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**	**-**	**-**

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 % aggregate for the QP.

7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

(**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/N5304.Operate reflow-oven soldering machine	40	50	-	10	100	30
ELE/N5201.Apply solder paste	40	50	-	10	100	25
ELE/N5104.Operate pick-and-place machine for PCB assembly	40	50	-	10	100	25
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	20
Total	**140**	**180**	**-**	**30**	**350**	**100**

Acronyms

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

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.

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.