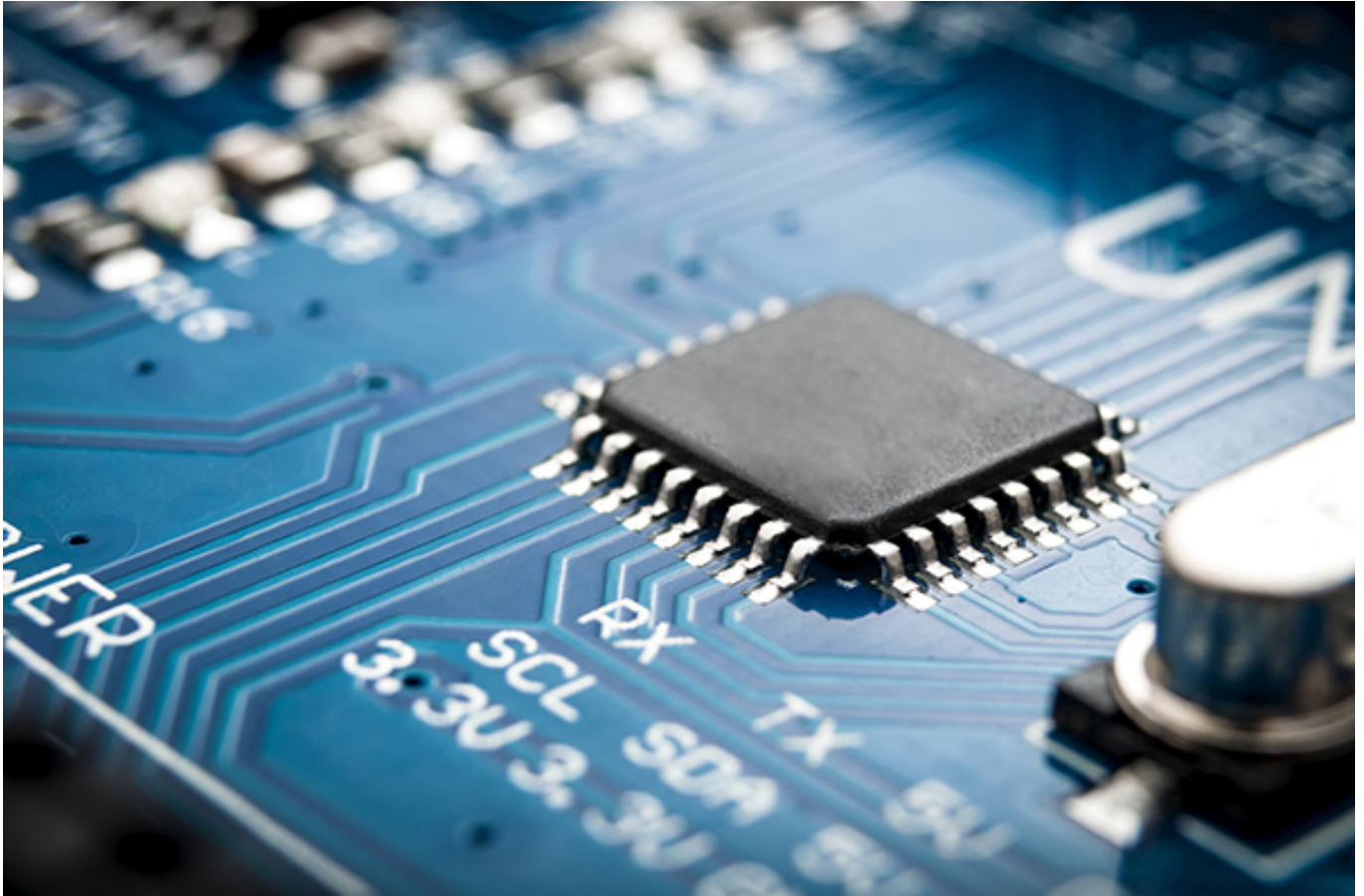




## Qualification Pack



# Molding Process Engineer

QP Code: ELE/Q0119

Version: 2.0

NSQF Level: 5

Electronics Sector Skills Council of India || 155, 2nd Floor, ESC House Okhla Industrial Area-Phase 3  
New Delhi- 110020 || email: [rakhi@essc-india.org](mailto:rakhi@essc-india.org)



## Qualification Pack

### Contents

ELE/Q0119: Molding Process Engineer .....	3
<i>Brief Job Description</i> .....	3
Applicable National Occupational Standards (NOS) .....	3
<i>Compulsory NOS</i> .....	3
<i>Qualification Pack (QP) Parameters</i> .....	3
ELE/N0125: Assess the Recipe/Program Readiness (Define Process Parameters) .....	5
ELE/N0126: Analysis Data, Yield, Cost and Productivity Improvement .....	11
ELE/N0124: Verify the Design .....	17
ELE/N0127: Buy Machine curing ovens, off/Tools & Consumables Qualification .....	22
ELE/N1002: Apply health and safety practices at the workplace .....	28
DGT/VSQ/N0102: Employability Skills (60 Hours) .....	36
Assessment Guidelines and Weightage .....	43
<i>Assessment Guidelines</i> .....	43
<i>Assessment Weightage</i> .....	43
Acronyms .....	45
Glossary .....	46



## Qualification Pack

### ELE/Q0119: Molding Process Engineer

#### Brief Job Description

Molding Process Engineer is responsible to work on failure analysis flow & to rectify the failures. He/ she is also responsible for verification and resolve by working together with several cross functional teams. Similarly, he is responsible for reliability flow, Test requirements as per JEDEC standards

#### Personal Attributes

The individual must be physically fit to work for long durations. The person must have an aptitude for details and problem-solving skills with the ability to work in coordination with others. The individual should be able to communicate appropriately, both verbally and in writing.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

- [1. ELE/N0125: Assess the Recipe/Program Readiness \(Define Process Parameters\)](#)
- [2. ELE/N0126: Analysis Data, Yield, Cost and Productivity Improvement](#)
- [3. ELE/N0124: Verify the Design](#)
- [4. ELE/N0127: Buy Machine curing ovens, off/Tools & Consumables Qualification](#)
- [5. ELE/N1002: Apply health and safety practices at the workplace](#)
- [6. DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Semiconductor & Components
<b>Occupation</b>	Production-S&C
<b>Country</b>	India
<b>NSQF Level</b>	5
<b>Credits</b>	26

### Qualification Pack

<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7223.2800
<b>Minimum Educational Qualification &amp; Experience</b>	Diploma (After 10 (Electronics/Mechanical)) with 1 Year of experience Relevant Experience OR 12th grade pass with 1 year NTC/ NAC with 1 Year of experience Relevant Experience OR 12th grade Pass with 2 Years of experience Relevant Experience OR Previous relevant Qualification of NSQF Level (4) with 3 Years of experience Relevant Experience OR 10th grade pass with 4 Years of experience Relevant Experience
<b>Minimum Level of Education for Training in School</b>	10th Class
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	24/02/2025
<b>NSQC Approval Date</b>	24/02/2022
<b>Version</b>	2.0
<b>Reference code on NQR</b>	QG-05-EH-01324-2023-V1.1-ESSC
<b>NQR Version</b>	1.0

**Remarks:**

NA
----

## Qualification Pack

### ELE/N0125: Assess the Recipe/Program Readiness (Define Process Parameters)

#### Description

The OS unit is about define the process parameters and verify the process

#### Scope

The scope covers the following :

- Define Process Parameters
- Verify Process Parameters
- Prepare SOP

#### Elements and Performance Criteria

##### *Define Process Parameters*

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

- PC1.** verify the product dimensions as well the strip dimensions
- PC2.** verify the package outline drawing and strip drawing
- PC3.** check the bonding force, pick & place location, curing parameters inside oven etc
- PC4.** verify all process parameters such as bonding force, placements, attaching speed, adhesive thickness, wafer and substrate location and moving speed etc
- PC5.** manage dummy samples
- PC6.** check measurement and see if all dimensions are within spec. or not
- PC7.** review the criteria if not meeting the spec criteria
- PC8.** verify input major parameters into SOP
- PC9.** monitor full SOP and release to production
- PC10.** review if any special requirement is needed

##### *Verify Process Parameters*

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

- PC11.** verify new products verification of process parameters is done like mention below
- PC12.** verify copy old recipe of similar program
- PC13.** review the changes as per product specification requirement
- PC14.** check dummies, do measurements, calculate Process Capability (CPK), Process Performance (PPK) & other quality parameters
- PC15.** check program if all ok the need to save
- PC16.** verify real product
- PC17.** check the product through quality and reliability checks
- PC18.** check mass production

##### *Prepare SOP*

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

## Qualification Pack

- PC19.** knowledge of AUTO CAD
- PC20.** prepare Process flow with clear specifications like Temp., Speed, Water Flow, Vacuumed etc
- PC21.** verify mold Compound curing oven setup parameters should be included
- PC22.** prepare SOP in such a way so that it is more understandable to operators with pictures, visuals, data Charts etc.
- PC23.** manage train Operators on SOP Flow
- PC24.** prepare traveling card with the defined process or program name/ code

### *Manage Daily Activity*

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

- PC25.** manage traveling cards to release production
- PC26.** manage regular monitoring of programs
- PC27.** check regular inspection of lot data such as yield, failure etc
- PC28.** test emergency situation
- PC29.** manage daily activity plan

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance of verifying the product dimensions and strip dimensions
- KU2.** the importance of verifying the package outline drawing and strip drawing
- KU3.** how to check the bonding force, pick & place location, curing parameters inside the oven, etc.
- KU4.** the importance of verifying all process parameters, such as bonding force, placements, attaching speed, adhesive thickness, wafer and substrate location, moving speed, etc.
- KU5.** how to manage dummy samples
- KU6.** the importance of taking measurements to see if all dimensions are within specifications
- KU7.** the importance and process of reviewing the criteria if the specification criteria are not met
- KU8.** the process of inputting major parameters into an SOP
- KU9.** the importance of monitoring the full SOP and its release to production and reviewing for any special requirements
- KU10.** the importance of verifying the copied old recipe of a similar program
- KU11.** the importance of reviewing changes as per product specification requirements
- KU12.** the process of checking dummies, measurements, CPK, PPK and other quality parameters
- KU13.** how to verify the real product
- KU14.** the importance and process of checking the product through quality and reliability checks
- KU15.** the use AUTO CAD
- KU16.** the importance of preparing the process flow with clear specifications, such as temperature, speed, water flow, vacuum, etc.
- KU17.** the importance of preparing the SOP with pictures, visuals, and data charts so that it is more understandable to operators
- KU18.** the importance of training operators on the SOP flow



## Qualification Pack

- KU19.** the importance of preparing the travelling card with the defined process or program name/ code
- KU20.** how to manage the release of traveling cards to production
- KU21.** the importance of conducting regular monitoring of programs
- KU22.** the importance of performing regular inspection of lot data, such as yield, failure, etc.
- KU23.** the importance of testing for emergencies

### Generic Skills (GS)

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

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** listen attentively to understand the information/ instructions being shared
- GS4.** communicate politely and professionally
- GS5.** plan and prioritize tasks to ensure timely completion
- GS6.** co-ordinate with the co-workers to achieve the work objectives
- GS7.** evaluate all possible solutions to a problem to select the best one
- GS8.** take quick decisions to deal with workplace emergencies/ accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Define Process Parameters</i>	<b>16</b>	<b>21</b>	-	<b>4</b>
<b>PC1.</b> verify the product dimensions as well the strip dimensions	2	3	-	1
<b>PC2.</b> verify the package outline drawing and strip drawing	2	3	-	1
<b>PC3.</b> check the bonding force, pick & place location, curing parameters inside oven etc	2	3	-	-
<b>PC4.</b> verify all process parameters such as bonding force, placements, attaching speed, adhesive thickness, wafer and substrate location and moving speed etc	2	3	-	-
<b>PC5.</b> manage dummy samples	2	3	-	1
<b>PC6.</b> check measurement and see if all dimensions are within spec. or not	2	2	-	1
<b>PC7.</b> review the criteria if not meeting the spec criteria	1	1	-	-
<b>PC8.</b> verify input major parameters into SOP	1	1	-	-
<b>PC9.</b> monitor full SOP and release to production	1	1	-	-
<b>PC10.</b> review if any special requirement is needed	1	1	-	-
<i>Verify Process Parameters</i>	<b>13</b>	<b>18</b>	-	-
<b>PC11.</b> verify new products verification of process parameters is done like mention below	2	3	-	-
<b>PC12.</b> verify copy old recipe of similar program	2	3	-	-
<b>PC13.</b> review the changes as per product specification requirement	2	3	-	-
<b>PC14.</b> check dummies, do measurements, calculate Process Capability (CPK), Process Performance (PPK) & other quality parameters	2	3	-	-
<b>PC15.</b> check program if all ok the need to save	2	3	-	-



### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC16. verify real product	1	1	-	-
PC17. check the product through quality and reliability checks	1	1	-	-
PC18. check mass production	1	1	-	-
<i>Prepare SOP</i>	<b>6</b>	<b>6</b>	-	<b>3</b>
PC19. knowledge of AUTO CAD	1	1	-	1
PC20. prepare Process flow with clear specifications like Temp., Speed, Water Flow, Vacuumed etc	1	1	-	1
PC21. verify mold Compound curing oven setup parameters should be included	1	1	-	1
PC22. prepare SOP in such a way so that it is more understandable to operators with pictures, visuals, data Charts etc.	1	1	-	-
PC23. manage train Operators on SOP Flow	1	1	-	-
PC24. prepare traveling card with the defined process or program name/ code	1	1	-	-
<i>Manage Daily Activity</i>	<b>5</b>	<b>5</b>	-	<b>3</b>
PC25. manage traveling cards to release production	1	1	-	1
PC26. manage regular monitoring of programs	1	1	-	1
PC27. check regular inspection of lot data such as yield, failure etc	1	1	-	1
PC28. test emergency situation	1	1	-	-
PC29. manage daily activity plan	1	1	-	-
<b>NOS Total</b>	<b>40</b>	<b>50</b>	-	<b>10</b>



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N0125
<b>NOS Name</b>	Assess the Recipe/Program Readiness (Define Process Parameters)
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Semiconductor & Components
<b>Occupation</b>	Production-S&C
<b>NSQF Level</b>	5
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	24/02/2022
<b>Next Review Date</b>	24/02/2025
<b>NSQC Clearance Date</b>	24/02/2022

## Qualification Pack

### ELE/N0126: Analysis Data, Yield, Cost and Productivity Improvement

#### Description

The OS unit is about yield, cost and productivity improvement

#### Scope

The scope covers the following :

- Product Quality
- Yield Tracking
- Yield, Cost and Productivity Improvement

#### Elements and Performance Criteria

##### *Product Quality*

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

- PC1.** verify all strip outlines drawings with specifications
- PC2.** verify sample size for each lot to measure & inspect all molding related items
- PC3.** manage inspection & measurement techniques in SOP for operators
- PC4.** review collecting data, do statistics analysis if it is within specification release the lot to next step
- PC5.** check all consumables (Molding Compound) specifications clearly
- PC6.** manage regular inspections for each consumable
- PC7.** check failure at molding and it should be passed through failure analysis
- PC8.** review root cause of each failure
- PC9.** manage short term and long-term actions of failures to reduce the failure rate
- PC10.** verify 8D report

##### *Yield Tracking*

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

- PC11.** verify yield data collection for each product
- PC12.** verify the yield
- PC13.** manage data analysis using statistical methods
- PC14.** review ppt and present to management on WW bases
- PC15.** observe the necessary steps if the yield is lower than the target
- PC16.** monitor record for all failures along with actions to avoid future failure

##### *Yield, Cost and Productivity Improvement*

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

- PC17.** manage strategies for further improvements
- PC18.** verify Research and Development (R&D) to Improvements
- PC19.** check broad material to reduce cost
- PC20.** monitor working principle of machines to improve Unit per Hour (UPH)

## Qualification Pack

- PC21.** verify Design of Experiments (DOE) Expertise
- PC22.** knowledge of running statistical tools such as JMP
- PC23.** manage regular interaction with customer, supplier, and internal teams
- PC24.** verify auto Computer-Aided Design (CAD) generated designs

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance of verifying all strip outlines drawings with specifications
- KU2.** how to verify sample size for each lot to measure and inspect all molding related items
- KU3.** how to manage inspection and measurement techniques in the SOP for operators
- KU4.** the importance and process of reviewing the collecting data and performing statistical analysis to determine if it is within the specifications
- KU5.** the importance of checking all consumables, i.e. molding compound specifications and regularly inspecting for each consumable
- KU6.** the process of checking failure at molding and the importance of ensuring it passes through failure analysis
- KU7.** the importance of reviewing the root cause for each failure
- KU8.** the importance of managing short term and long-term actions of failures to reduce the failure rate
- KU9.** the importance of verifying yield data collection for each product
- KU10.** how to manage data analysis using statistical methods
- KU11.** the necessary steps to be taken if the yield is lower than the target
- KU12.** the importance of monitoring records for all failures along with actions to avoid future failure
- KU13.** appropriate strategies and Research and Development (R&D) for further improvements
- KU14.** the importance of monitoring the operations of machines to improve Unit per Hour (UPH)
- KU15.** how to develop Design of Experiments (DOE) Expertise
- KU16.** how to run statistical tools such as JMP
- KU17.** the importance of regularly interacting with customers, suppliers, and internal teams
- KU18.** the importance and process of verifying auto Computer-Aided Design (CAD) generated designs

## Generic Skills (GS)

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

- GS1.** maintain the record of work-related observations
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** communicate politely and professionally
- GS4.** listen attentively to understand the information or instructions being given
- GS5.** co-ordinate with the co-workers to achieve the work objectives
- GS6.** plan and schedule tasks to achieve work efficiency



## Qualification Pack

- GS7.** identify possible disruptions to work and take preventive measures
- GS8.** evaluate all possible solutions to a problem to select the best one
- GS9.** take quick decisions to deal with workplace emergencies or accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Product Quality</i>	<b>18</b>	<b>22</b>	-	<b>4</b>
<b>PC1.</b> verify all strip outlines drawings with specifications	2	3	-	1
<b>PC2.</b> verify sample size for each lot to measure & inspect all molding related items	2	3	-	1
<b>PC3.</b> manage inspection & measurement techniques in SOP for operators	2	2	-	1
<b>PC4.</b> review collecting data, do statistics analysis if it is within specification release the lot to next step	2	2	-	1
<b>PC5.</b> check all consumables (Molding Compound) specifications clearly	2	2	-	-
<b>PC6.</b> manage regular inspections for each consumable	2	2	-	-
<b>PC7.</b> check failure at molding and it should be passed through failure analysis	2	2	-	-
<b>PC8.</b> review root cause of each failure	2	2	-	-
<b>PC9.</b> manage short term and long-term actions of failures to reduce the failure rate	1	2	-	-
<b>PC10.</b> verify 8D report	1	2	-	-
<i>Yield Tracking</i>	<b>9</b>	<b>12</b>	-	<b>3</b>
<b>PC11.</b> verify yield data collection for each product	2	2	-	1
<b>PC12.</b> verify the yield	2	2	-	1
<b>PC13.</b> manage data analysis using statistical methods	2	2	-	1
<b>PC14.</b> review ppt and present to management on WW bases	1	2	-	-
<b>PC15.</b> observe the necessary steps if the yield is lower than the target	1	2	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC16.</b> monitor record for all failures along with actions to avoid future failure	1	2	-	-
<i>Yield, Cost and Productivity Improvement</i>	<b>13</b>	<b>16</b>	-	<b>3</b>
<b>PC17.</b> manage strategies for further improvements	2	2	-	1
<b>PC18.</b> verify Research and Development (R&D) to Improvements	2	2	-	1
<b>PC19.</b> check broad material to reduce cost	2	2	-	1
<b>PC20.</b> monitor working principle of machines to improve Unit per Hour (UPH)	2	2	-	-
<b>PC21.</b> verify Design of Experiments (DOE) Expertise	2	2	-	-
<b>PC22.</b> knowledge of running statistical tools such as JMP	1	2	-	-
<b>PC23.</b> manage regular interaction with customer, supplier, and internal teams	1	2	-	-
<b>PC24.</b> verify auto Computer-Aided Design (CAD) generated designs	1	2	-	-
<b>NOS Total</b>	<b>40</b>	<b>50</b>	-	<b>10</b>



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N0126
<b>NOS Name</b>	Analysis Data, Yield, Cost and Productivity Improvement
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Semiconductor & Components
<b>Occupation</b>	Production-S&C
<b>NSQF Level</b>	5
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	24/02/2022
<b>Next Review Date</b>	24/02/2025
<b>NSQC Clearance Date</b>	24/02/2022



## Qualification Pack

### ELE/N0124: Verify the Design

#### Description

The OS unit is about understanding of stacking structure and verify design.

#### Scope

The scope covers the following :

- Design Creation
- Understanding of stacking structure
- Design Verification

#### Elements and Performance Criteria

##### *Design Creation*

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

- PC1.** knowledge of Auto CAD or equivalent design tool
- PC2.** knowledge of wafer structure and processing, wire materials properties
- PC3.** collect customer requirements
- PC4.** collect data from competitor's specs
- PC5.** perform reverse analysis to get the die to attach and wire bonding specifications

##### *Understanding of stacking structure*

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

- PC6.** identify the critical and normal dimensions requirements as per customer specification
- PC7.** define the dimension's specification to meet customer requirements
- PC8.** knowledge of Joint Electron Device Engineering Council (JEDEC) standard
- PC9.** identify customer bonding diagram
- PC10.** specify wire bonding material that fulfills bonding drawing and electrical, mechanical, and thermal specifications
- PC11.** perform drawing activities

##### *Design Verification*

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

- PC12.** identify bonding drawing
- PC13.** verify die-attach staking structure
- PC14.** verify rubber tip for die attach and capillary for wire bonding drawing
- PC15.** identify magazine drawing
- PC16.** identify cassette drawing

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

## Qualification Pack

- KU1.** the use of Auto CAD and other equivalent design tools
- KU2.** the wafer structure and processing, and wire material properties
- KU3.** the importance of determining the customer requirements and collecting data from competitors' specs
- KU4.** how to perform reverse analysis to get the die to attach and wire bonding specifications
- KU5.** the importance of identifying the critical and normal dimension requirements as per the customer requirements
- KU6.** the importance and process of defining the dimension specifications to meet the customer requirements
- KU7.** the Joint Electron Device Engineering Council (JEDEC) standard
- KU8.** the customer bonding diagram
- KU9.** the importance of specifying the wire bonding material that fulfils the bonding drawing and electrical, mechanical, and thermal specifications
- KU10.** how to perform drawing activities bonding drawing
- KU11.** how to verify the die-attach staking structure
- KU12.** how to verify rubber tip for die attach and capillary for wire bonding drawing
- KU13.** how to identify magazine drawing and cassette drawing

## Generic Skills (GS)

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

- GS1.** maintain the record of work-related observations
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** communicate politely and professionally
- GS4.** listen attentively to understand the information or instructions being given
- GS5.** co-ordinate with the co-workers to achieve the work objectives
- GS6.** plan and schedule tasks to achieve work efficiency
- GS7.** identify possible disruptions to work and take preventive measures
- GS8.** evaluate all possible solutions to a problem to select the best one
- GS9.** take quick decisions to deal with workplace emergencies or accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Design Creation</i>	<b>14</b>	<b>18</b>	-	<b>5</b>
<b>PC1.</b> knowledge of Auto CAD or equivalent design tool	4	6	-	1
<b>PC2.</b> knowledge of wafer structure and processing, wire materials properties	4	6	-	1
<b>PC3.</b> collect customer requirements	2	2	-	1
<b>PC4.</b> collect data from competitor's specs	2	2	-	1
<b>PC5.</b> perform reverse analysis to get the die to attach and wire bonding specifications	2	2	-	1
<i>Understanding of stacking structure</i>	<b>18</b>	<b>22</b>	-	<b>3</b>
<b>PC6.</b> identify the critical and normal dimensions requirements as per customer specification	4	6	-	1
<b>PC7.</b> define the dimension's specification to meet customer requirements	4	6	-	1
<b>PC8.</b> knowledge of Joint Electron Device Engineering Council (JEDEC) standard	4	4	-	1
<b>PC9.</b> identify customer bonding diagram	2	2	-	-
<b>PC10.</b> specify wire bonding material that fulfills bonding drawing and electrical, mechanical, and thermal specifications	2	2	-	-
<b>PC11.</b> perform drawing activities	2	2	-	-
<i>Design Verification</i>	<b>8</b>	<b>10</b>	-	<b>2</b>
<b>PC12.</b> identify bonding drawing	2	2	-	1
<b>PC13.</b> verify die-attach staking structure	2	2	-	1
<b>PC14.</b> verify rubber tip for die attach and capillary for wire bonding drawing	2	2	-	-
<b>PC15.</b> identify magazine drawing	1	2	-	-



### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC16. identify cassette drawing	1	2	-	-
<b>NOS Total</b>	<b>40</b>	<b>50</b>	<b>-</b>	<b>10</b>



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N0124
<b>NOS Name</b>	Verify the Design
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Semiconductor & Components
<b>Occupation</b>	Production-S&C
<b>NSQF Level</b>	5
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	24/02/2022
<b>Next Review Date</b>	24/02/2025
<b>NSQC Clearance Date</b>	24/02/2022

## Qualification Pack

### ELE/N0127: Buy Machine curing ovens, off/Tools & Consumables Qualification

#### Description

The OS unit is about ensure the test and quality of equipment at manufacturer's site

#### Scope

The scope covers the following :

- Factory Acceptance test at equipment manufacturer site
- Site Acceptance test at product manufacturer site
- Consumable and Raw Material Qualification

#### Elements and Performance Criteria

##### *Factory Acceptance test at equipment manufacturer site*

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

- PC1.** verify File Allocation table (FAT) creation
- PC2.** ensure that the report adheres to verify the dimension's specification to meet customer requirements
- PC3.** verify general machine specification (operation, main controller, main panel should function as per requirements given to manufacturer)
- PC4.** manage all equipment consumables specifications, dimensions and other parameters should be clearly defined by process and equipment engineer
- PC5.** verify equipment and well as process parameters should DMAT during testing at site
- PC6.** verify the sample size required to buy off machines and should be defined clearly with specification and CPK Requirements
- PC7.** check all material through equipment along with manufacturers team
- PC8.** verify solid report to avoid any future issues
- PC9.** ensure to approve and keep it for record

##### *Site Acceptance test at product manufacturer site*

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

- PC10.** verify File Allocation table (FAT) creation
- PC11.** ensure that the report adheres to verify the dimension's specification to meet customer requirements
- PC12.** verify general machine specification (operation, main controller, main panel should function as per requirements given to manufacturer)
- PC13.** manage all equipment consumables specifications, dimensions and other parameters should be clearly defined by process and equipment engineer
- PC14.** verify equipment and well as process parameters should DMAT during testing at site
- PC15.** verify the sample size required to buy off machines and should be defined clearly with specification and CPK Requirements

## Qualification Pack

**PC16.** check all material through equipment along with manufacturers team

**PC17.** verify solid report to avoid any future issues

**PC18.** ensure to approve and keep it for record

### *Consumable and Raw Material Qualification*

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

**PC19.** verify low cost and high reliable raw material and consumables

**PC20.** verify new material to Design DOE

**PC21.** manage the quality and reality data for each characterization, feasibility and qualification build

**PC22.** ensure to generate PCN (Process Change Notification)

**PC23.** prepare qualification report and present to management

**PC24.** verify Low Volume Mass Production (LVM) and peer production team to make seamless transition and high-volume mass production

**PC25.** check all characterization phase, feasibility phase, customer samples phase and qualification phase

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** how to verify File Allocation Table (FAT) creation

**KU2.** the importance of ensuring the report adheres to verify the dimension specifications to meet the customer requirements

**KU3.** the importance of ensuring the functioning of the main controller and the main panel as per requirements given to the manufacturer

**KU4.** the importance of ensuring all equipment consumable specifications, dimensions and other parameters are clearly defined by the process and equipment engineer

**KU5.** the importance of verifying equipment and process parameters

**KU6.** the importance of ensuring the sample size required to buy off machines is defined clearly with specification and CPK Requirements

**KU7.** the importance of verifying low cost and high reliable raw material and consumables

**KU8.** the importance of managing the quality and reliability data for each characterization, feasibility and qualification build

**KU9.** how to generate Process Change Notification (PCN)

**KU10.** how to prepare a qualification report

**KU11.** the process of transition from low volume mass production to high-volume mass production

**KU12.** the importance of checking characterization phase, feasibility phase, customer samples phase and qualification phase

## Generic Skills (GS)

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

**GS1.** maintain work-related notes and records



## Qualification Pack

- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** listen attentively to understand the information/ instructions being shared
- GS4.** communicate politely and professionally
- GS5.** plan and prioritize tasks to ensure timely completion
- GS6.** co-ordinate with the co-workers to achieve the work objectives
- GS7.** evaluate all possible solutions to a problem to select the best one
- GS8.** take quick decisions to deal with workplace emergencies/ accidents



## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Factory Acceptance test at equipment manufacturer site</i>	<b>15</b>	<b>20</b>	-	<b>4</b>
<b>PC1.</b> verify File Allocation table (FAT) creation	2	3	-	1
<b>PC2.</b> ensure that the report adheres to verify the dimension's specification to meet customer requirements	2	3	-	1
<b>PC3.</b> verify general machine specification (operation, main controller, main panel should function as per requirements given to manufacturer)	2	3	-	1
<b>PC4.</b> manage all equipment consumables specifications, dimensions and other parameters should be clearly defined by process and equipment engineer	2	3	-	1
<b>PC5.</b> verify equipment and well as process parameters should DMAT during testing at site	2	3	-	-
<b>PC6.</b> verify the sample size required to buy off machines and should be defined clearly with specification and CPK Requirements	2	2	-	-
<b>PC7.</b> check all material through equipment along with manufacturers team	1	1	-	-
<b>PC8.</b> verify solid report to avoid any future issues	1	1	-	-
<b>PC9.</b> ensure to approve and keep it for record	1	1	-	-
<i>Site Acceptance test at product manufacturer site</i>	<b>14</b>	<b>16</b>	-	<b>3</b>
<b>PC10.</b> verify File Allocation table (FAT) creation	2	3	-	1
<b>PC11.</b> ensure that the report adheres to verify the dimension's specification to meet customer requirements	2	3	-	1
<b>PC12.</b> verify general machine specification (operation, main controller, main panel should function as per requirements given to manufacturer)	2	2	-	1

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> manage all equipment consumables specifications, dimensions and other parameters should be clearly defined by process and equipment engineer	2	2	-	-
<b>PC14.</b> verify equipment and well as process parameters should DMAT during testing at site	2	2	-	-
<b>PC15.</b> verify the sample size required to buy off machines and should be defined clearly with specification and CPK Requirements	1	1	-	-
<b>PC16.</b> check all material through equipment along with manufacturers team	1	1	-	-
<b>PC17.</b> verify solid report to avoid any future issues	1	1	-	-
<b>PC18.</b> ensure to approve and keep it for record	1	1	-	-
<i>Consumable and Raw Material Qualification</i>	<b>11</b>	<b>14</b>	-	<b>3</b>
<b>PC19.</b> verify low cost and high reliable raw material and consumables	2	2	-	1
<b>PC20.</b> verify new material to Design DOE	2	2	-	1
<b>PC21.</b> manage the quality and realibility data for each characterization, feasibility and qualification build	2	2	-	1
<b>PC22.</b> ensure to generate PCN (Process Change Notification)	2	2	-	-
<b>PC23.</b> prepare qualification report and present to management	1	2	-	-
<b>PC24.</b> verify Low Volume Mass Production (LVM) and peer production team to make seamless transition and high-volume mass production	1	2	-	-
<b>PC25.</b> check all characterization phase, feasibility phase, customer samples phase and qualification phase	1	2	-	-
<b>NOS Total</b>	<b>40</b>	<b>50</b>	-	<b>10</b>



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N0127
<b>NOS Name</b>	Buy Machine curing ovens, off/Tools & Consumables Qualification
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Semiconductor & Components
<b>Occupation</b>	Production-S&C
<b>NSQF Level</b>	5
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	24/02/2022
<b>Next Review Date</b>	24/02/2025
<b>NSQC Clearance Date</b>	24/02/2022

## Qualification Pack

### ELE/N1002: Apply health and safety practices at the workplace

#### Description

This OS unit is about knowledge and practices relating to health, safety and security that candidates need to use in the workplace.

#### Scope

The scope covers the following :

- Deal with workplace hazards
- Apply fire safety practices
- Follow emergencies, rescue and first-aid procedures
- Effective waste management/recycling practices

#### Elements and Performance Criteria

##### *Deal with workplace hazards*

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

- PC1.** identify job-site hazards and possible causes of accident in the workplace
- PC2.** perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.
- PC3.** use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC4.** follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments
- PC5.** dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques
- PC6.** avoid damage of components due to negligence in electrostatic discharge (ESD) procedures
- PC7.** locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)
- PC8.** maintain appropriate posture while handling heavy objects
- PC9.** apply good housekeeping practices at all times

##### *Apply fire safety practices*

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

- PC10.** take preventive measures to prevent fire hazards
- PC11.**
  - use appropriate fire extinguishers for different types of fires
  - Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no l
- PC12.** exhibit rescue and first-aid techniques in case of fire or electrocution

## Qualification Pack

### *Follow emergencies, rescue and first-aid procedures*

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

- PC13.** administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.
- PC14.** administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,
- PC15.** participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work
- PC16.** use correct method to move injured people and others during an emergency

### *Effective waste management/recycling practices*

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

- PC17.** identify recyclable and non-recyclable, and hazardous waste generated
- PC18.** segregate waste into different categories
- PC19.** ensure disposal of non-recyclable waste appropriately
- PC20.** deposit non-recyclable and reusable material at identified location
- PC21.** follow processes specified for disposal of hazardous waste

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** importance of working in clean and safe work environment following safety practices and procedures
- KU2.** health and safety roles and responsibilities of relevant personnel within and outside the organisation
- KU3.** key internal and external sources of health and safety information
- KU4.** basic knowledge of electronic devices and related health risks
- KU5.** meaning of hazards and risks
- KU6.** various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU7.** methods of accident prevention
- KU8.** importance of using protective clothing/equipment while working
- KU9.** general principles for identifying and controlling health and safety risks
- KU10.** main hazards and preventive as well as control measures while working with different types of equipment
- KU11.** importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control
- KU12.** main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU13.** forms and classifications of hazardous substances
- KU14.** safe working practices while working at various hazardous sites
- KU15.** prevention and control measures to reduce risks from exposure to hazardous substances

## Qualification Pack

- KU16.** health effects associated with exposure to noise and vibration and the appropriate control measures
- KU17.** precautionary activities to prevent the fire accident
- KU18.** various causes of fire such as heating of metal, spontaneous ignition, sparking, electrical eating, loose fires (smoking, welding, etc.) chemical fires etc.
- KU19.** techniques of using the different fire extinguishers
- KU20.** different methods and material to extinguish fires
- KU21.** different materials used for extinguishing fire such as sand, water, foam, CO<sub>2</sub>, dry powder
- KU22.** rescue techniques used during a fire hazard
- KU23.** various types of safety signs and their meaning
- KU24.** basic first aid treatment relevant to the common work place injuries e.g. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries
- KU25.** contents of written accident report
- KU26.** potential injuries and ill health associated with incorrect handling of tools and equipment
- KU27.** safe lifting and carrying practices
- KU28.** potential impact to a person who is moved incorrectly
- KU29.** personal safety, health and dignity issues relating to the movement of a person by others
- KU30.** ESD measures and 5S
- KU31.** efficient utilization and management of material and water
- KU32.** ways to recognize common electrical problems and practices of conserving electricity
- KU33.** usage of different colours of dustbins, categorization of waste into dry, wet, recyclable, nonrecyclable and items of single-use plastics
- KU34.** organization's procedure for minimizing waste
- KU35.** waste management and methods of waste disposal
- KU36.** common sources of pollution and ways to minimize it
- KU37.** names, contact information and location of people responsible for health and safety in the workplace
- KU38.** location of documents and equipment for health and safety compliance/practices in the workplace
- KU39.** safety notices, signs and instructions at workplace

## Generic Skills (GS)

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

- GS1.** interpret general health and safety guidelines labels, charts, signages
- GS2.** read operation manuals
- GS3.** write health and safety compliance report
- GS4.** write an accident/incident report in local language or English
- GS5.** provide an emergency or safety incident brief to seniors or relevant authorities in a calm, clear and to-the-point manner
- GS6.** communicate general health and safety guidelines to colleagues/co-workers



## Qualification Pack

- GS7.** communicate appropriately with co-workers in order to clarify instructions and other issues
- GS8.** act in case of any potential hazards observed in the work place
- GS9.** plan and organize their own work schedule, work area, tools, equipment in compliance with organizational policies for health, safety and security
- GS10.** take adequate measures to ensure the safety of clients and visitors at the workplace
- GS11.** identify immediate or temporary solutions to resolve delays
- GS12.** evaluate the work area for health and safety risks or hazards
- GS13.** use cause and effect relations to anticipate potential issues, problems and their solution in the work area related to safety
- GS14.** recognise emergency and potential emergency situations
- GS15.** protect self and others from a health and safety risk or hazard
- GS16.** communicate and collaborate to incorporate sustainable practices (greening) in workplace processes
- GS17.** record data on waste disposal at workplace

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Deal with workplace hazards</i>	<b>20</b>	<b>31</b>	-	-
<b>PC1.</b> identify job-site hazards and possible causes of accident in the workplace	2	3	-	-
<b>PC2.</b> perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.	3	4	-	-
<b>PC3.</b> use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards	3	4	-	-
<b>PC4.</b> follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments	3	4	-	-
<b>PC5.</b> dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques	2	4	-	-
<b>PC6.</b> avoid damage of components due to negligence in electrostatic discharge (ESD) procedures	2	3	-	-
<b>PC7.</b> locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)	2	3	-	-
<b>PC8.</b> maintain appropriate posture while handling heavy objects	1	3	-	-
<b>PC9.</b> apply good housekeeping practices at all times	2	3	-	-
<i>Apply fire safety practices</i>	<b>4</b>	<b>9</b>	-	-
<b>PC10.</b> take preventive measures to prevent fire hazards	2	3	-	-



### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<p><b>PC11.</b></p> <ul style="list-style-type: none"> <li>• use appropriate fire extinguishers for different types of fires</li> <li>• Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no l</li> </ul>	1	3	-	-
<p><b>PC12.</b> exhibit rescue and first-aid techniques in case of fire or electrocution</p>	1	3	-	-
<p><i>Follow emergencies, rescue and first-aid procedures</i></p>	<b>6</b>	<b>13</b>	-	-
<p><b>PC13.</b> administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.</p>	1	3	-	-
<p><b>PC14.</b> administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,</p>	1	2	-	-
<p><b>PC15.</b> participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work</p>	2	4	-	-
<p><b>PC16.</b> use correct method to move injured people and others during an emergency</p>	2	4	-	-
<p><i>Effective waste management/recycling practices</i></p>	<b>5</b>	<b>12</b>	-	-
<p><b>PC17.</b> identify recyclable and non-recyclable, and hazardous waste generated</p>	1	3	-	-
<p><b>PC18.</b> segregate waste into different categories</p>	1	2	-	-
<p><b>PC19.</b> ensure disposal of non-recyclable waste appropriately</p>	1	2	-	-
<p><b>PC20.</b> deposit non-recyclable and reusable material at identified location</p>	1	3	-	-



### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. follow processes specified for disposal of hazardous waste	1	2	-	-
<b>NOS Total</b>	<b>35</b>	<b>65</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N1002
<b>NOS Name</b>	Apply health and safety practices at the workplace
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic - Health Safety
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	24/02/2022
<b>Next Review Date</b>	24/02/2025
<b>NSQC Clearance Date</b>	24/02/2022



## Qualification Pack

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

#### Description

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

#### Scope

The scope covers the following :

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

#### Elements and Performance Criteria

##### *Introduction to Employability Skills*

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

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

##### *Constitutional values - Citizenship*

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

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

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

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

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

##### *Basic English Skills*

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

## Qualification Pack

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

### *Career Development & Goal Setting*

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

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

### *Communication Skills*

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

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

### *Diversity & Inclusion*

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

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

### *Financial and Legal Literacy*

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

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

### *Essential Digital Skills*

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

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

### *Entrepreneurship*

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

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

### *Customer Service*

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

- PC26.** identify different types of customers
- PC27.** identify and respond to customer requests and needs in a professional manner.

## Qualification Pack

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

*Getting ready for apprenticeship & Jobs*

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

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

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

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

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

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

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

**KU2.** various constitutional and personal values

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

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

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

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

**KU7.** about effective communication

**KU8.** POSH Act

**KU9.** Gender sensitivity and inclusivity

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

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

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

**KU13.** different legal rights and laws

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

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

**KU16.** how to identify business opportunities

**KU17.** types and needs of customers

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

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

## Generic Skills (GS)

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

**GS1.** read and write different types of documents/instructions/correspondence

**GS2.** communicate effectively using appropriate language in formal and informal settings



## Qualification Pack

- GS3.** behave politely and appropriately with all
- GS4.** how to work in a virtual mode
- GS5.** perform calculations efficiently
- GS6.** solve problems effectively
- GS7.** pay attention to details
- GS8.** manage time efficiently
- GS9.** maintain hygiene and sanitization to avoid infection

## Qualification Pack

### Assessment Criteria

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



### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> understand the difference between job and career	-	-	-	-
<b>PC11.</b> prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	<b>2</b>	<b>2</b>	-	-
<b>PC12.</b> follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
<b>PC13.</b> work collaboratively with others in a team	-	-	-	-
<i>Diversity &amp; Inclusion</i>	<b>1</b>	<b>2</b>	-	-
<b>PC14.</b> communicate and behave appropriately with all genders and PwD	-	-	-	-
<b>PC15.</b> escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
<i>Financial and Legal Literacy</i>	<b>2</b>	<b>3</b>	-	-
<b>PC16.</b> select financial institutions, products and services as per requirement	-	-	-	-
<b>PC17.</b> carry out offline and online financial transactions, safely and securely	-	-	-	-
<b>PC18.</b> identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
<b>PC19.</b> identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
<i>Essential Digital Skills</i>	<b>3</b>	<b>4</b>	-	-
<b>PC20.</b> operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
<b>PC21.</b> use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
<b>PC22.</b> use basic features of word processor, spreadsheets, and presentations	-	-	-	-

### Qualification Pack

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

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	DGT/VSQ/N0102
<b>NOS Name</b>	Employability Skills (60 Hours)
<b>Sector</b>	Cross Sectoral
<b>Sub-Sector</b>	Professional Skills
<b>Occupation</b>	Employability
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	31/08/2023
<b>Next Review Date</b>	31/08/2026
<b>NSQC Clearance Date</b>	31/08/2023

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

Minimum 70% marks are required

**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

### Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ELE/N0125.Assess the Recipe/Program Readiness (Define Process Parameters)	40	50	-	10	100	20
ELE/N0126.Analysis Data, Yield, Cost and Productivity Improvement	40	50	-	10	100	20
ELE/N0124.Verify the Design	40	50	-	10	100	20
ELE/N0127.Buy Machine curing ovens, off/Tools & Consumables Qualification	40	50	-	10	100	20
ELE/N1002.Apply health and safety practices at the workplace	35	65	-	-	100	10
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
<b>Total</b>	<b>215</b>	<b>295</b>	<b>-</b>	<b>40</b>	<b>550</b>	<b>100</b>



## Qualification Pack

### Acronyms

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

## Qualification Pack

### Glossary

<b>Sector</b>	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
<b>Scope</b>	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

## Qualification Pack

<b>Knowledge and Understanding (KU)</b>	<p>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.</p>
<b>Organisational Context</b>	<p>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.</p>
<b>Technical Knowledge</b>	<p>Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.</p>
<b>Core Skills/ Generic Skills (GS)</b>	<p>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.</p>
<b>Electives</b>	<p>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.</p>
<b>Options</b>	<p>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.</p>