Qualification Pack

Cold Chain Implementation Specialist

QP Code: LSC/Q8602

Version: 1.0

NSQF Level: 5.5

Contents

Qualification Pack

LSC/Q8602: Cold Chain Implementation Specialist

Brief Job Description

The individual at work performs market and product demand-supply assessment for cold storage, prepares project execution and cost plan, designs plant layout, manages project execution of cold storage, select vendors and maintains relationship that is strategic to business and commissions the cold storage.

Personal Attributes

The job requires the individual to have attention to details, ability to sit and stand at one place for a long time, physical fitness to tolerate temperature difference in and outside cold storage, sun heat, and noise.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. LSC/N8606: Demand aggregation and planning cold storage set up

2. LSC/N8602: Design cold storage plant layout using CAD tools and prepare project costing

3. LSC/N8603: Execute cold storage plant set up

4. LSC/N8604: Maintain vendor relationship

5. LSC/N8605: Test and commission cold storage plant

6. LSC/N8607: Cold chain compliance and optimization using IoT sensors and transmitters

7. LSC/N9901: Maintain food and personnel safety, health and hygiene in cold storage plant

8. DGT/VSQ/N0102: Employability Skills (60 Hours)

Qualification Pack (QP) Parameters

Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Projects
Country	India
NSQF Level	5.5

Qualification Pack

Credits	17
Aligned to NCO/ISCO/ISIC Code	NCO-2015/1324
Minimum Educational Qualification & Experience	Completed 4 year UG program (Mechanical/ Electrical/ Electronics/ Refrigeration Engineering/ Food Technology/ Pharma/ Relevant trade) with 1 Year of experience in cold storage operations OR Completed 3 year UG degree (In Food technology/ Pharma) with 2 Years of experience in cold storage operations OR Diploma (Completed 2-year diploma (after 12th Grade) in Mechanical/ Electrical/ Electronics/ Refrigeration Engineering/ Food Technology/ Pharma/ Relevant trade) with 3 Years of experience in cold storage operations OR Previous relevant Qualification of NSQF Level (5) with 3 Years of experience in cold storage operations
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	23 Years
Last Reviewed On	NA
Next Review Date	15/03/2027
NSQC Approval Date	15/03/2024
Version	1.0
Reference code on NQR	QG-5.5-TW-02191-2024-V1-LSC
NQR Version	1.0

LSC/N8606: Demand aggregation and planning cold storage set up

Description

This OS unit is about analysing client requirements, assessing market demand, defining project timeline and preparing for project execution and management.

Scope

The scope covers the following :

- Gather client requirements
- Assess production demand
- Prepare for project execution and management

Elements and Performance Criteria

Gather client requirements

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

PC1. seek appointment and schedule meeting with client

PC2. gather client requirements on type of products (Horticulture, Dairy, Poultry, Marine, Processed food), facility (manual, semi-automated and automated) and services (warehouse and transport)

PC3. analyse client requirements and document requirements which are clear, unambiguous and feasible for the project as per companys standards

PC4. share the projects requirement document with the client

PC5. make necessary changes in the projects requirement document as suggested by client

PC6. take sign-off from client

Assess production demand

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

PC7. visit site and assess proximity of cold storage location from market and agricultural fields

PC8. check power availability, potable water availability and road access at the location

PC9. determine sample size for accurate results

PC10. use quantitative and qualitative research techniques to collect data on products, seasonality of products, product demand etc

PC11. perform secondary research on products, seasonality of products, product demand etc

PC12. analyse information gathered from primary and secondary research

PC13. assess demand-supply of products

PC14. select products on various factors like profitability, market demand, cost of production and transport etc

PC15. assess capacity of cold storage to meet present and future demand

PC16. prepare and share market research and assessment report with client

Prepare for project execution and management

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

PC17. define project milestones and timelines for project activities: design, project costing, implementation, testing and maintenance, and consulting fees

PC18. prepare communication plan, project execution plan and quality management plan

PC19. assess risk and prepare plan for risk managment

PC20. take sign-off from client to start the project

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. vision, mission and values of the company

KU2. business and performance of the company

KU3. organisation structure of the company with various departments and skills set present in the company

KU4. knowledge repository and various projects done by the company

KU5. reporting structure to support and expedite project acivities

KU6. company's policy and work instructions on quality standards

KU7. company's policy on procurement and vendor management

KU8. company's personnel management and incentives rules

KU9. importance of the individual's role in the workflow

KU10. occupational health and safety standards

KU11. company's policy on business ethics and code of conduct

KU12. materials, equipment and machinery required for cold storage construction

KU13. components of modernization: programmable logic controller equipment, packaging lines, dock levelers, advanced graders, alternate technologies, stacking system, modernization of insulation and refrigeration etc

KU14. project management terminologies: Work breakdown structure(WBS), Network diagram, slack, lag etc

KU15. project management methodology

KU16. types of market research techniques: quantitative and qualitative

KU17. secondary data collection methods

KU18. data analysis techniques: factor, discriminant, cluster etc

KU19. types of forecasting techniques

KU20. tools for project management and documentation: MS Project, MS excel, MS visio, MS PowerPoint, MS Word

KU21. cold chain operation

KU22. business engineering design

KU23. arithmetic and geometry

KU24. basics of statistics: sample size, confidence interval, confidence level, standard of deviation

Generic Skills (GS)

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

GS1. read company's work instructions, customer requirement and quality policy

GS2. read detailed project and market research reports

GS3. search and read information online for market research

GS4. maintain the record of job completed as per company's policy

GS5. prepare project related documents

GS6. write business emails

GS7. communicate with seniors to report on any issues or delay in approvals

GS8. interact with other departments and team members to work efficiently

GS9. decide cold storage capacity

GS10. decide market research approach and methodology

GS11. decide project duration and milestones to achieve

GS12. decide project team

GS13. decide what documents to be shared with the client required for the implementation and commissioning of the project

GS14. schedule and plan for meeting the target

GS15. plan and organise activities for market research and project management documentation

GS16. ensure completion of work as per schedule and budget

GS17. answer queries from client promptly

GS18. schedule meeting and maintain proper communication plan to keep the client aware of progress

GS19. keep contingent plan ready in case of any deviation from plan

GS20. estimate project timelines and schedule

GS21. assess inputs gathered from primary and secondary research

GS22. asses market demand

GS23. meet target to gather inputs from people equal to or more than sample number in a given project timeframe

GS24. convince people to participate in primary research excercise so that market research can be completed as per the schedule

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Gather client requirements	**8**	**17**	**-**	**3**
PC1. seek appointment and schedule meeting with client	1	3	-	-
PC2. gather client requirements on type of products (Horticulture, Dairy, Poultry, Marine, Processed food), facility (manual, semi-automated and automated) and services (warehouse and transport)	1	2	-	-
PC3. analyse client requirements and document requirements which are clear, unambiguous and feasible for the project as per companys standards	2	3	-	1
PC4. share the projects requirement document with the client	1	3	-	-
PC5. make necessary changes in the projects requirement document as suggested by client	1	3	-	1
PC6. take sign-off from client	2	3	-	1
Assess production demand	**15**	**31**	**-**	**5**
PC7. visit site and assess proximity of cold storage location from market and agricultural fields	1	3	-	-
PC8. check power availability, potable water availability and road access at the location	1	3	-	-
PC9. determine sample size for accurate results	2	4	-	1
PC10. use quantitative and qualitative research techniques to collect data on products, seasonality of products, product demand etc	1	3	-	-
PC11. perform secondary research on products, seasonality of products, product demand etc	2	3	-	1
PC12. analyse information gathered from primary and secondary research	2	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. assess demand-supply of products	1	3	-	-
PC14. select products on various factors like profitability, market demand, cost of production and transport etc	2	3	-	1
PC15. assess capacity of cold storage to meet present and future demand	1	3	-	-
PC16. prepare and share market research and assessment report with client	2	3	-	1
Prepare for project execution and management	**7**	**12**	**-**	**2**
PC17. define project milestones and timelines for project activities: design, project costing, implementation, testing and maintenance, and consulting fees	1	3	-	-
PC18. prepare communication plan, project execution plan and quality management plan	2	3	-	-
PC19. assess risk and prepare plan for risk managment	2	3	-	1
PC20. take sign-off from client to start the project	2	3	-	1
NOS Total	**30**	**60**	**-**	**10**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8606
NOS Name	Demand aggregation and planning cold storage set up
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Projects
NSQF Level	5.5
Credits	2
Version	1.0
Last Reviewed Date	15/03/2024
Next Review Date	15/03/2027
NSQC Clearance Date	15/03/2024

LSC/N8602: Design cold storage plant layout using CAD tools and prepare project costing

Description

This OS unit is about visiting and assessing site to design layout of the plant, sharing plan and drawings of cold storage plant as per client's requirements and calculating cost of the project.

Scope

The scope covers the following :

- Design plant layout
- Calculate project cost

Elements and Performance Criteria

Design plant layout

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

PC1.   visit site and assess proposed site surroundings for designing purpose

PC2.   assess space available for refrigeration, equipment, machinery, elevator, stairs, offices, circulation and facility for loading and unloading materials

PC3.   analyse functional flow and goods movement (cold rooms, warehouse, loading and unloading facility, washing, grading, ripening chamber, packhouse as per clients requirement)

PC4.   design corridor or circulation space using CAD and fit facilities around it

PC5.   prepare plan depending on the cold storage operations, offices, parking area etc.

PC6.   share concept plan, floor plan, 3D, CAD, structural and working drawing with the client

PC7.   calculate the product load of the products stored in the cold storage

PC8.   perform heat-load calculations for measurements of walls, floors, ceilings, equipment etc

PC9.   calculate size of the compressor

PC10.   determine number of storeys and room sizes depending on type of product, temperature and humidity requirement, storage capacity, manpower and fork lift movement etc.

PC11.   calculate area and thickness of insulation

PC12.   determine cold storage refrigerant depending on size of chambers, location, targeted power saving, refrigerated technology selected etc.

PC13.   take sign-off from client

Calculate project cost

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

PC14.   determine land, machinery and miscellaneous assets (furniture and fixtures) cost

PC15.   determine and list down all required part assemblies, their parts, quantity and

PC16.   add up cost of all the parts in each assembly and calculate total

PC17.   determine labour required for the construction and labour cost

PC18.   calculate administrative, survey, analysis and other preliminary expenses

PC19. calculate testing, commissioning and maintenance cost

PC20. calculate project cost by adding up all expenses and cost incurred

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. vision, mission and values of the company

KU2. business and performance of the company

KU3. organisation structure of the company with various departments and skills set present in the company

KU4. standard costing and budgeting processes

KU5. knowledge repository and various projects done by the company

KU6. reporting structure to support and expedite project acivities

KU7. company's policy and work instructions on quality standards

KU8. company's policy on procurement and vendor management

KU9. companys personnel management and incentives rules

KU10. importance of the individual's role in the workflow

KU11. occupational health and safety standards

KU12. company's policy on business ethics and code of conduct

KU13. designing tools: CAD, 3D Max SketchUp, STAAD pro and CRO pro

KU14. design scales

KU15. how to draw concept plan, working drawing, floor plan, final plan and 3D drawing

KU16. heat-load calculation formula

KU17. product load calculation formula

KU18. formula for calculating area and thicknes of insulation

KU19. compressor size calculation formula

KU20. architectural norms and standards

KU21. bills of materials (BOM)

KU22. cooling technology: Diffuser, Gravity cooling and overhead pump feed type

KU23. materials, equipment and machinery required for cold storage construction

KU24. components of modernization: programmable logic controller equipment, packaging lines, dock levelers, advanced graders, alternate technologies, stacking system, modernization of insulation and refrigeration, cold storage refrigerant etc

KU25. tools for documentation: MS excel and MS Word

KU26. cold chain operation

KU27. business engineering design

KU28. arithmetic and geometry

Generic Skills (GS)

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

GS1. read company's work instructions, customer requirement and quality policy

GS2. read concept, working and final design plan, 3D and structural drawing

GS3. read instructions while using software tools

GS4. read project report

GS5. maintain the record of job completed as per company's policy

GS6. prepare concept, working and final design plan, 3D and structural drawing

GS7. write business emails

GS8. communicate with seniors to report on any issues or delay in approvals

GS9. interact with other departments and team members to work efficiently

GS10. decide parts, materials, machinery required for constructing cold storage plant

GS11. decide scale for presenting design plans

GS12. schedule and plan for meeting the target

GS13. procure required software applications and get them installed before the commencement of designing activity

GS14. ensure completion of work as per schehdule and budget

GS15. answer queries from client promptly

GS16. schedule meetings and maintain proper communication plan to keep the client aware of progress

GS17. troubleshoot basic software problems

GS18. keep contingent plan ready in case of any deviation from plan

GS19. estimate project cost without errors

GS20. optimise processes and reduce wastage of goods during movement from one facility to the other

GS21. complete designing activity on time without compromising on creativity

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Design plant layout	**18**	**39**	**-**	**5**
PC1. visit site and assess proposed site surroundings for designing purpose	1	3	-	-
PC2. assess space available for refrigeration, equipment, machinery, elevator, stairs, offices, circulation and facility for loading and unloading materials	1	3	-	-
PC3. analyse functional flow and goods movement (cold rooms, warehouse, loading and unloading facility, washing, grading, ripening chamber, packhouse as per clients requirement)	1	3	-	-
PC4. design corridor or circulation space using CAD and fit facilities around it	2	3	-	1
PC5. prepare plan depending on the cold storage operations, offices, parking area etc.	1	3	-	1
PC6. share concept plan, floor plan, 3D, CAD, structural and working drawing with the client	1	3	-	-
PC7. calculate the product load of the products stored in the cold storage	2	3	-	1
PC8. perform heat-load calculations for measurements of walls, floors, ceilings, equipment etc	2	3	-	-
PC9. calculate size of the compressor	1	3	-	-
PC10. determine number of storeys and room sizes depending on type of product, temperature and humidity requirement, storage capacity, manpower and fork lift movement etc.	2	3	-	1
PC11. calculate area and thickness of insulation	1	3	-	-
PC12. determine cold storage refrigerant depending on size of chambers, location, targeted power saving, refrigerated technology selected etc.	2	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. take sign-off from client	1	3	-	-
Calculate project cost	**12**	**21**	**-**	**5**
PC14. determine land, machinery and miscellaneous assets (furniture and fixtures) cost	1	3	-	1
PC15. determine and list down all required part assemblies, their parts, quantity and	1	3	-	1
PC16. add up cost of all the parts in each assembly and calculate total	2	3	-	-
PC17. determine labour required for the construction and labour cost	2	3	-	1
PC18. calculate administrative, survey, analysis and other preliminary expenses	2	3	-	1
PC19. calculate testing, commissioning and maintenance cost	2	3	-	1
PC20. calculate project cost by adding up all expenses and cost incurred	2	3	-	-
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8602
NOS Name	Design cold storage plant layout using CAD tools and prepare project costing
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Projects
NSQF Level	5.5
Credits	2
Version	2.0
Last Reviewed Date	15/03/2024
Next Review Date	15/03/2027
NSQC Clearance Date	15/03/2024

LSC/N8603: Execute cold storage plant set up

Description

This OS unit is about assigning tasks to team members, issuing materials for construction to concerned person or department, monitoring project related activities, tracking and documenting progress.

Scope

The scope covers the following :

- Manage material and human resources
- Track and monitor activities
- Report and document activities

Elements and Performance Criteria

Manage material and human resources

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

PC1. refer detailed project report project execution plan and prepare detailed project construction plan

PC2. break down project execution activities to everyday tasks

PC3. take print out of tasks to be performed everyday

PC4. assign tasks to team members

PC5. take construction requirements from stakeholders

PC6. issue materials as per requirement and availability

PC7. handle grievances of team members and labourers

Track and monitor activities

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

PC8. conduct status meetings

PC9. record minutes of meeting and follow up

PC10. keep a track on expenses incurred and manhours utilized

PC11. keep a track on how much quantity of raw materials etc. are ordered and utilized

PC12. take a round of the premises and inspect the site

PC13. ensure issued materials, equipment, machinery etc. are used for construction

PC14. track and monitor activities to ensure tasks completion on time

PC15. escalate any non-completion of task or comprise on quality to concerned authority

Report and document activities

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

PC16. share detailed project report consisting of details on project team, project execution, quality management, risk management, stakeholder and communication management with the client as per company's standards

PC17. document expenses incurred and manhours utilized

PC18. report to client and seniors about the progress of the project

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. vision, mission and values of the company

KU2. business and performance of the company

KU3. organisation structure of the company with various departments and skills set present in the company

KU4. knowledge repository and various projects done by the company

KU5. reporting structure to support and expedite project acivities

KU6. company's policy and work instructions on quality standards

KU7. company's policy on procurement and vendor management

KU8. company's personnel management and incentives rules

KU9. importance of the individual's role in the workflow

KU10. occupational health and safety standards

KU11. company's policy on business ethics and code of conduct

KU12. fire Policy from any insurance company as per company's policy

KU13. tools for project management and documentation: MS Project, MS excel, MS vision, MS PowerPoint, MS Word

KU14. project management process and related terminologies

KU15. insurance for plant and machinery during erection and commissioning

KU16. application of principles of refrigeration

KU17. materials, equipment and machinery requirements for cold storage construction activities

KU18. components of modernization: programmable logic controller equipment, packaging lines, dock levelers, advanced graders, alternate technologies, stacking system, modernization of insulation and refrigeration, etc.

KU19. interpreting concept plan, working drawing, floor plan, final plan and 3D drawing

KU20. cold storage operation

KU21. business engineering design

KU22. bills of materials (BOM)

Generic Skills (GS)

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

GS1. read company's work instructions, customer requirement and quality policy

GS2. read concept, working and final design plan, 3D and structural drawing

GS3. read project report and other project related documents

GS4. maintain the record of job completed as per company's policy

GS5. document day-to-day progress in project and daily expenses incurred

GS6. write business emails

GS7. write minutes of meeting

GS8. write down observations related to project execution on the site

GS9. communicate with seniors to report on any issues or delay in approvals

GS10. interact with other departments and team members to work efficiently

GS11. decide and assign responsibilites to team members

GS12. select the required amount of materials, equipment and machinery for construction

GS13. schedule and plan for meeting the target

GS14. decide order of completion of tasks

GS15. arrange required materials, workforce and machinery as per quantity mentioned and keep them ready before commencement of any construction activity

GS16. ensure completion of work as per schehdule and budget

GS17. answer queries from client promptly

GS18. schedule meeting and maintain proper communication plan to keep the client aware of progress

GS19. solve issues related to workforce,material, machine, etc.

GS20. keep contigent plan ready incase of any deviation from plan

GS21. estimate requirement of materials, parts, equipment, machinery etc.

GS22. optimise operations to reduce turn-around time and cost

GS23. assess risk and take appropriate action

GS24. make sure team members and construction workers follow safety instructions to avoid any accident at construction site

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Manage material and human resources	**13**	**21**	**-**	**4**
PC1. refer detailed project report project execution plan and prepare detailed project construction plan	1	2	-	-
PC2. break down project execution activities to everyday tasks	2	3	-	1
PC3. take print out of tasks to be performed everyday	2	2	-	-
PC4. assign tasks to team members	2	2	-	1
PC5. take construction requirements from stakeholders	2	4	-	1
PC6. issue materials as per requirement and availability	2	4	-	-
PC7. handle grievances of team members and labourers	2	4	-	1
Track and monitor activities	**12**	**29**	**-**	**4**
PC8. conduct status meetings	2	3	-	-
PC9. record minutes of meeting and follow up	2	3	-	-
PC10. keep a track on expenses incurred and manhours utilized	2	3	-	-
PC11. keep a track on how much quantity of raw materials etc. are ordered and utilized	2	4	-	1
PC12. take a round of the premises and inspect the site	1	4	-	-
PC13. ensure issued materials, equipment, machinery etc. are used for construction	1	4	-	1
PC14. track and monitor activities to ensure tasks completion on time	1	4	-	1
PC15. escalate any non-completion of task or comprise on quality to concerned authority	1	4	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Report and document activities	**5**	**10**	**-**	**2**
PC16. share detailed project report consisting of details on project team, project execution, quality management, risk management, stakeholder and communication management with the client as per company's standards	1	4	-	-
PC17. document expenses incurred and manhours utilized	2	4	-	1
PC18. report to client and seniors about the progress of the project	2	2	-	1
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8603
NOS Name	Execute cold storage plant set up
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Projects
NSQF Level	5.5
Credits	2
Version	2.0
Last Reviewed Date	15/03/2024
Next Review Date	15/03/2027
NSQC Clearance Date	15/03/2024

LSC/N8604: Maintain vendor relationship

Description

This OS unit is about selecting and working with vendors meeting project requirements, negotiating contracts, evaluating performance and maintaining relationship with vendors.

Scope

The scope covers the following :

- Assess and select new vendors
- Work with vendors
- Evaluate performance of vendors
- Establish relationship with vendors

Elements and Performance Criteria

Assess and select new vendors

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

PC1. search for possible vendors meeting project requirements

PC2. use appropriate tendering processes to receive proposals from vendors

PC3. assess and evaluate proposals submitted by vendors

PC4. call vendors for presentation or query session

PC5. select the most suitable vendor as per company's evaluation criteria

PC6. negotiate and manage contract, Statement of work(SOW), service level agreement(SLA), etc. with the vendor

Work with vendors

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

PC7. prepare a list of materials, equipment, machinery, etc.

PC8. send purchase order to vendors as per company's standards (email or courier)

PC9. receive invoice from vendors against the purchase order

PC10. receive and inspect the shipment

PC11. release payments to vendors as per the bills raised and contract signed

Evaluate performance of vendors

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

PC12. record and evaluate performance of vendors on factors like quality of service, on-time order completion, quality of material, client satisfaction, call answer time

PC13. perform analysis on recorded information and take corrective measures to improve performance of vendors

Establish relationship with vendors

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

PC14. inform and give purchase orders to respective vendors in advance, so that necessary materials, machinery, etc. are available at the commencement of construction activity

PC15. release payments to vendors on time

PC16. conduct review meetings

PC17. analyze and resolve vendor concerns and issues

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. vision, mission and values of the company

KU2. business and performance of the company

KU3. organisation structure of the company with various departments and skills set present in the company

KU4. knowledge repository and various projects done by the company

KU5. reporting structure to support and expedite project acivities

KU6. company's policy and work instructions on quality standards

KU7. company's policy on procurement and vendor management

KU8. company's personnel management and incentives rules

KU9. importance of the individual's role in the workflow

KU10. occupational health and safety standards

KU11. company's policy on business ethics and code of conduct

KU12. vendor management process

KU13. factors for evaluation of performance of vendors

KU14. procurement related terminologies: Purchase order (PO), Invoice etc

KU15. about contract management, SLA and SOW

KU16. using enterprise resource planning software (ERP)

KU17. procurement process

KU18. tools for documentation: MS excel and MS Word

KU19. materials, equipments and machinery required for cold storage construction

KU20. components of modernization: programmable logic controller equipment, packaging lines, dock levelers, advanced graders, alternate technologies, stacking system, modernization of insulation and refrigeration etc

KU21. value chain of cold chain segment

KU22. bills of materials (BOM)

Generic Skills (GS)

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

GS1. read company's work instructions, customer requirement and quality policy

GS2. read project report

GS3. read contracts, SLA and SOW

GS4. read PO and Invoice

GS5. read and analyse vendors performance analysis report Writing Skills

GS6. maintain the record of job completed as per company's policy

GS7. record information about vendors on factors like quality of service, on-time order completion, quality of material, client satisfaction, call answer time, etc.

GS8. write PO and Invoice

GS9. write understand vendors performance analysis report

GS10. write business emails

GS11. communicate with seniors to report on any issues or delay in approvals

GS12. interact with other department, team members and vendors to work efficiently

GS13. carefully listen vendor concerns and issues

GS14. select vendors meeting project requirements

GS15. inspect shipment and decide on accepting or rejecting order

GS16. decide on corrective measures to improve performance of vendors

GS17. schedule and plan for meeting the target

GS18. arrange for materials, workforce and machinery requirement in advance

GS19. plan and organise review meetings with vendors

GS20. ensure completion of work as per schedule and budget

GS21. answer queries from client promptly

GS22. schedule meeting and maintain proper communication plan to keep the client aware of progress

GS23. resolve issues related to vendors ,materials, machinery, etc.

GS24. keep contigent plan ready incase of any deviation from plan

GS25. select and evaluate vendors on project relevant factors

GS26. evaluate vendors on performance criteria relevant to project and business

GS27. develop and maintain good and strategic relationship with vendors

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Assess and select new vendors	**12**	**22**	**-**	**3**
PC1. search for possible vendors meeting project requirements	2	3	-	-
PC2. use appropriate tendering processes to receive proposals from vendors	2	3	-	-
PC3. assess and evaluate proposals submitted by vendors	2	4	-	1
PC4. call vendors for presentation or query session	2	4	-	1
PC5. select the most suitable vendor as per company's evaluation criteria	2	4	-	-
PC6. negotiate and manage contract, Statement of work(SOW), service level agreement(SLA), etc. with the vendor	2	4	-	1
Work with vendors	**10**	**16**	**-**	**3**
PC7. prepare a list of materials, equipment, machinery, etc.	2	3	-	1
PC8. send purchase order to vendors as per company's standards (email or courier)	2	3	-	1
PC9. receive invoice from vendors against the purchase order	2	3	-	-
PC10. receive and inspect the shipment	2	3	-	-
PC11. release payments to vendors as per the bills raised and contract signed	2	4	-	1
Evaluate performance of vendors	**4**	**8**	**-**	**2**
PC12. record and evaluate performance of vendors on factors like quality of service, on-time order completion, quality of material, client satisfaction, call answer time	2	4	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. perform analysis on recorded information and take corrective measures to improve performance of vendors	2	4	-	1
Establish relationship with vendors	**4**	**14**	**-**	**2**
PC14. inform and give purchase orders to respective vendors in advance, so that necessary materials, machinery, etc. are available at the commencement of construction activity	1	3	-	-
PC15. release payments to vendors on time	1	3	-	1
PC16. conduct review meetings	1	4	-	1
PC17. analyze and resolve vendor concerns and issues	1	4	-	-
NOS Total	**30**	**60**	**-**	**10**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8604
NOS Name	Maintain vendor relationship
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Projects
NSQF Level	5.5
Credits	2
Version	2.0
Last Reviewed Date	15/03/2024
Next Review Date	15/03/2027
NSQC Clearance Date	15/03/2024

LSC/N8605: Test and commission cold storage plant

Description

This OS unit is about creating testing scenarios to test equipment, machinery and operations of cold storage, escalating issues and following up with the concerned person to resolve open issues and commissioning of cold storage plant.

Scope

The scope covers the following :

- Test cold storage plant
- Commission cold storage plant

Elements and Performance Criteria

Test cold storage plant

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

PC1. check internal and external joints, panels and vapour seals

PC2. ensure no voids and gaps in the insulation

PC3. ensure proper fitting of doors and door heaters

PC4. confirm thermal conductivity of the insulation material fall within the range specified by the supplier or ISO/FDIS 4898

PC5. test whether refrigeration system is functioning as per company's standards

PC6. make certain that cold rooms are operating and maintaining defined temperature

PC7. make certain proper functionality of control panel

PC8. make sure proper ventilation in cold rooms and ripening chambers

PC9. make sure proper installation of generator/s and electricity supply is in the plant

PC10. ensure seamless flow of materials from one facility to the other

PC11. check rack system is in place and able to take products as well as labour load

PC12. check fire and emergency alarm

PC13. escalate issues or defects to stakeholders

PC14. follow up and resolve issues

Commission cold storage plant

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

PC15. prepare a schedule for commissioning activities

PC16. assign responsibilities to team members

PC17. create test scenarios for each stage of the process

PC18. determine success and failure of any test scenario

PC19. escalate failure of test scenario to stakeholders, resolve and re-test

PC20. conduct drill successfully

PC21. ensure safety mechanisms are in place

PC22. perform client training and demonstrations

PC23. obtain statutory approvals and insurance approvals

PC24. ensure maintenance of refrigeration system, machinery, equipment etc. as per contract

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. vision, mission and values of the company

KU2. business and performance of the company

KU3. organisation structure of the company to have better understanding of various departments and skills set present in the company

KU4. knowledge repository and various projects done by the company

KU5. reporting structure to support and expedite project acivities

KU6. company's policy and work instructions on quality standards

KU7. company's policy on procurement and vendor management

KU8. company's personnel management and incentives rules

KU9. importance of the individual's role in the workflow

KU10. occupational health and safety standards

KU11. companys policy on business ethics and code of conduct

KU12. technical standards for design and construction of cold storages: Bureau of Indian standards (BIS), International standard (ISO) etc.

KU13. categories of cold storages to determine technical standards

KU14. types of testing: component testing, performance testing etc

KU15. about statutory approvals and insurance approvals required for the operation of cold storage

KU16. process and procedure to be followed to obtain statutory approvals and insurance approvals required for the operation of cold storage

KU17. how to conduct fire drill

KU18. equipments required for testing

KU19. components of modernization: programmable logic controller equipment, packaging lines, dock levelers, advanced graders, alternate technologies, stacking system, modernization of insulation and refrigeration etc

KU20. tools for project management and documentation: MS Project, MS excel, MS visio, MS PowerPoint, MS Word

KU21. project management terminology: Work breakdown structure (WBS), Network diagram, slack, lag etc.

KU22. project management methodology

KU23. principles of refrigeration

KU24. cold chain operation

KU25. business engineering design

Generic Skills (GS)

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

GS1. read company's work instructions, customer requirement and quality policy

GS2. read project report

GS3. read test scenarios

GS4. maintain the record of job completed as per company's policy

GS5. prepare test scenarios and document results

GS6. communicate with seniors to report on any issues or delay in approvals

GS7. interact with other department, team members and vendors to work efficiently

GS8. determine success and failure of test scenario

GS9. decide on commissioning activities and the commissioning team

GS10. decide plant is functioning as per company's standards and is ready to handover

GS11. schedule and plan for meeting the target

GS12. plan and organise testing and commissioning activities in an appropriate order

GS13. ensure completion of work as per schehdule and budget

GS14. answer queries from client promptly

GS15. schedule meeting and maintain proper communication plan to keep the client aware of progress

GS16. keep contigent plan ready incase of any deviation from plan

GS17. follow up and resolve open issues

GS18. differentiate defects based on high, medium and low priority

GS19. optimise operations to reduce turn-around time and cost

GS20. resolve issues or defects without disturbing other functions

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Test cold storage plant	**20**	**36**	**-**	**7**
PC1. check internal and external joints, panels and vapour seals	2	2	-	-
PC2. ensure no voids and gaps in the insulation	2	2	-	1
PC3. ensure proper fitting of doors and door heaters	2	2	-	1
PC4. confirm thermal conductivity of the insulation material fall within the range specified by the supplier or ISO/FDIS 4898	2	2	-	-
PC5. test whether refrigeration system is functioning as per company's standards	2	2	-	1
PC6. make certain that cold rooms are operating and maintaining defined temperature	2	3	-	-
PC7. make certain proper functionality of control panel	1	3	-	-
PC8. make sure proper ventilation in cold rooms and ripening chambers	1	3	-	-
PC9. make sure proper installation of generator/s and electricity supply is in the plant	1	3	-	-
PC10. ensure seamless flow of materials from one facility to the other	1	3	-	1
PC11. check rack system is in place and able to take products as well as labour load	1	2	-	1
PC12. check fire and emergency alarm	1	3	-	1
PC13. escalate issues or defects to stakeholders	1	3	-	1
PC14. follow up and resolve issues	1	3	-	-
Commission cold storage plant	**10**	**24**	**-**	**3**
PC15. prepare a schedule for commissioning activities	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC16. assign responsibilities to team members	1	2	-	-
PC17. create test scenarios for each stage of the process	1	2	-	1
PC18. determine success and failure of any test scenario	1	3	-	-
PC19. escalate failure of test scenario to stakeholders, resolve and re-test	1	3	-	-
PC20. conduct drill successfully	1	3	-	-
PC21. ensure safety mechanisms are in place	1	2	-	1
PC22. perform client training and demonstrations	1	3	-	1
PC23. obtain statutory approvals and insurance approvals	1	2	-	-
PC24. ensure maintenance of refrigeration system, machinery, equipment etc. as per contract	1	2	-	-
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8605
NOS Name	Test and commission cold storage plant
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Projects
NSQF Level	5.5
Credits	2
Version	2.0
Last Reviewed Date	15/03/2024
Next Review Date	15/03/2027
NSQC Clearance Date	15/03/2024

LSC/N8607: Cold chain compliance and optimization using IoT sensors and transmitters

Description

This OS unit is about compliance with temperature control and process optimization of cold chain.

Scope

The scope covers the following :

- Compliance to standards
- Optimization

Elements and Performance Criteria

Compliance to standards

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

PC1. Collect data on the customer requirement and product's temperature control requirement with minimum and maximum temperature.

PC2. Analyze the existing temperature monitoring systems.

PC3. Propose integrated temperature sensors and IoT devices, which collect and transmit real-time temperature data during storage and transit.

PC4. Comply with BIS standards to ensure the quality and reliability of their operations.

PC5. Ensure that the packaging materials, temperature monitoring devices, and transport vehicles are maintained per the standards.

PC6. Use approved materials and equipment, minimizing the risk of damage or spoilage during transit.

PC7. Ensure that FSSAI, CDSCO, and BIS regulations are followed as per the product.

PC8. Set up SOPs for handling the perishable goods as per compliance.

PC9. Stay updated on regulatory change and seek clarifications by actively participating in industry conferences, workshops, and forums.

PC10. Perform regular internal audits and reviews to identify compliance gaps and improvement areas.

Optimization

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

PC11. Establish robust record-keeping systems to document all relevant information related to transportation, temperature monitoring, and product integrity.

PC12. Implement electronic systems or software solutions to streamline documentation.

PC13. Automate data collection, storage, and retrieval, reducing the risk of errors.

PC14. Propose to management to invest in AI-integrated temperature monitoring systems, GPS tracking, and real-time data analytics to continuously monitor and control transported goods.

PC15. Interact with colleagues from different departments: ripening chamber, cold storage, transport, packhouse, etc., for inputs about optimization and process improvement.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. company's HR policies on personnel management

KU2. company's reporting structure

KU3. occupational health and safety standards

KU4. cold storage plant inspection checklist

KU5. company's sanitary standard operating procedures

KU6. procedures to follow during emergency maintenance issues

KU7. technical standards for design and construction of cold storage: Bureau of Indian standards (BIS), International standard (ISO) etc.

KU8. methods for effective communication with various categories of people and the different departments in the organization

KU9. significance of team coordination and productivity targets of the organization

KU10. how to record the job activity as required on various types of documents

KU11. how to use a computer or smartphone to communicate effectively and productively

KU12. significance of helping colleagues with specific issues and problems

KU13. importance of meeting quality and time standards as a team

KU14. how to practice effective listening and talking

KU15. effective use of voice tone and pitch for communication

KU16. how to demonstrate ethics and convey discipline to the clients

KU17. how to build effective working relationship with mutual trust and respect within the team

KU18. importance of dealing with grievances effectively and in time

KU19. safe storage and handling of chemicals like refrigerants, ammonia, ethylene etc.

KU20. loading and unloading systems

KU21. standard operating procedure for safety drills and equipment maintenance

KU22. operation of machines: compressor, condenser, evaporator etc.

KU23. emergency procedures to be followed in case of a mishap such as fire, accidents, etc. and communication of safety instructions to subordinate staff

KU24. emergency responses in case of malfunctioning of refrigeration equipment as a whole or its components like evaporator, condenser or compressor

KU25. solid, liquid and gaseous waste disposal, treatment norms and equipment

KU26. necessary action to be taken for the hazards identified

KU27. knowledge of Quality systems like BRC, FSSAI, ISO, FSSC, HACCP etc.

Generic Skills (GS)

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

GS1. read and interpret the relevant organization policies, procedures and diagrams that identify health, safety and safe environmental practices

GS2. read notes/comments from the senior

GS3. fill up documentation pertaining to job requirement

GS4. interact with team members to work efficiently

GS5. communicate effectively with senior to achieve smooth workflow

GS6. communicate effectively with the clients to build a good rapport with them

GS7. use language that the client or colleague understands

GS8. use the communication systems of the company, e.g., telephone, fax, public announcement systems

GS9. e-mail and use internet for communicating

GS10. use of audio-visual aids to communicate complex issues

GS11. spot and communicate potential areas of disruptions to work process and report the same

GS12. report to supervisor and deal with a colleague individually, depending on the type of concern

GS13. plan communication strategy in order to avoid conflicts and work disruption

GS14. practice patient listening, careful talking and paraphrasing in order to avoid misunderstanding

GS15. coordinate with different departments and multi-task as necessary

GS16. contribute to quality of team work and achieve smooth workflow

GS17. share workload as required

GS18. delegate work in consultation with senior or as necessary instead of allowing work to pile up

GS19. resolve recurring inter-personal conflicts by clear and two-way dialogue

GS20. improve work processes by interacting with others and adopting best practices

GS21. take care of personal and equipment protection

GS22. identify the hazards and suggest possible solutions

GS23. use safety equipment such as fire extinguisher during fire accidents

GS24. store tools in a safe way

GS25. analyze the seriousness of the hazards

GS26. evolve smooth workplace by avoiding hazards at workplace

GS27. evaluate and apply the possible solutions for the hazards, as necessary

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Compliance to standards	**20**	**40**	**-**	**7**
PC1. Collect data on the customer requirement and product's temperature control requirement with minimum and maximum temperature.	2	4	-	-
PC2. Analyze the existing temperature monitoring systems.	2	4	-	1
PC3. Propose integrated temperature sensors and IoT devices, which collect and transmit real-time temperature data during storage and transit.	2	4	-	1
PC4. Comply with BIS standards to ensure the quality and reliability of their operations.	2	4	-	-
PC5. Ensure that the packaging materials, temperature monitoring devices, and transport vehicles are maintained per the standards.	2	4	-	1
PC6. Use approved materials and equipment, minimizing the risk of damage or spoilage during transit.	2	4	-	1
PC7. Ensure that FSSAI, CDSCO, and BIS regulations are followed as per the product.	2	4	-	1
PC8. Set up SOPs for handling the perishable goods as per compliance.	2	4	-	1
PC9. Stay updated on regulatory change and seek clarifications by actively participating in industry conferences, workshops, and forums.	2	4	-	-
PC10. Perform regular internal audits and reviews to identify compliance gaps and improvement areas.	2	4	-	1
Optimization	**10**	**20**	**-**	**3**
PC11. Establish robust record-keeping systems to document all relevant information related to transportation, temperature monitoring, and product integrity.	2	4	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. Implement electronic systems or software solutions to streamline documentation.	2	4	-	1
PC13. Automate data collection, storage, and retrieval, reducing the risk of errors.	2	4	-	1
PC14. Propose to management to invest in AI-integrated temperature monitoring systems, GPS tracking, and real-time data analytics to continuously monitor and control transported goods.	2	4	-	-
PC15. Interact with colleagues from different departments: ripening chamber, cold storage, transport, packhouse, etc., for inputs about optimization and process improvement.	2	4	-	1
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8607
NOS Name	Cold chain compliance and optimization using IoT sensors and transmitters
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Projects
NSQF Level	5.5
Credits	3
Version	1.0
Last Reviewed Date	15/03/2024
Next Review Date	15/03/2027
NSQC Clearance Date	15/03/2024

LSC/N9901: Maintain food and personnel safety, health and hygiene in cold storage plant

Description

This OS unit is about complying with safety, health and hygiene at the workplace to have a hazard-free environment and avoid downtime

Scope

The scope covers the following :

- Take precautionary measures to avoid work hazards
- Follow standard health, safety and hygiene procedures

Elements and Performance Criteria

Take precautionary measures to avoid work hazards

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

PC1. assess the various health, safety and environmental hazards in the cold storage

PC2. take necessary steps to eliminate or minimize the hazards

PC3. analyze the causes of accidents at the workplace

PC4. take preventive measures to avoid risk of cold burns and other injury due to contact with hot surfaces, gas, fire, hot fluids/ liquids, etc.

PC5. ensure the employees have access to first aid kit when needed

PC6. ensure to use personal protective equipment and safety gear such as gloves, jacket, footwear etc. for loading and unloading material in cold rooms to protect themselves from hypothermia, frostbite etc

PC7. ensure to display safety signs at places where necessary for people to be cautious

PC8. use rubber mats in the places where floors are constantly wet

PC9. ensure electrical precautions such as insulated clothing, adequate equipment insulation, dry work area, switch off the power supply when not required, etc

PC10. display emergency exit plan at prominent places and have emergency assembly area earmarked as a grid for easy counting of on duty associates and workers.

PC11. unplug the control panel, compressor, condensor etc before performing maintenance

PC12. report to the superior on any problems and hazards identified

PC13. install fire alarms (electrical/manual) in cold store/deep freeze and keep other safety devices like hammer/mallet in the storage area

Follow standard health, safety and hygiene procedures

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

PC14. maintain appropriate ventilation in the cold rooms to avoid unacceptable accumulation of heat, condensation or odours

PC15. check and review the cold storage areas frequently

PC16. stack items in an organized way and use safe lifting techniques to reduce risk of injuries from handling procedures at the storage areas

PC17. ensure no sign of pest infestation and install rodent traps, fly glues and insectocutors wherever needed

PC18. follow hygiene & sanitation standards of Government bodies like FSSAI, APEDA and /or EIA or importing countries like FAO, EU standards

PC19. use effective loading and unloading systems

PC20. proper stock rotation (First in First out) to be practiced

PC21. segregate damaged/non-conforming products from other products to designate area for appropriate disposition

PC22. fumigate containers depending upon product and contamination or as per customers requirement

PC23. avoid smoking, spitting, eating etc near food storage area

PC24. ensure reefers are covered, clean, free from pest infestation & other contaminants

PC25. dispose cold storage plant waste in the designated areas safely as per companys policies and rules

PC26. ensure to be safe while handling machines (generator, compressor, condenser etc.), gas (ammonia) and chemicals (ethylene, refrigerants etc.)

PC27. keep the floors free from oil, water and grease to avoid slippery surface

PC28. cut nails regularly and avoid applying nail paint. Avoid wearing bangles, rings, and chains in cold storage

PC29. wash hands with soap solution and dry under a dryer as they enter for duty or after using wash room

PC30. periodic examination of protective devices, pressure vessels and pipelines, and parts of pipework by a competent person to prevent defect that may give rise to danger

PC31. ensure workers suffering from abscess, boils etc. should be relieved from food handling

PC32. develop personal hygiene habits like brushing teeth, taking shower every day, wearing clean and tidy clothes after ironing etc.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. company's HR policies on personnel management

KU2. company's reporting structure

KU3. occupational health and safety standards

KU4. cold storage plant inspection checklist

KU5. companys sanitary standard operating procedures

KU6. procedures to follow during emergency maintenance issues

KU7. technical standards for design and construction of cold storages: Bureau of Indian standards (BIS), International standard (ISO) etc.

KU8. the purpose and usage of protective gears such as gloves , jackets etc. while working

KU9. use of first aid at workplace

KU10. cold storage order, 1980

KU11. food safety and standards act, 2006

KU12. reporting procedure or heirarchy for signs of damage and potential hazards

KU13. methods to minimize accidental risks

KU14. safe storage and handling of chemicals like refrigerants, ammonia, ethylene etc.

KU15. loading and unloading systems

KU16. standard operating procedure for safety drills and equipment maintenance

KU17. operation of machines: compressor, condenser, evaporator etc.

KU18. emergency procedures to be followed in case of an mishap such as fire, accidents, etc. and communication of safety instructions to subordinate staff

KU19. emergency responses in case of malfunctioning of refrigeration equipment as a whole or its components like evaporator, condenser or compressor

KU20. solid, liquid and gaseous waste disposal, treatment norms and equipment

KU21. necessary action to be taken for the hazards identified

KU22. knowledge of Quality systems like BRC, FSSAI, ISO, FSSC, HACCP etc.

Generic Skills (GS)

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

GS1. read and interpret the relevant organisation policies, procedures and diagrams that identify health, safety and safe environmental practices.

GS2. read job sheets, company policy documents and information displayed at the workplace for health, safety and environment.

GS3. read notes/comments from the senior

GS4. fill up documentation related to health, safety and environmental standards, if required

GS5. verbally report health, safety and environmental hazards and poor organisation practice.

GS6. communicate to the supervisor about the work health, safety and environmental issues

GS7. receive instructions from supervisor on minimizing the risks

GS8. communicate with co-workers about the precautions to be taken for hazards free work

GS9. take preventive measures for the identified hazards

GS10. select appropriate hand tools and personal protection equipment

GS11. identify first aid needs in case of an injury

GS12. formalize and display evacuation plan at strategic locations

GS13. ensure targeted product delivery by practicing stipulated standards of occupational health safety and environmental measures

GS14. take care of personal and equipment protection

GS15. identify the hazards and suggest possible solutions

GS16. use safety equipment such as fire extinguisher during fire accidents

GS17. store tools in a safe way

GS18. analyse the seriousness of the hazards

GS19. evolve smooth workflow by avoiding hazards at workplace

GS20. evaluate and apply the possible solutions for the hazards, as necessary

GS21. take care of personal and equipment protection

GS22. identify the hazards and suggest possible solutions

GS23. use safety equipment such as fire extinguisher during fire accidents

GS24. store tools in a safe way

GS25. analyse the seriousness of the hazards

GS26. evolve smooth workflow by avoiding hazards at workplace

GS27. evaluate and apply the possible solutions for the hazards, as necessary

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Take precautionary measures to avoid work hazards	**12**	**23**	**-**	**6**
PC1. assess the various health, safety and environmental hazards in the cold storage	0.5	1	-	-
PC2. take necessary steps to eliminate or minimize the hazards	1	2	-	1
PC3. analyze the causes of accidents at the workplace	0.5	1	-	-
PC4. take preventive measures to avoid risk of cold burns and other injury due to contact with hot surfaces, gas, fire, hot fluids/ liquids, etc.	1	2	-	1
PC5. ensure the employees have access to first aid kit when needed	1	2	-	-
PC6. ensure to use personal protective equipment and safety gear such as gloves, jacket, footwear etc. for loading and unloading material in cold rooms to protect themselves from hypothermia, frostbite etc	1	2	-	1
PC7. ensure to display safety signs at places where necessary for people to be cautious	1	2	-	-
PC8. use rubber mats in the places where floors are constantly wet	0.5	2	-	1
PC9. ensure electrical precautions such as insulated clothing, adequate equipment insulation, dry work area, switch off the power supply when not required, etc	2	2	-	-
PC10. display emergency exit plan at prominent places and have emergency assembly area earmarked as a grid for easy counting of on duty associates and workers.	1	2	-	-
PC11. unplug the control panel, compressor, condensor etc before performing maintenance	0.5	1	-	-
PC12. report to the superior on any problems and hazards identified	1	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. install fire alarms (electrical/manual) in cold store/deep freeze and keep other safety devices like hammer/mallet in the storage area	1	2	-	1
Follow standard health, safety and hygiene procedures	**18**	**37**	**-**	**4**
PC14. maintain appropriate ventilation in the cold rooms to avoid unacceptable accumulation of heat, condensation or odours	0.5	1	-	-
PC15. check and review the cold storage areas frequently	0.5	2	-	-
PC16. stack items in an organized way and use safe lifting techniques to reduce risk of injuries from handling procedures at the storage areas	1	2	-	-
PC17. ensure no sign of pest infestation and install rodent traps, fly glues and insectocutors wherever needed	1	2	-	1
PC18. follow hygiene & sanitation standards of Government bodies like FSSAI, APEDA and /or EIA or importing countries like FAO, EU standards	1	2	-	-
PC19. use effective loading and unloading systems	1	2	-	-
PC20. proper stock rotation (First in First out) to be practiced	1	2	-	-
PC21. segregate damaged/non-conforming products from other products to designate area for appropriate disposition	1	2	-	1
PC22. fumigate containers depending upon product and contamination or as per customers requirement	1	2	-	-
PC23. avoid smoking, spitting, eating etc near food storage area	1	2	-	-
PC24. ensure reefers are covered, clean, free from pest infestation & other contaminants	1	2	-	1
PC25. dispose cold storage plant waste in the designated areas safely as per companys policies and rules	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. ensure to be safe while handling machines (generator, compressor, condenser etc.), gas (ammonia) and chemicals (ethylene, refrigerants etc.)	1	2	-	1
PC27. keep the floors free from oil, water and grease to avoid slippery surface	1	2	-	-
PC28. cut nails regularly and avoid applying nail paint. Avoid wearing bangles, rings, and chains in cold storage	1	2	-	-
PC29. wash hands with soap solution and dry under a dryer as they enter for duty or after using wash room	1	2	-	-
PC30. periodic examination of protective devices, pressure vessels and pipelines, and parts of pipework by a competent person to prevent defect that may give rise to danger	1	2	-	-
PC31. ensure workers suffering from abscess, boils etc. should be relieved from food handling	1	2	-	-
PC32. develop personal hygiene habits like brushing teeth, taking shower every day, wearing clean and tidy clothes after ironing etc.	1	2	-	-
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N9901
NOS Name	Maintain food and personnel safety, health and hygiene in cold storage plant
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Cold Chain Operations
NSQF Level	5.5
Credits	1
Version	2.0
Last Reviewed Date	15/03/2024
Next Review Date	15/03/2027
NSQC Clearance Date	15/03/2024

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

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Introduction to Employability Skills

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

PC1. identify employability skills required for jobs in various industries

PC2. identify and explore learning and employability portals

Constitutional values – Citizenship

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

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

PC4. follow environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC5. recognize the significance of 21st Century Skills for employment

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

Basic English Skills

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

PC7. use basic English for everyday conversation in different contexts, in person and over the telephone

PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English

PC9. write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

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

PC10. understand the difference between job and career

PC11. prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

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

PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings

PC13. work collaboratively with others in a team

Diversity & Inclusion

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

PC14. communicate and behave appropriately with all genders and PwD

PC15. escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

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

PC16. select financial institutions, products and services as per requirement

PC17. carry out offline and online financial transactions, safely and securely

PC18. identify common components of salary and compute income, expenses, taxes, investments etc

PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

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

PC20. operate digital devices and carry out basic internet operations securely and safely

PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively

PC22. use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

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

PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research

PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion

PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

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

PC26. identify different types of customers

PC27. identify and respond to customer requests and needs in a professional manner.

PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC29. create a professional Curriculum vitae (Résumé)

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

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

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

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

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

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

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

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

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

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

KU11. how to compute income and expenditure

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

KU13. different legal rights and laws

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

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

KU16. how to identify business opportunities

KU17. types and needs of customers

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

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

Generic Skills (GS)

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

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

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

GS3. behave politely and appropriately with all

GS4. how to work in a virtual mode

GS5. perform calculations efficiently

GS6. solve problems effectively

GS7. pay attention to details

GS8. manage time efficiently

GS9. maintain hygiene and sanitization to avoid infection

Assessment Criteria

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

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

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

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	30/11/2023
Next Review Date	29/11/2026
NSQC Clearance Date	30/11/2023

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.

2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.

3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).

4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.

5. To pass the Qualification Pack, every trainee should score a minimum of 70% for NSQF level 4 & above job roles and 50% for NSQF level 1 to 3 job roles.

6. In case of unsuccessful completion, the trainee may seek re-assessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

(**Please note**: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Minimum Passing % at NOS Level: 70

(**Please note**: A Trainee must score the minimum percentage for each NOS separately as well as on the QP as a whole.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
LSC/N8606.Demand aggregation and planning cold storage set up	30	60	-	10	100	10
LSC/N8602.Design cold storage plant layout using CAD tools and prepare project costing	30	60	-	10	100	20
LSC/N8603.Execute cold storage plant set up	30	60	-	10	100	10
LSC/N8604.Maintain vendor relationship	30	60	-	10	100	10
LSC/N8605.Test and commission cold storage plant	30	60	-	10	100	10
LSC/N8607.Cold chain compliance and optimization using IoT sensors and transmitters	30	60	-	10	100	20
LSC/N9901.Maintain food and personnel safety, health and hygiene in cold storage plant	30	60	-	10	100	10
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
Total	**230**	**450**	**-**	**70**	**750**	**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.