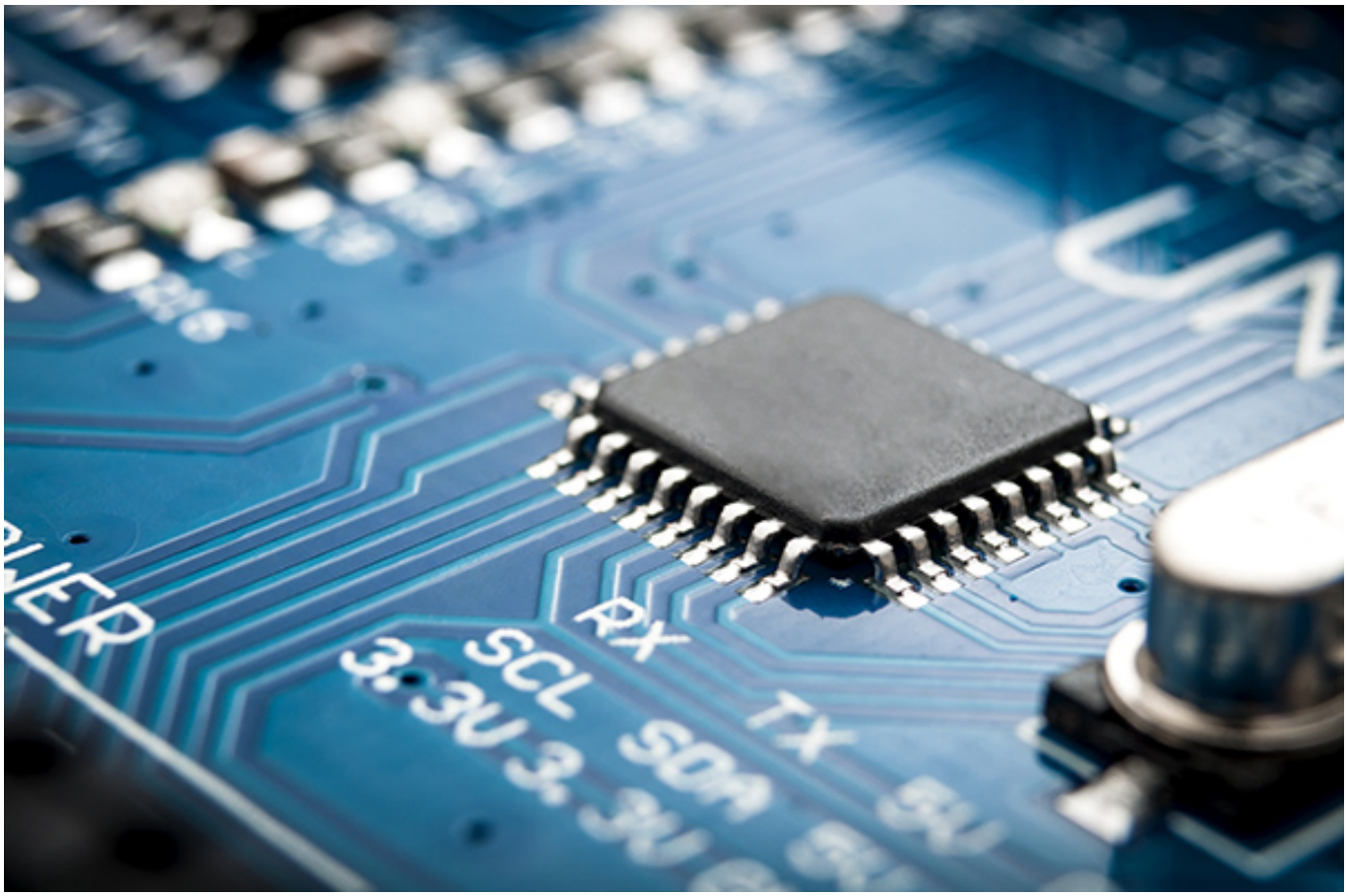
Qualification Pack



Molding Process Engineer

QP Code: ELE/Q0119

Version: 1.0

NSQF Level: 5

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Contents

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 realibility 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/N9905: Work effectively at the workplace
6. ELE/N1002: Apply health and safety practices at the workplace

Qualification Pack (QP) Parameters

Sector	Electronics
Sub-Sector	Semiconductor & Components
Occupation	Production-S&C
Country	India
NSQF Level	5
Credits	NA
Aligned to NCO/ISCO/ISIC Code	NCO-2015/NIL

Minimum Educational Qualification & Experience	Diploma ((after 10th (Electrical or Electronics Engineering) with 3 Years of Relevant experience) OR (3 Years Diploma after 12th (Electrical or Electronics Engineering) with 1 Years of Relevant experience)) OR B.E./B.Tech (Degree in Electrical or Electronics Engineering) OR Certificate-NSQF (Level-4 in semiconductor domain) with 2 Years of experience in the relevant field
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	24/02/2022
Next Review Date	24/02/2025
Deactivation Date	31/07/2024
NSQC Approval Date	24/02/2022
Version	1.0
Reference code on NQR	2022/EHW/ESSC/05399
NQR Version	1.0

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:

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

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

Assessment Criteria

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

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	-	-
Prepare SOP	**6**	**6**	**-**	**3**
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	-	-
Manage Daily Activity	**5**	**5**	**-**	**3**
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	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

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

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)

PC21. verify Design of Experiments (DOE) Expertise

PC22. knowledge of running satistical 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 satistical 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
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

Assessment Criteria

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

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

National Occupational Standards (NOS) Parameters

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

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 cassete drawing

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Design Creation	**14**	**18**	**-**	**5**
PC1. knowledge of Auto CAD or equivalent design tool	4	6	-	1
PC2. knowledge of wafer structure and processing, wire materials properties	4	6	-	1
PC3. collect customer requirements	2	2	-	1
PC4. collect data from competitor’s specs	2	2	-	1
PC5. perform reverse analysis to get the die to attach and wire bonding specifications	2	2	-	1
Understanding of stacking structure	**18**	**22**	**-**	**3**
PC6. identify the critical and normal dimensions requirements as per customer specification	4	6	-	1
PC7. define the dimension's specification to meet customer requirements	4	6	-	1
PC8. knowledge of Joint Electron Device Engineering Council (JEDEC) standard	4	4	-	1
PC9. identify customer bonding diagram	2	2	-	-
PC10. specify wire bonding material that fulfills bonding drawing and electrical, mechanical, and thermal specifications	2	2	-	-
PC11. perform drawing activities	2	2	-	-
Design Verification	**8**	**10**	**-**	**2**
PC12. identify bonding drawing	2	2	-	1
PC13. verify die-attach staking structure	2	2	-	1
PC14. verify rubber tip for die attach and capillary for wire bonding drawing	2	2	-	-
PC15. identify magazine drawing	1	2	-	-
PC16. identify cassete drawing	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	40	50	-	10

National Occupational Standards (NOS) Parameters

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

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

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 realibity 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

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

Assessment Criteria

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

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

National Occupational Standards (NOS) Parameters

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

ELE/N9905: Work effectively at the workplace

Description

This unit is about the communicating and managing work effectively at the workplace as well as taking measures to enhance own competence and working in a disciplined and ethical manner.

Scope

The scope covers the following :

- Communicate effectively at the workplace
- Work effectively
- Maintain and enhance professional competence
- Work in a disciplined and ethical manner
- Uphold social diversity at the workplace

Elements and Performance Criteria

Communicate effectively at the workplace

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

PC1. exchange information and instruction with colleagues, and seek clarifications and feedback as necessary

PC2. assist colleagues where required

PC3. follow business communication etiquette in all interactions and communicative formats (online, digital, and in-person)

PC4. document and share all relevant information with stakeholders in agreed formats and as per agreed timelines

Work effectively

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

PC5. identify and obtain clarity regarding organisational, team and own goals and targets

PC6. prioritise and plan work in order to achieve goals and targets

PC7. monitor own and team performance as per agreed plan

PC8. complete duties accurately, systematically and within required timeframes

PC9. express emotions appropriately at the workplace and manage own response to heightened emotions

PC10. maintain orderliness and cleanliness in the work area

Maintain and enhance professional competence

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

PC11. identify own strengths and weaknesses in relation to goals and targets

PC12. adapt self, service, or product to meet success criteria

PC13. seek and select opportunities for continuous professional development

PC14. formulate a professional development plan to enhance capabilities

PC15. build or contribute to the organizational knowledge base of cases, clients, issues, solutions, and innovations

PC16. examine developments and trends in field of work and their potential impact on work

PC17. take feedback from peers, supervisors and clients to improve own performance and practices

Work in a disciplined and ethical manner

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

PC18. perform tasks as per workplace standards, organisational policies and legislative requirements

PC19. display appropriate professional appearance at the workplace and adhere to the organisational dress code

PC20. demonstrate responsible and disciplined behaviour at the workplace such as punctuality; completing tasks as per given time and standards; demonstrating professional behaviour at all times, adopting environment- friendly practices, etc.

PC21. identify the cause of conflict and options for resolution with peers or escalate grievances and problems to appropriate authority as per procedure for conflict resolution

PC22. protect the rights of the client and organisation when delivering services

PC23. ensure services are delivered equally to all clients regardless of personal and cultural beliefs

PC24. operate within an agreed ethical code of practice and report unethical conduct to the appropriate authorities

PC25. follow organisational guidelines and legal requirements on disclosure and confidentiality

Uphold social diversity at the workplace

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

PC26. recognize and evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes

PC27. identify and report discrimination and harassment based on gender, disability, or cultural difference at the workplace

PC28. use inclusive or neutral language and gestures in all interactions

PC29. respect the personal and professional space of others

PC30. access grievance redressal mechanisms as per legislations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organisation's policies on dress code, workplace timings, workplace behaviour, performance management, incentives, delivery standards, information security, etc.

KU2. organizational hierarchy and escalation matrix

KU3. importance of the individual's role in the workflow

KU4. organisational norms on health, safety and sustainability

KU5. work area inspection procedures and practices

KU6. professional etiquette and grooming

KU7. communication etiquette across communicative mediums (online, digital, and in-person) including strategies/methods for sharing information, documentation, and providing and receiving feedback

KU8. importance of self-evaluations and developing a continuous learning and professional development plan

KU9. developments and trends impacting professional practice

KU10. importance of taking and using feedback from colleagues and clients to identify and introduce improvements in work performance

KU11. professional ethics and workplace norms on reporting and/or penalizing unethical behaviour and practices.

KU12. guidelines and legal requirements on disclosure, confidentiality, and conflicts of interest

KU13. strategies for collaboration with colleagues and clients.

KU14. professional responses and strategies against inappropriate language or behaviour toward self and others

KU15. Implicit bias (based on gender, disability, class, caste, colour, race, culture, religion, etc.) and its consequences in the workplace

KU16. organizational guidelines, prevalent legislations and accessibility norms and processes to support PwDs at the workplace

KU17. strategies for time, effort and resource allocation towards the goals.

KU18. basic concepts of work productivity including waste reduction, efficient material usage and optimization of time

Generic Skills (GS)

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

GS1. complete documentation and forms such as work orders, invoices maintenance records activity logs, attendance sheets as per organizational format in English and/or local language

GS2. write basic accident or incident report accurately in an appropriate format

GS3. read warnings, instructions and other text material on product labels, components, etc. and relevant signages, warnings, labels or descriptions on equipment, etc. while carrying out work activities

GS4. convey and share technical information clearly using appropriate language

GS5. clarify task-related information

GS6. liaise with authorities and supervisors as per organizational protocol

GS7. listen, speak, and write in an inclusive, respectful manner in line with organizational protocol

GS8. seek clarification from immediate supervisor or responsible authority or exercise most appropriate solutions to safety breaches at work

GS9. report to the supervisor and when to deal with a colleague depending on the type of concern

GS10. deliver product to next work process on time

GS11. improve work process and report potential areas of delays and disruptions

GS12. communicate problems appropriately to others

GS13. identify symptoms of the fault to the cause of the problem and resolve, otherwise seek assistance and support from other sources to solve the problem

GS14. anticipate and avoid hazards that may occur during repairs because of tools, materials used or repair processes

GS15. complete tasks efficiently and accurately within stipulated time

GS16. appreciate and respect social diversity in all professional settings

GS17. develop awareness and accountability for perspectives on gender, disabilities, and socio-cultural issues leading to discrimination, bias, or harassment at the workplace

GS18. maintain positive and effective relationships with colleagues and customers

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Communicate effectively at the workplace	**5**	**13**	**-**	**-**
PC1. exchange information and instruction with colleagues, and seek clarifications and feedback as necessary	1	3	-	-
PC2. assist colleagues where required	1	3	-	-
PC3. follow business communication etiquette in all interactions and communicative formats (online, digital, and in-person)	1	4	-	-
PC4. document and share all relevant information with stakeholders in agreed formats and as per agreed timelines	2	3	-	-
Work effectively	**6**	**13**	**-**	**-**
PC5. identify and obtain clarity regarding organisational, team and own goals and targets	1	2	-	-
PC6. prioritise and plan work in order to achieve goals and targets	1	2	-	-
PC7. monitor own and team performance as per agreed plan	1	2	-	-
PC8. complete duties accurately, systematically and within required timeframes	1	2	-	-
PC9. express emotions appropriately at the workplace and manage own response to heightened emotions	1	2	-	-
PC10. maintain orderliness and cleanliness in the work area	1	3	-	-
Maintain and enhance professional competence	**8**	**7**	**-**	**-**
PC11. identify own strengths and weaknesses in relation to goals and targets	1	1	-	-
PC12. adapt self, service, or product to meet success criteria	1	1	-	-
PC13. seek and select opportunities for continuous professional development	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. formulate a professional development plan to enhance capabilities	2	1	-	-
PC15. build or contribute to the organizational knowledge base of cases, clients, issues, solutions, and innovations	1	1	-	-
PC16. examine developments and trends in field of work and their potential impact on work	1	1	-	-
PC17. take feedback from peers, supervisors and clients to improve own performance and practices	1	1	-	-
Work in a disciplined and ethical manner	**11**	**16**	**-**	**-**
PC18. perform tasks as per workplace standards, organisational policies and legislative requirements	2	2	-	-
PC19. display appropriate professional appearance at the workplace and adhere to the organisational dress code	1	2	-	-
PC20. demonstrate responsible and disciplined behaviour at the workplace such as punctuality; completing tasks as per given time and standards; demonstrating professional behaviour at all times, adopting environment- friendly practices, etc.	1	2	-	-
PC21. identify the cause of conflict and options for resolution with peers or escalate grievances and problems to appropriate authority as per procedure for conflict resolution	2	2	-	-
PC22. protect the rights of the client and organisation when delivering services	1	2	-	-
PC23. ensure services are delivered equally to all clients regardless of personal and cultural beliefs	1	2	-	-
PC24. operate within an agreed ethical code of practice and report unethical conduct to the appropriate authorities	2	2	-	-
PC25. follow organisational guidelines and legal requirements on disclosure and confidentiality	1	2	-	-
Uphold social diversity at the workplace	**10**	**11**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. recognize and evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes	2	2	-	-
PC27. identify and report discrimination and harassment based on gender, disability, or cultural difference at the workplace	2	2	-	-
PC28. use inclusive or neutral language and gestures in all interactions	2	2	-	-
PC29. respect the personal and professional space of others	2	2	-	-
PC30. access grievance redressal mechanisms as per legislations	2	3	-	-
NOS Total	**40**	**60**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N9905
NOS Name	Work effectively at the workplace
Sector	Electronics
Sub-Sector	Generic
Occupation	Generic - Organizational Behaviour
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	24/02/2022
Next Review Date	30/12/2026
NSQC Clearance Date	30/12/2021

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

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

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, CO2, 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 handing 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
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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Deal with workplace hazards	**20**	**31**	**-**	**-**
PC1. identify job-site hazards and possible causes of accident in the workplace	2	3	-	-
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.	3	4	-	-
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	3	4	-	-
PC4. follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments	3	4	-	-
PC5. 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	-	-
PC6. avoid damage of components due to negligence in electrostatic discharge (ESD) procedures	2	3	-	-
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)	2	3	-	-
PC8. maintain appropriate posture while handling heavy objects	1	3	-	-
PC9. apply good housekeeping practices at all times	2	3	-	-
Apply fire safety practices	**4**	**9**	**-**	**-**
PC10. take preventive measures to prevent fire hazards	2	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
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	1	3	-	-
PC12. exhibit rescue and first-aid techniques in case of fire or electrocution	1	3	-	-
Follow emergencies, rescue and first-aid procedures	**6**	**13**	**-**	**-**
PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.	1	3	-	-
PC14. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,	1	2	-	-
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	2	4	-	-
PC16. use correct method to move injured people and others during an emergency	2	4	-	-
Effective waste management/recycling practices	**5**	**12**	**-**	**-**
PC17. identify recyclable and non-recyclable, and hazardous waste generated	1	3	-	-
PC18. segregate waste into different categories	1	2	-	-
PC19. ensure disposal of non-recyclable waste appropriately	1	2	-	-
PC20. deposit non-recyclable and reusable material at identified location	1	3	-	-
PC21. follow processes specified for disposal of hazardous waste	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	**35**	**65**	**-**	**-**

National Occupational Standards (NOS) Parameters

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

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

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/N9905.Work effectively at the workplace	40	60	-	-	100	10
ELE/N1002.Apply health and safety practices at the workplace	35	65	-	-	100	10
Total	**235**	**325**	**-**	**40**	**600**	**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.