Qualification Pack

Quality Analysis & Realibility Engineer

QP Code: ELE/Q0120

Version: 1.0

NSQF Level: 5

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Contents

ELE/Q0120: Quality Analysis & Realibility Engineer

Brief Job Description

An quality analysis and realibility engineer works is responsible to prepare Quality analysis flow & to rectify the failures. He/she is also responsible for verification and resolve by working together with several cross functional teams and test requirements as per Joint Electron Device Engineering Council (JEDEC) standards.

Personal Attributes

The individual must have an aptitude for details along with analytical and problem-solving skills. The person should be able to work in co-ordination with others. The individual should be able to communicate appropriately, both verbally and in writing.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. ELE/N0128: Check the Internal Quality
2. ELE/N0129: Check the Customer Quality
3. ELE/N0130: Analysis Data
4. ELE/N0131: Knowledge of Quality & Realibility Equipment
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 Year 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	20 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/05397
NQR Version	1.0

ELE/N0128: Check the Internal Quality

Description

The OS unit is about ensure the process quality, equipment quality and product quality

Scope

The scope covers the following :

- Process Quality and Equipment Quality
- Product Quality

Elements and Performance Criteria

Process Quality and Equipment Quality

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

PC1. analyse the process flow and each process step
PC2. identify the process variation spec. for each step
PC3. execute set up process tolerances
PC4. prepare to collect regular data
PC5. analyse the data figure out issues using statistical software's
PC6. prepare to release the design of experiments (DOE) to fix the issue
PC7. determine the competitors process
PC8. prepare to get quality certifications
PC9. prepare quality flow and procedures for New and existing processes

Product Quality

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

PC10. identify product structure and material used
PC11. identify all internal and external dimensions of materials used as well as final product
PC12. identify the product spec at each step
PC13. verify the data collection sample size per lot
PC14. prepare to collect regular data using statistical software and monitor yield at each step
PC15. analyse the spec of false alarm and min. failure qty. required to hold the lot
PC16. analyse the data figure out issues using statistical softwares
PC17. prepare to release the design of experiments (DOE) to fix the issue
PC18. prepare to get quality certifications
PC19. determine the competitor's product
PC20. expertise in all quality standards, manuals and specifications
PC21. knowledge of Joint Electron Device Engineering Council (JEDEC) standards
PC22. identify the tools such as 8D Reports, Statistical Tools, John's Macintosh Project (JMP), Direct Memory Access Control (DMAC), Advanced Product Quality Planning (APQP), 7S etc
PC23. prepare quality flow and procedures for new and existing processes

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. knowledge of process flow and each process step
KU2. 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 verifying equipment and process parameters
KU5. the importance of preparing a comprehensive report to avoid any future issues
KU6. the importance of verifying low cost and high reliable raw material and consumables
KU7. how to generate Process Change Notification (PCN)
KU8. how to prepare a qualification report
KU9. the process of transition from low volume mass production to high-volume mass production
KU10. the importance of verifying mold compound
KU11. the process of checking reverse analysis to get specifications

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
Process Quality and Equipment Quality	**24**	**26**	**-**	**7**
PC1. analyse the process flow and each process step	4	4	-	1
PC2. identify the process variation spec. for each step	4	4	-	1
PC3. execute set up process tolerances	4	4	-	1
PC4. prepare to collect regular data	4	4	-	1
PC5. analyse the data figure out issues using statistical software's	2	2	-	1
PC6. prepare to release the design of experiments (DOE) to fix the issue	2	2	-	1
PC7. determine the competitors process	1	2	-	1
PC8. prepare to get quality certifications	2	2	-	-
PC9. prepare quality flow and procedures for New and existing processes	1	2	-	-
Product Quality	**16**	**24**	**-**	**3**
PC10. identify product structure and material used	2	3	-	1
PC11. identify all internal and external dimensions of materials used as well as final product	2	3	-	1
PC12. identify the product spec at each step	1	2	-	-
PC13. verify the data collection sample size per lot	1	2	-	-
PC14. prepare to collect regular data using statistical software and monitor yield at each step	1	2	-	-
PC15. analyse the spec of false alarm and min. failure qty. required to hold the lot	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC16. analyse the data figure out issues using statistical softwares	1	1	-	1
PC17. prepare to release the design of experiments (DOE) to fix the issue	1	2	-	-
PC18. prepare to get quality certifications	1	1	-	-
PC19. determine the competitor’s product	1	1	-	-
PC20. expertise in all quality standards, manuals and specifications	1	2	-	-
PC21. knowledge of Joint Electron Device Engineering Council (JEDEC) standards	1	2	-	-
PC22. identify the tools such as 8D Reports, Statistical Tools, John’s Macintosh Project (JMP), Direct Memory Access Control (DMAC), Advanced Product Quality Planning (APQP), 7S etc	1	1	-	-
PC23. prepare quality flow and procedures for new and existing processes	1	1	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N0128
NOS Name	Check the Internal Quality
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/N0129: Check the Customer Quality

Description

The OS unit is about mange the process quality, equipment quality and product quality

Scope

The scope covers the following :

- Process Quality
- Equipment Quality
- Product Quality

Elements and Performance Criteria

Process Quality

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

PC1. identify the customer work to get their spec.

PC2. identify the customer failures work and see if it is related to process or not

PC3. prepare to fix process flow for related process step for any customer failure if failure is real

PC4. identify the process variation spec. for related process

PC5. execute set up process tolerances

PC6. prepare to collect data and show Improvement

PC7. analyse the data figure out issues using statistical software's

PC8. prepare to release the design of experiments (DOE) if any major issue still exists

PC9. determine the competitor's product

PC10. knowledge of Joint Electron Device Engineering Council (JEDEC) standards

PC11. identify the tools such as 8D Reports, Statistical Tools, John's Macintosh Project (JMP), Direct Memory Access Control (DMAC), Advanced Product Quality Planning (APQP), 7S etc

PC12. prepare to get quality certifications

PC13. prepare quality flow and procedures for New and existing processes

Equipment Quality

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

PC14. identify the customer work to get their spec.

PC15. identify the customer failures work and see if it is related to process or not

PC16. prepare to fix process flow for related process step for any customer failure if failure is real

PC17. identify the process variation spec. for related process

PC18. execute set up process tolerances

PC19. prepare to collect data and show Improvement

PC20. analyse the data figure out issues using statistical softwares

PC21. prepare to release the design of experiments (DOE) if any major issue still exists

PC22. determine the competitor's product

PC23. knowledge of Joint Electron Device Engineering Council (JEDEC) standards

PC24. identify the tools such as 8D Reports, Statistical Tools, John's Macintosh Project (JMP), Direct Memory Access Control (DMAC), Advanced Product Quality Planning (APQP), 7S etc

PC25. prepare to get quality certifications

PC26. prepare quality flow and procedures for New and existing processes

Product Quality

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

PC27. identify the customer work to get their spec.

PC28. identify the customer failures work and see if it is related to process or not

PC29. identify the product structure and material used

PC30. identify all internal and external dimensions of materials used as well as final product

PC31. identify the product spec at each step

PC32. verify the data collection sample size per lot

PC33. prepare to collect regular data using statistical software and Monitor Yield at each step

PC34. analyse the spec of false alarm and Min. failure Qty. required to hold the lot

PC35. analyse the data figure out issues using statistical software's

PC36. prepare to release the design of experiments (DOE) to fix the issue

PC37. determine the competitor's product

PC38. prepare to get quality certifications

PC39. expertise in All quality standards, manuals and specifications

PC40. knowledge of Joint Electron Device Engineering Council (JEDEC) standards

PC41. identify the tools such as 8D Reports, Statistical Tools, John's Macintosh Project (JMP), Direct Memory Access Control (DMAC), Advanced Product Quality Planning (APQP), 7S etc

PC42. prepare quality flow and procedures for New and existing processes

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. how to manage inspection and measurement techniques in the SOP for operators

KU2. the importance and process of reviewing the collecting data and performing statistical analysis to determine if it is within the specifications

KU3. the importance of checking all consumables, i.e. molding compound specifications and regularly inspecting for each consumable

KU4. the process of checking failure at molding and the importance of ensuring it passes through failure analysis

KU5. the importance of managing short term and long-term actions of failures to reduce the failure rate

KU6. the importance of verifying yield data collection for each product

KU7. how to manage data analysis using statistical methods

KU8. the necessary steps to be taken if the yield is lower than the target

KU9. the importance of monitoring records for all failures along with actions to avoid future failure

KU10. appropriate strategies and Research and Development (R&D) for further improvements

KU11. the importance of monitoring the operations of machines to improve Unit per Hour (UPH)

KU12. how to develop Design of Experiments (DOE) Expertise
KU13. how to run satistical tools such as JMP
KU14. the importance of regularly interacting with customers, suppliers, and internal teams
KU15. 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
Process Quality	**13**	**21**	**-**	**4**
PC1. identify the customer work to get their spec.	1	2	-	1
PC2. identify the customer failures work and see if it is related to process or not	1	2	-	1
PC3. prepare to fix process flow for related process step for any customer failure if failure is real	1	2	-	1
PC4. identify the process variation spec. for related process	1	2	-	1
PC5. execute set up process tolerances	1	2	-	-
PC6. prepare to collect data and show Improvement	1	2	-	-
PC7. analyse the data figure out issues using statistical software's	1	2	-	-
PC8. prepare to release the design of experiments (DOE) if any major issue still exists	1	2	-	-
PC9. determine the competitor's product	1	1	-	-
PC10. knowledge of Joint Electron Device Engineering Council (JEDEC) standards	1	1	-	-
PC11. identify the tools such as 8D Reports, Statistical Tools, John's Macintosh Project (JMP), Direct Memory Access Control (DMAC), Advanced Product Quality Planning (APQP), 7S etc	1	1	-	-
PC12. prepare to get quality certifications	1	1	-	-
PC13. prepare quality flow and procedures for New and existing processes	1	1	-	-
Equipment Quality	**13**	**13**	**-**	**4**
PC14. identify the customer work to get their spec.	1	1	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. identify the customer failures work and see if it is related to process or not	1	1	-	1
PC16. prepare to fix process flow for related process step for any customer failure if failure is real	1	1	-	1
PC17. identify the process variation spec. for related process	1	1	-	1
PC18. execute set up process tolerances	1	1	-	-
PC19. prepare to collect data and show Improvement	1	1	-	-
PC20. analyse the data figure out issues using statistical softwares	1	1	-	-
PC21. prepare to release the design of experiments (DOE) if any major issue still exists	1	1	-	-
PC22. determine the competitor's product	1	1	-	-
PC23. knowledge of Joint Electron Device Engineering Council (JEDEC) standards	1	1	-	-
PC24. identify the tools such as 8D Reports, Statistical Tools, John's Macintosh Project (JMP), Direct Memory Access Control (DMAC), Advanced Product Quality Planning (APQP), 7S etc	1	1	-	-
PC25. prepare to get quality certifications	1	1	-	-
PC26. prepare quality flow and procedures for New and existing processes	1	1	-	-
Product Quality	**14**	**16**	**-**	**2**
PC27. identify the customer work to get their spec.	-	1	-	1
PC28. identify the customer failures work and see if it is related to process or not	-	1	-	1
PC29. identify the product structure and material used	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC30. identify all internal and external dimensions of materials used as well as final product	1	1	-	-
PC31. identify the product spec at each step	1	1	-	-
PC32. verify the data collection sample size per lot	1	1	-	-
PC33. prepare to collect regular data using statistical software and Monitor Yield at each step	1	1	-	-
PC34. analyse the spec of false alarm and Min. failure Qty. required to hold the lot	1	1	-	-
PC35. analyse the data figure out issues using statistical software's	1	1	-	-
PC36. prepare to release the design of experiments (DOE) to fix the issue	1	1	-	-
PC37. determine the competitor's product	1	1	-	-
PC38. prepare to get quality certifications	1	1	-	-
PC39. expertise in All quality standards, manuals and specifications	1	1	-	-
PC40. knowledge of Joint Electron Device Engineering Council (JEDEC) standards	1	1	-	-
PC41. identify the tools such as 8D Reports, Statistical Tools, John's Macintosh Project (JMP), Direct Memory Access Control (DMAC), Advanced Product Quality Planning (APQP), 7S etc	1	1	-	-
PC42. prepare quality flow and procedures for New and existing processes	1	1	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N0129
NOS Name	Check the Customer Quality
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/N0130: Analysis Data

Description

The OS unit is about operate OM SEM, CSAM, FIB & Other and maintain the product quality

Scope

The scope covers the following :

- Operate OM, SEM, CSAM, FIB & Others
- Product Quality
- Yield Tracking
- Yield and Productivity Maintain

Elements and Performance Criteria

Operate OM, SEM, CSAM, FIB & Others

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

PC1. identify the basic principles
PC2. identify the materials
PC3. prepare to install samples
PC4. analysis sample and measurement
PC5. analyse Energy Dispersive X-Ray Analysis (EDX)
PC6. prepare procedure and document
PC7. test train operators & technicians
PC8. prepare how to calibrate
PC9. prepare how to operate
PC10. analyse the reflected waves
PC11. analyse the data
PC12. test the load and unload samples

Product Quality

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

PC13. identify all package outlines drawings with specifications with the help of process engineer
PC14. identify the sample size for each lot to measure all dimensions with the help of process engineer
PC15. prepare measurement technique in SOP for Operators
PC16. analysis the specification to release the lot to next step after collecting data
PC17. identify all consumables pack specifications clearly with the help of process engineer
PC18. check regular inspections for each consumable
PC19. verify the failure at any process and should be passed through failure analysis
PC20. verify root cause of each failure
PC21. prepare short term and long-term actions of failures to reduce failure rate with the help of process engineer

PC22. prepare 8D report

Yield Tracking

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

PC23. analyse the production Yield data collection for each product

PC24. analyse the Yield

PC25. analysis data using statistical methods

PC26. prepare ppt and present to management on WW bases

PC27. perform necessary steps if yield is lower than target

PC28. prepare records all failures along with actions to avoid future failure

Yield and Productivity Maintain

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

PC29. prepare strategies for further improvements

PC30. prepare to work with R&D to do Improvements

PC31. knowledge of broad material behaviour, properties and other interactions

PC32. knowledge of working principal of machines to improve Unit Per Hour (UPH)

PC33. prepare Design of Experiments (DOE)

PC34. identify running statistical tools such as John’s Macintosh Project (JMP)

PC35. prepare to do regular interaction with customer, supplier and internal teams

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
Operate OM, SEM, CSAM, FIB & Others	**17**	**27**	**-**	**4**
PC1. identify the basic principles	2	3	-	1
PC2. identify the materials	2	3	-	1
PC3. prepare to install samples	2	3	-	1
PC4. analysis sample and measurement	2	3	-	1
PC5. analyse Energy Dispersive X-Ray Analysis (EDX)	2	2	-	-
PC6. prepare procedure and document	1	2	-	-
PC7. test train operators & technicians	1	2	-	-
PC8. prepare how to calibrate	1	2	-	-
PC9. prepare how to operate	1	2	-	-
PC10. analyse the reflected waves	1	2	-	-
PC11. analyse the data	1	2	-	-
PC12. test the load and unload samples	1	1	-	-
Product Quality	**10**	**10**	**-**	**3**
PC13. identify all package outlines drawings with specifications with the help of process engineer	1	1	-	1
PC14. identify the sample size for each lot to measure all dimensions with the help of process engineer	1	1	-	1
PC15. prepare measurement technique in SOP for Operators	1	1	-	1
PC16. analysis the specification to release the lot to next step after collecting data	1	1	-	-
PC17. identify all consumables pack specifications clearly with the help of process engineer	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC18. check regular inspections for each consumable	1	1	-	-
PC19. verify the failure at any process and should be passed through failure analysis	1	1	-	-
PC20. verify root cause of each failure	1	1	-	-
PC21. prepare short term and long-term actions of failures to reduce failure rate with the help of process engineer	1	1	-	-
PC22. prepare 8D report	1	1	-	-
Yield Tracking	**6**	**6**	**-**	**3**
PC23. analyse the production Yield data collection for each product	1	1	-	1
PC24. analyse the Yield	1	1	-	1
PC25. analysis data using statistical methods	1	1	-	1
PC26. prepare ppt and present to management on WW bases	1	1	-	-
PC27. perform necessary steps if yield is lower than target	1	1	-	-
PC28. prepare records all failures along with actions to avoid future failure	1	1	-	-
Yield and Productivity Maintain	**7**	**7**	**-**	**-**
PC29. prepare strategies for further improvements	1	1	-	-
PC30. prepare to work with R&D to do Improvements	1	1	-	-
PC31. knowledge of broad material behaviour, properties and other interactions	1	1	-	-
PC32. knowledge of working principal of machines to improve Unit Per Hour (UPH)	1	1	-	-
PC33. prepare Design of Experiments (DOE)	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC34. identify running statistical tools such as John's Macintosh Project (JMP)	1	1	-	-
PC35. prepare to do regular interaction with customer, supplier and internal teams	1	1	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N0130
NOS Name	Analysis Data
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/N0131: Knowledge of Quality & Realibility Equipment

Description

The OS unit is about to maintain quality and reliable equipment knowledge

Scope

The scope covers the following :

- Quality and Realibity Equipment Knowledge

Elements and Performance Criteria

Quality and Realibity Equipment Knowledge

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

PC1. identify Moisture Sensitivity Level (MSL) related tool to operate and set the process

PC2. identify Highly Accelerated Stress Test (HAST) (Bias/Based Highly Accelerated Stress Test-BHAST/ Understanding Highly Accelerated Stress Test UHAST) related tool to operate and set the process

PC3. identify Tactical Computer Terminal (TCT) related tool to operate and set the process

PC4. identify STHT related tool to operate and set the process

PC5. identify Private Communication Technology (PCT) related tool to operate and set the process

PC6. prepare Highly Accelerated Life Testing (HALT) related tool to operate and set the process

PC7. prepare thermal shock related tool to operate and set the process

PC8. prepare hardness related tool to operate and set the process

PC9. verify Thermal Energy Storage Technology (TEST) related tool to operate and set the process

PC10. identify Dynamic Language Runtime (DLR) board level realibility (temp. & voltage) related tool to operate and set the process

PC11. verify warpage measurement (shadomoire etc) related to tool operation and process set up

PC12. determine system level quality related tool to operate and set the process

PC13. prepare burning related tool to operate and set the process

PC14. prepare SOP and other documents should be created

PC15. test conditions expert

PC16. prepare safety rules and documents

PC17. prepare presentation in such a way that help process engineers to optimize process to reduce failures

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
Quality and Realibity Equipment Knowledge	**40**	**50**	**-**	**10**
PC1. identify Moisture Sensitivity Level (MSL) related tool to operate and set the process	3	4	-	1
PC2. identify Highly Accelerated Stress Test (HAST) (Bias/Based Highly Accelerated Stress Test- BHAST/ Understanding Highly Accelerated Stress Test UHAST) related tool to operate and set the process	3	4	-	1
PC3. identify Tactical Computer Terminal (TCT) related tool to operate and set the process	3	4	-	1
PC4. identify STHT related tool to operate and set the process	3	4	-	1
PC5. identify Private Communication Technology (PCT) related tool to operate and set the process	3	4	-	1
PC6. prepare Highly Accelerated Life Testing (HALT) related tool to operate and set the process	3	4	-	1
PC7. prepare thermal shock related tool to operate and set the process	2	3	-	1
PC8. prepare hardness related tool to operate and set the process	2	3	-	1
PC9. verify Thermal Energy Storage Technology (TEST) related tool to operate and set the process	2	3	-	1
PC10. identify Dynamic Language Runtime (DLR) board level realibility (temp. & voltage) related tool to operate and set the process	2	3	-	1
PC11. verify warpage measurement (shadomoire etc) related to tool operation and process set up	2	2	-	-
PC12. determine system level quality related tool to operate and set the process	2	2	-	-
PC13. prepare burning related tool to operate and set the process	2	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. prepare SOP and other documents should be created	2	2	-	-
PC15. test conditions expert	2	2	-	-
PC16. prepare safety rules and documents	2	2	-	-
PC17. prepare presentation in such a way that help process engineers to optimize process to reduce failures	2	2	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N0131
NOS Name	Knowledge of Quality & Realibility Equipment
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/N0128.Check the Internal Quality	40	50	-	10	100	20

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ELE/N0129.Check the Customer Quality	40	50	-	10	100	20
ELE/N0130.Analysis Data	40	50	-	10	100	20
ELE/N0131.Knowledge of Quality & Realibility Equipment	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.