

Qualification Pack



Technician - Automation Maintenance for Medical Device Plant

QP Code: LFS/Q0804

Version: 1.0

NSQF Level: 4.5

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LFS/Q0804: Technician - Automation Maintenance for Medical Device Plant

Brief Job Description

Technician- Automation Maintenance for Medical Device Plant facility will be responsible for ensuring the uninterrupted operation of critical medical manufacturing equipment and automation systems. He/She will be involved in conducting routine maintenance, diagnosing, and resolving technical issues, and collaborating with cross-functional teams to maintain compliance with quality standards and regulatory requirements. He/She has a strong problem-solving skill, attention to detail, and commitment to safety, all of which are pivotal in upholding the reliability and efficiency of our medical device manufacturing processes.

Personal Attributes

The individual should have excellent communication skills and analytical skills. The person should possess good critical thinking, attention to detail, and decision-making skills. The role holder should be proactive in planning and organizing skills.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [LFS/N0135: Ensure adherence to Environment, Health and Safety guidelines in automated plant](#)
2. [LFS/N0816: Prepare for scheduled maintenance as per guidelines](#)
3. [LFS/N0817: Plan and Prepare for maintenance using hand tools](#)
4. [LFS/N0818: Perform machine maintenance and its documentation](#)
5. [LFS/N0819: Perform maintenance \(preventive/breakdown\) of automated and robotics machines](#)
6. [LFS/N0801: Coordinate with reporting manager, teammates, and cross-functional teams](#)
7. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Life Sciences
Sub-Sector	Medical Devices and In Vitro Diagnostic (IVD), Biotechnology



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Occupation	Engineering and Maintenance
Country	India
NSQF Level	4.5
Credits	16
Aligned to NCO/ISCO/ISIC Code	NCO-2015- 3113.0401,2144.0601
Minimum Educational Qualification & Experience	<p>Pursuing 1st year of UG (in relevant Field and continuous education)</p> <p>OR</p> <p>Pursuing 3rd year of 3-year diploma after 10th (approved by AICTE or State Technical Education Regulatory Body in relevant Field and continuous education)</p> <p>OR</p> <p>Pursuing 2nd year of 2-year diploma after 12th (approved by AICTE or State Technical Education Regulatory Body in relevant Field)</p>
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	01/11/2026
NSQC Approval Date	01/11/2023
Version	1.0
Reference code on NQR	QG-4.5-LS-01273-2023-V1-LSSSDC
NQR Version	1.0



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LFS/N0135: Ensure adherence to Environment, Health and Safety guidelines in automated plant

Description

This NOS is about ensuring adherence to Environment, Health and Safety guidelines in automated plant

Scope

The scope covers the following :

- The scope of NOS are:
- Safety and Compliance Assurance
- Workplace Organization and Communication

Elements and Performance Criteria

Safety and Compliance Assurance

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

- PC1.** wear the right PPE consistently and correctly for different tasks and conditions
- PC2.** demonstrate proficiency in inspecting and maintaining various types of instruments used in manufacturing of medical devices, ensuring their functionality and compliance with regulatory standards like ISO 14644.
- PC3.** identify and assess potential biomedical hazards unique to medical device manufacturing, such as biohazard risks, electrical safety, and contamination concerns, taking necessary precautions
- PC4.** maintain workstations and equipment following 5S principles, ensuring precise storage and cleanliness while eliminating unnecessary items to prevent contamination

Workplace Organization and Communication

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

- PC5.** identify and report potential risks, workplace layout concerns, and machine breakdowns promptly to relevant authorities, including supervisors and maintenance teams
- PC6.** follow proper medical waste disposal procedures, including the safe disposal of hazardous materials, medical waste, and contaminated equipment, in compliance with medical regulations
- PC7.** maintain an organized and clean workspace by returning surplus materials and tools to their designated locations
- PC8.** check that the items in the respective areas have been identified as broken or damaged
- PC9.** adhere to floor and area markings that demarcate different sections of the plant for safety and efficient operations.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:



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- KU1.** Understand the importance of wearing the appropriate PPE consistently and correctly in various tasks and conditions
- KU2.** Gain knowledge about the functionality of medical devices and the importance of ensuring compliance with regulatory standards
- KU3.** recognize biohazard risks, electrical safety concerns, and contamination risks, and understand the necessary precautions to mitigate these hazards
- KU4.** comprehend the principles of the 5S methodology for maintaining cleanroom workstation
- KU5.** understand the significance of precise storage, cleanliness, and the elimination of unnecessary items in preventing contamination
- KU6.** understand the process of returning surplus materials and tools to their designated locations to prevent clutter
- KU7.** learn how to check items in respective areas for damage or defects
- KU8.** understand the importance of reporting damaged items for timely resolution and safety
- KU9.** comprehend the importance of correctly labeling medical devices, components, and documentation
- KU10.** learn the guidelines outlined in the 5s methodology for workplace organization

Generic Skills (GS)

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

- GS1.** use reading and comprehension skills to read instructions, guidelines, procedures, rules, and signages
- GS2.** use written communication skills to accurately record every information required to be reported in the language prescribed by the company's SOP
- GS3.** apply planning and organizing skills to plan and organize tools and material required for work to fulfil environment, health, safety and security requirements
- GS4.** use strong technical aptitude to understand and work with complex medical devices, automation systems, and machinery
- GS5.** apply analytical thinking to assess risks, identify hazards, and make informed decisions to maintain safety and compliance
- GS6.** apply decision-making skills to make informed decisions, particularly in the expert selection of compatible end effectors and fallback action planning
- GS7.** apply problem-solving skills to find solutions for workflow-related difficulties
- GS8.** use verbal communication skills to communicate with supervisor/ manager/ EHS Incharge or any other concerned authority clearly for escalating any emergency situation or hazard

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Safety and Compliance Assurance</i>	15	25	5	5
PC1. wear the right PPE consistently and correctly for different tasks and conditions	-	-	-	-
PC2. demonstrate proficiency in inspecting and maintaining various types of instruments used in manufacturing of medical devices, ensuring their functionality and compliance with regulatory standards like ISO 14644.	-	-	-	-
PC3. identify and assess potential biomedical hazards unique to medical device manufacturing, such as biohazard risks, electrical safety, and contamination concerns, taking necessary precautions	-	-	-	-
PC4. maintain workstations and equipment following 5S principles, ensuring precise storage and cleanliness while eliminating unnecessary items to prevent contamination	-	-	-	-
<i>Workplace Organization and Communication</i>	15	25	5	5
PC5. identify and report potential risks, workplace layout concerns, and machine breakdowns promptly to relevant authorities, including supervisors and maintenance teams	-	-	-	-
PC6. follow proper medical waste disposal procedures, including the safe disposal of hazardous materials, medical waste, and contaminated equipment, in compliance with medical regulations	-	-	-	-
PC7. maintain an organized and clean workspace by returning surplus materials and tools to their designated locations	-	-	-	-
PC8. check that the items in the respective areas have been identified as broken or damaged	-	-	-	-
PC9. adhere to floor and area markings that demarcate different sections of the plant for safety and efficient operations.	-	-	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	30	50	10	10



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National Occupational Standards (NOS) Parameters

NOS Code	LFS/N0135
NOS Name	Ensure adherence to Environment, Health and Safety guidelines in automated plant
Sector	Life Sciences
Sub-Sector	Medical Devices and In Vitro Diagnostic (IVD)
Occupation	Generic
NSQF Level	4.5
Credits	1.0
Version	1.0
Last Reviewed Date	01/11/2023
Next Review Date	01/11/2026
NSQC Clearance Date	01/11/2023



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LFS/N0816: Prepare for scheduled maintenance as per guidelines

Description

This NOS is about preparing for scheduled maintenance as per guidelines

Scope

The scope covers the following :

- The scope of NOS are:
- Prepare for maintenance activities
- Environment sustainability guidelines

Elements and Performance Criteria

Prepare for maintenance activities

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

- PC1.** identifies potential hazards associated with maintenance tasks
- PC2.** ensures that safety equipment, such as fire extinguishers and emergency showers, is readily available and functional
- PC3.** conducts a thorough risk assessment before starting maintenance work.
- PC4.** evaluates the potential impact of maintenance activities on the production process and safety
- PC5.** safely isolates the equipment or machinery undergoing maintenance from power sources and production processes
- PC6.** ensures that tools are properly calibrated and in working order
- PC7.** checks the availability of spare parts and consumables required for maintenance tasks
- PC8.** ensures that the correct spare parts are on hand and ready for use.
- PC9.** familiarizes oneself with the emergency response plan and knows the location of emergency exits and first-aid supplies
- PC10.** place the tags/ labels/ signages for indicating that the machines and area is under maintenance as per the instructions

Environment Sustainability Guidelines

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

- PC11.** ensure energy conservation by switching off the tools, machine and equipment post operation
- PC12.** identify ways to optimize the usage of electricity/energy in various tasks/activities/processes
- PC13.** ensure no leakage of water at work premises
- PC14.** identify and segregate recyclable and nonrecyclable, and hazardous waste generated

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:



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- KU1.** company values, ethics, and culture
- KU2.** maintenance and cleaning procedures and protocols
- KU3.** risk and impact of not following defined procedures/work instructions
- KU4.** basic maintenance functions and types, types of faults, and maintenance activities for them
- KU5.** operational characteristics of the materials, equipment, and process, sufficient to recognize out of specification products, process problems, and materials faults
- KU6.** use and correct selection of equipment, materials, processes, and procedures
- KU7.** good practices to work on machines
- KU8.** Good Manufacturing Practices(GMP) and other regulatory guidelines
- KU9.** methods to conserve energy, water and methods to minimize pollution

Generic Skills (GS)

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

- GS1.** use written communication skills to record and communicate details of work done in regional language or English/Hindi
- GS2.** use reading and comprehension skills to understand instructions/manuals, SOPs, health and safety instructions, memos, reports, job cards, schedules, etc
- GS3.** use verbal communication skills to report deviation or to communicate relevant information to authorized person as per the SOP
- GS4.** apply critical thinking skills to analyze past trends and experience for defining action and decisions
- GS5.** apply problem-solving skills to find solutions for workflow-related difficulties
- GS6.** plan individual work in order to achieve specified deadlines and align with the maintenance schedules
- GS7.** use verbal communication skills to communicate with supervisor/ manager/ EHS Incharge or any other concerned authority clearly for escalating any emergency situation or hazard

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for maintenance activities</i>	20	30	5	5
PC1. identifies potential hazards associated with maintenance tasks	-	-	-	-
PC2. ensures that safety equipment, such as fire extinguishers and emergency showers, is readily available and functional	-	-	-	-
PC3. conducts a thorough risk assessment before starting maintenance work.	-	-	-	-
PC4. evaluates the potential impact of maintenance activities on the production process and safety	-	-	-	-
PC5. safely isolates the equipment or machinery undergoing maintenance from power sources and production processes	-	-	-	-
PC6. ensures that tools are properly calibrated and in working order	-	-	-	-
PC7. checks the availability of spare parts and consumables required for maintenance tasks	-	-	-	-
PC8. ensures that the correct spare parts are on hand and ready for use.	-	-	-	-
PC9. familiarizes oneself with the emergency response plan and knows the location of emergency exits and first-aid supplies	-	-	-	-
PC10. place the tags/ labels/ signages for indicating that the machines and area is under maintenance as per the instructions	-	-	-	-
<i>Environment Sustainability Guidelines</i>	10	20	5	5
PC11. ensure energy conservation by switching off the tools, machine and equipment post operation	-	-	-	-
PC12. identify ways to optimize the usage of electricity/energy in various tasks/activities/processes	-	-	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. ensure no leakage of water at work premises	-	-	-	-
PC14. identify and segregate recyclable and nonrecyclable, and hazardous waste generated	-	-	-	-
NOS Total	30	50	10	10



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National Occupational Standards (NOS) Parameters

NOS Code	LFS/N0816
NOS Name	Prepare for scheduled maintenance as per guidelines
Sector	Life Sciences
Sub-Sector	Medical Devices and In Vitro Diagnostic (IVD)
Occupation	Engineering and Maintenance
NSQF Level	4.5
Credits	2.0
Version	1.0
Last Reviewed Date	01/11/2023
Next Review Date	01/11/2026
NSQC Clearance Date	01/11/2023



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LFS/N0817: Plan and Prepare for maintenance using hand tools

Description

This NOS is about planning and preparing for maintenance using hand tools

Scope

The scope covers the following :

- The scope of NOS are:
- Utilization of hand tools in preparation for maintenance

Elements and Performance Criteria

Utilization of hand tools in preparation for maintenance

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

- PC1.** collect the daily maintenance checklist from the supervisor
- PC2.** consult with the supervisor to inquire about any equipment breakdowns or issues and obtain the specialized maintenance checklist
- PC3.** ensure clarity on which specific machine(s) require inspection and their respective locations for special maintenance situations
- PC4.** identify critical equipment and prioritize its maintenance to minimize company losses
- PC5.** retrieve and review maintenance history from previous reports for the specific equipment when necessary
- PC6.** strategically arrange the maintenance order to maximize efficiency in terms of time and travel distance
- PC7.** gather and put on all essential PPE
- PC8.** evaluate tooling needs and obtain the required tools from the tool crib or storage racks
- PC9.** acquire grease, lubricants, fluids, or replacement parts from the store area as needed
- PC10.** complete any necessary forms mandated by the store upon receiving the supplies

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** understand the importance of daily maintenance checklists in tracking equipment performance
- KU2.** comprehend the elements that make a maintenance checklist complete and accurate
- KU3.** understand the need for specialized checklists to address specific equipment issues
- KU4.** gain knowledge about critical equipment within the medical device plant and automation environment
- KU5.** learn where to access and how to interpret maintenance history reports
- KU6.** learn how to develop a logical and organized maintenance schedule



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KU7. gain knowledge about the tools and equipment necessary for various maintenance tasks

Generic Skills (GS)

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

- GS1.** use reading and comprehension skills to read instructions, guidelines, procedures, rules, and signages
- GS2.** use written communication skills to accurately record every information required to be reported in the language prescribed by the company's SOP
- GS3.** apply planning and organizing skills to plan and organize tools and material required for work to fulfil environment, health, safety and security requirements
- GS4.** use critical thinking skills to evaluate and assess options, such as the selection of industrial robots based on multiple factors
- GS5.** apply customer centricity to remain compliant with data integrity rules, GMP guidelines and to evaluate impact of wrongdoings
- GS6.** apply decision-making skills to make informed decisions, particularly in the expert selection of compatible end effectors and fallback action planning
- GS7.** apply problem-solving skills to find solutions for workflow-related difficulties
- GS8.** use verbal communication skills to communicate with supervisor/ manager/ EHS Incharge or any other concerned authority clearly for escalating any emergency situation or hazard

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Utilization of hand tools in preparation for maintenance</i>	30	50	10	10
PC1. collect the daily maintenance checklist from the supervisor	-	-	-	-
PC2. consult with the supervisor to inquire about any equipment breakdowns or issues and obtain the specialized maintenance checklist	-	-	-	-
PC3. ensure clarity on which specific machine(s) require inspection and their respective locations for special maintenance situations	-	-	-	-
PC4. identify critical equipment and prioritize its maintenance to minimize company losses	-	-	-	-
PC5. retrieve and review maintenance history from previous reports for the specific equipment when necessary	-	-	-	-
PC6. strategically arrange the maintenance order to maximize efficiency in terms of time and travel distance	-	-	-	-
PC7. gather and put on all essential PPE	-	-	-	-
PC8. evaluate tooling needs and obtain the required tools from the tool crib or storage racks	-	-	-	-
PC9. acquire grease, lubricants, fluids, or replacement parts from the store area as needed	-	-	-	-
PC10. complete any necessary forms mandated by the store upon receiving the supplies	-	-	-	-
NOS Total	30	50	10	10



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National Occupational Standards (NOS) Parameters

NOS Code	LFS/N0817
NOS Name	Plan and Prepare for maintenance using hand tools
Sector	Life Sciences
Sub-Sector	Medical Devices and In Vitro Diagnostic (IVD)
Occupation	Engineering and Maintenance
NSQF Level	4.5
Credits	3.0
Version	1.0
Last Reviewed Date	01/11/2023
Next Review Date	01/11/2026
NSQC Clearance Date	01/11/2023



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LFS/N0818: Perform machine maintenance and its documentation

Description

This NOS is about performing machine maintenance and its documentation

Scope

The scope covers the following :

- The scope of NOS are:
- Machine Functionality and Safety
- Maintenance, Documentation and Reporting

Elements and Performance Criteria

Machine Functionality and Safety

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

- PC1.** evaluate the proper functioning of machines and associated equipment
- PC2.** inspect machine parts during cleaning, scouring, or overhaul procedures to ensure their condition
- PC3.** adjust machine settings as needed to ensure optimal performance
- PC4.** identify worn-out machine parts and arrange for their replacement
- PC5.** verify the functionality of safety stop motions and arrange for any necessary maintenance
- PC6.** monitor and analyze machine stoppages due to breakdowns, implementing precautionary measures
- PC7.** return any unused fluids or components to the designated storage areas
- PC8.** remove sharp objects and clean up spills in the work area
- PC9.** dispose of damaged or worn-out components and used fluids following SOPs
- PC10.** return tools to the tool crib or storage racks after use
- PC11.** return PPE to their respective storage racks

Maintenance, Documentation and Reporting

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

- PC12.** oil and grease various machine parts at scheduled intervals to ensure smooth operation
- PC13.** schedule and perform oiling and greasing activities as required
- PC14.** ensure the correct type of oil and grease is used for each machine
- PC15.** ensure proper functioning of machines in the preparatory department
- PC16.** escalate to the supervisor about any delays in parts receipt or other issues that may increase downtime
- PC17.** Notify the supervisor of any concerns encountered during the day
- PC18.** provide a daily report to the manager regarding equipment condition and any damages
- PC19.** follow Good Documentation Practices and ALCOA principles for all documentation
- PC20.** maintain data integrity for all reporting and recording purpose



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- PC21.** complete any necessary forms /documentation required by the store and management as per SOP
- PC22.** record activities in the logbook and update the machine maintenance history book
- PC23.** update machinery condition records and maintenance schedules with review dates
- PC24.** prepare detailed reports explaining the causes of problems, proposed solutions, expected lifespan, required accessories, lubricants, and indenting plans
- PC25.** maintain records of all maintenance activities

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** various parts and components within machines, including their functions, wear patterns, and typical failure modes
- KU2.** familiarity with maintenance protocols, including cleaning, inspections, and overhauls, and how they vary for different types of machinery
- KU3.** understanding safety regulations and procedures, including the use of PPE to ensure a safe work environment
- KU4.** company policies and environmental regulations for the proper disposal of damaged parts and used fluids
- KU5.** identifying and safely removing hazards like sharp objects and spills to prevent accidents
- KU6.** understanding the importance of preventive maintenance in reducing downtime and ensuring machinery reliability
- KU7.** knowledge of safety stop motions and how to verify their functionality, as well as arranging for maintenance if needed
- KU8.** maintaining records, completing forms, and updating maintenance logs and machinery condition records accurately

Generic Skills (GS)

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

- GS1.** use reading and comprehension skills to read instructions, guidelines, procedures, rules, and signages
- GS2.** use written communication skills to accurately record every information required to be reported in the language prescribed by the company's SOP
- GS3.** apply planning and organizing skills to plan and organize tools and material required for work to fulfil environment, health, safety and security requirements
- GS4.** use critical thinking skills to assess complex situations, make informed decisions, and prioritize tasks effectively
- GS5.** apply customer centricity to remain compliant with data integrity rules, GMP guidelines and to evaluate impact of wrongdoings
- GS6.** apply decision-making skills to make informed decisions, particularly in the expert selection of compatible end effectors and fallback action planning



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- GS7.** apply problem-solving skills to identify issues, analyze their root causes, and develop effective solutions to address machinery problems
- GS8.** apply attention to detail for maintaining a high level of accuracy and precision when inspecting machinery components and recording maintenance data
- GS9.** use time management skill to efficiently allocating time and resources to prioritize maintenance tasks and minimize production downtime
- GS10.** use interpersonal skills to build a positive working relationships with colleagues, supervisors, and external contacts through effective interpersonal skills

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Machine Functionality and Safety</i>	10	25	5	5
PC1. evaluate the proper functioning of machines and associated equipment	-	-	-	-
PC2. inspect machine parts during cleaning, scouring, or overhaul procedures to ensure their condition	-	-	-	-
PC3. adjust machine settings as needed to ensure optimal performance	-	-	-	-
PC4. identify worn-out machine parts and arrange for their replacement	-	-	-	-
PC5. verify the functionality of safety stop motions and arrange for any necessary maintenance	-	-	-	-
PC6. monitor and analyze machine stoppages due to breakdowns, implementing precautionary measures	-	-	-	-
PC7. return any unused fluids or components to the designated storage areas	-	-	-	-
PC8. remove sharp objects and clean up spills in the work area	-	-	-	-
PC9. dispose of damaged or worn-out components and used fluids following SOPs	-	-	-	-
PC10. return tools to the tool crib or storage racks after use	-	-	-	-
PC11. return PPE to their respective storage racks	-	-	-	-
<i>Maintenance, Documentation and Reporting</i>	20	25	5	5
PC12. oil and grease various machine parts at scheduled intervals to ensure smooth operation	-	-	-	-
PC13. schedule and perform oiling and greasing activities as required	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. ensure the correct type of oil and grease is used for each machine	-	-	-	-
PC15. ensure proper functioning of machines in the preparatory department	-	-	-	-
PC16. escalate to the supervisor about any delays in parts receipt or other issues that may increase downtime	-	-	-	-
PC17. Notify the supervisor of any concerns encountered during the day	-	-	-	-
PC18. provide a daily report to the manager regarding equipment condition and any damages	-	-	-	-
PC19. follow Good Documentation Practices and ALCOA principles for all documentation	-	-	-	-
PC20. maintain data integrity for all reporting and recording purpose	-	-	-	-
PC21. complete any necessary forms /documentation required by the store and management as per SOP	-	-	-	-
PC22. record activities in the logbook and update the machine maintenance history book	-	-	-	-
PC23. update machinery condition records and maintenance schedules with review dates	-	-	-	-
PC24. prepare detailed reports explaining the causes of problems, proposed solutions, expected lifespan, required accessories, lubricants, and indenting plans	-	-	-	-
PC25. maintain records of all maintenance activities	-	-	-	-
NOS Total	30	50	10	10



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National Occupational Standards (NOS) Parameters

NOS Code	LFS/N0818
NOS Name	Perform machine maintenance and its documentation
Sector	Life Sciences
Sub-Sector	Medical Devices and In Vitro Diagnostic (IVD)
Occupation	Engineering and Maintenance
NSQF Level	4.5
Credits	2.0
Version	1.0
Last Reviewed Date	01/11/2023
Next Review Date	01/11/2026
NSQC Clearance Date	01/11/2023



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LFS/N0819: Perform maintenance (preventive/breakdown) of automated and robotics machines

Description

This NOS is about performing maintenance (preventive/ breakdown) of automated and robotics machines

Scope

The scope covers the following :

- The scope of NOS are:
- Preparing for maintenance of automation machine
- Carry out maintenance and repair of equipment
- Performing trials and documentation
- Change control and analysis

Elements and Performance Criteria

Preparing for maintenance of automation machine

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

- PC1.** identify the equipment by referring to the user manual, including its manufacturer's specifications and operational details
- PC2.** engage with the user or operator to inquire about any issues or unusual conditions observed with the equipment
- PC3.** ensure that preventive maintenance tasks are carried out on time according to the established schedules
- PC4.** examine the corrective maintenance schedule to determine the necessary tools, consumables, and spare parts needed for the task
- PC5.** respond promptly to equipment breakdowns and minimize downtime through swift corrective action
- PC6.** create a maintenance schedule for the proactive upkeep of the equipment during the assigned task
- PC7.** utilize a checklist and collaborate with the supervisor to validate the completion of maintenance activities

Carry out maintenance and repair of equipment

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

- PC8.** perform equipment calibration and testing as required to ensure accurate and reliable performance
- PC9.** disassemble the equipment and replace the designated spare parts and consumables according to the predetermined schedule
- PC10.** inspect the equipment for geometric irregularities or internal issues to assess its operational status and expected condition

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- PC11.** perform emergency maintenance, followed by a thorough examination of the equipment for issues such as leaks, fractures, unusual sounds, reduced performance, or any problems reported in complaints
- PC12.** clean, replace, or repair equipment components as necessary
- PC13.** adhere to Standard Operating Procedures (SOP) by using recommended consumables, tools, and equipment for servicing and repairing the equipment
- PC14.** dispose of waste materials like oil and defective parts or assemblies in accordance with the organization's policies and guidelines

Performing trials and documentation

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

- PC15.** reassemble the equipment's covers, guards, clamps, insulation, etc., and prepare it for trial runs
- PC16.** shift and install the equipment for the subsequent procedure, documenting all repairs made, the time taken, and any unexpected tasks encountered during the process
- PC17.** gradually increase the operational conditions during equipment trials in the presence of operator, ensuring that specified parameters are achieved without any abnormalities
- PC18.** run several equipment cycles while monitoring its performance in the presence of the operator, and update the maintenance due/status label on the equipment
- PC19.** thoroughly review all maintenance checkpoints and promptly report the completed maintenance activities on the equipment to supervisors in both the manufacturing and maintenance departments

Change control and analysis

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

- PC20.** ensure that all changes to medical devices adhere to strict regulatory requirements and standards, such as FDA guidelines for equipment
- PC21.** conduct a thorough assessment of the potential impact of changes on the safety, efficacy, and functionality of the device
- PC22.** implement comprehensive risk analysis and mitigation strategies for changes to minimize safety risks
- PC23.** maintain meticulous and accurate documentation for all change control activities, including change requests, approvals, and implementation details
- PC24.** ensure that recalibration and revalidation procedures are meticulously followed changes to maintain equipment accuracy
- PC25.** develop comprehensive change control plans, including timelines, resource allocation, and contingency plans for unexpected issues
- PC26.** implement post-change monitoring and follow-up procedures to ensure the long-term effectiveness and safety of the modified equipment

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** identify equipment by referencing user manuals, manufacturer's specifications, and operational details



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- KU2.** learn the proficiency in making minor adjustments to machinery settings or parameters to optimize performance
- KU3.** understand safety protocols, including lockout/tagout procedures, to ensure personal and equipment safety during maintenance activities
- KU4.** knowledge of electrical systems, including wiring diagrams, circuitry, and control panels, to troubleshoot electrical issues
- KU5.** understanding the importance of preventive maintenance in reducing downtime and ensuring machinery reliability
- KU6.** proficiency in troubleshooting techniques, including systematic problem-solving and fault isolation
- KU7.** awareness of quality control and regulatory standards applicable to medical device manufacturing, ensuring compliance during maintenance activities
- KU8.** gain insight into configuring initial settings, including jogging and axis limits
- KU9.** develop knowledge in creating maintenance schedules and checklists
- KU10.** recognize the importance of backup procedures for teach pendant programs and parameters

Generic Skills (GS)

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

- GS1.** use reading and comprehension skills to read instructions, guidelines, procedures, rules, and signages
- GS2.** use written communication skills to accurately record every information required to be reported in the language prescribed by the company's SOP
- GS3.** apply planning and organizing skills to plan and organize tools and material required for work to fulfil environment, health, safety and security requirements
- GS4.** use critical thinking skills to assess complex situations, make informed decisions, and prioritize tasks effectively
- GS5.** apply decision-making skills to make informed decisions, particularly in the expert selection of compatible end effectors and fallback action planning
- GS6.** apply problem-solving skills to identify issues, analyze their root causes, and develop effective solutions to address machinery problems
- GS7.** apply attention to detail for maintaining a high level of accuracy and precision when inspecting machinery components and recording maintenance data
- GS8.** use time management skill to efficiently allocating time and resources to prioritize maintenance tasks and minimize production downtime
- GS9.** use interpersonal skills to build a positive working relationships with colleagues, supervisors, and external contacts through effective interpersonal skills

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Preparing for maintenance of automation machine</i>	10	15	3	3
PC1. identify the equipment by referring to the user manual, including its manufacturer's specifications and operational details	-	-	-	-
PC2. engage with the user or operator to inquire about any issues or unusual conditions observed with the equipment	-	-	-	-
PC3. ensure that preventive maintenance tasks are carried out on time according to the established schedules	-	-	-	-
PC4. examine the corrective maintenance schedule to determine the necessary tools, consumables, and spare parts needed for the task	-	-	-	-
PC5. respond promptly to equipment breakdowns and minimize downtime through swift corrective action	-	-	-	-
PC6. create a maintenance schedule for the proactive upkeep of the equipment during the assigned task	-	-	-	-
PC7. utilize a checklist and collaborate with the supervisor to validate the completion of maintenance activities	-	-	-	-
<i>Carry out maintenance and repair of equipment</i>	10	15	3	3
PC8. perform equipment calibration and testing as required to ensure accurate and reliable performance	-	-	-	-
PC9. disassemble the equipment and replace the designated spare parts and consumables according to the predetermined schedule	-	-	-	-
PC10. inspect the equipment for geometric irregularities or internal issues to assess its operational status and expected condition	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. perform emergency maintenance, followed by a thorough examination of the equipment for issues such as leaks, fractures, unusual sounds, reduced performance, or any problems reported in complaints	-	-	-	-
PC12. clean, replace, or repair equipment components as necessary	-	-	-	-
PC13. adhere to Standard Operating Procedures (SOP) by using recommended consumables, tools, and equipment for servicing and repairing the equipment	-	-	-	-
PC14. dispose of waste materials like oil and defective parts or assemblies in accordance with the organization's policies and guidelines	-	-	-	-
<i>Performing trials and documentation</i>	5	10	2	2
PC15. reassemble the equipment's covers, guards, clamps, insulation, etc., and prepare it for trial runs	-	-	-	-
PC16. shift and install the equipment for the subsequent procedure, documenting all repairs made, the time taken, and any unexpected tasks encountered during the process	-	-	-	-
PC17. gradually increase the operational conditions during equipment trials in the presence of operator, ensuring that specified parameters are achieved without any abnormalities	-	-	-	-
PC18. run several equipment cycles while monitoring its performance in the presence of the operator, and update the maintenance due/status label on the equipment	-	-	-	-
PC19. thoroughly review all maintenance checkpoints and promptly report the completed maintenance activities on the equipment to supervisors in both the manufacturing and maintenance departments	-	-	-	-
<i>Change control and analysis</i>	5	10	2	2



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC20. ensure that all changes to medical devices adhere to strict regulatory requirements and standards, such as FDA guidelines for equipment	-	-	-	-
PC21. conduct a thorough assessment of the potential impact of changes on the safety, efficacy, and functionality of the device	-	-	-	-
PC22. implement comprehensive risk analysis and mitigation strategies for changes to minimize safety risks	-	-	-	-
PC23. maintain meticulous and accurate documentation for all change control activities, including change requests, approvals, and implementation details	-	-	-	-
PC24. ensure that recalibration and revalidation procedures are meticulously followed changes to maintain equipment accuracy	-	-	-	-
PC25. develop comprehensive change control plans, including timelines, resource allocation, and contingency plans for unexpected issues	-	-	-	-
PC26. implement post-change monitoring and follow-up procedures to ensure the long-term effectiveness and safety of the modified equipment	-	-	-	-
NOS Total	30	50	10	10



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	LFS/N0819
NOS Name	Perform maintenance (preventive/breakdown) of automated and robotics machines
Sector	Life Sciences
Sub-Sector	Medical Devices and In Vitro Diagnostic (IVD)
Occupation	Engineering and Maintenance
NSQF Level	4.5
Credits	4.0
Version	1.0
Last Reviewed Date	01/11/2023
Next Review Date	01/11/2026
NSQC Clearance Date	01/11/2023



Qualification Pack

LFS/N0801: Coordinate with reporting manager, teammates, and cross-functional teams

Description

This NOS unit is about communicating with colleagues (both within team & cross-functional) and seniors in order to achieve smooth and hazard-free workflow

Scope

The scope covers the following :

- Interact with reporting manager
- Interact with colleagues and cross-functional teams
- Sensitivity towards all genders and people with disability

Elements and Performance Criteria

Interact with reporting manager

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

- PC1.** comprehend the work instructions given by supervisor/ reporting manager
- PC2.** ensure to meet goals and timelines set by the supervisor/ reporting manager and report any anticipated reasons for delays
- PC3.** ensure timely intimation to supervisor/ reporting manager about his/ her planned absence as well as any illness/ dizziness during work
- PC4.** inform supervisor/ reporting manager on critical issues, requiring his/her intervention, proactively
- PC5.** engage with supervisor/ reporting manager on work-related and behavioral feedback

Interact with colleagues and cross-functional teams

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

- PC6.** takeover/ handover the shift from colleagues in previous shift/ to colleagues in the next shift as per defined guidelines
- PC7.** coordinate with concerned personnel in stores for replenishing required material and spares
- PC8.** follow the protocols of cross-functional sections
- PC9.** plan the work in consultation with impacted cross-functional teams
- PC10.** respect others time and meet timelines for any cross-functional deliverable
- PC11.** resolve interpersonal conflicts at work with other colleagues, if any

Sensitivity towards all genders and people with disability

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

- PC12.** respect all genders, religions, and caste
- PC13.** empathize with people with disability
- PC14.** offer support or help to a person with disability only when asked
- PC15.** adhere with the guidelines laid in POSH Act



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- PC16.** report any violation of prevention of sexual harassment (POSH) rules immediately to the POSH committee

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** company's vision, policies on preferred language of communication, quality delivery standards, time office rules, handover policies
- KU2.** reporting structure and escalation policy
- KU3.** basics of effective communication
- KU4.** importance of building team coordination
- KU5.** the types of possible disabilities among people with disability (PwD)
- KU6.** the challenges faced by PwD (Person with Disability)
- KU7.** importance of displaying empathy towards PwD
- KU8.** the laws, acts, and provisions defined for PwD by the statutory bodies
- KU9.** the guidelines for Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal Act)
- KU10.** importance of respecting all gender, religion, caste, and culture

Generic Skills (GS)

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

- GS1.** use reading and comprehension skills to read job sheets, in interpreting technical details mentioned in the job sheet and to read notes/comments received from the technician/supervisor
- GS2.** use verbal communication and listening skills to interact with team members, to establish effective working relationships with different team members and other cross-functional teams to deliver planned work
- GS3.** apply planning and organizing skills to plan and organize assigned work in order to achieve specified targets and deadlines
- GS4.** apply critical thinking skills to spot process disruptions and delays

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Interact with reporting manager</i>	10	15	-	5
PC1. comprehend the work instructions given by supervisor/ reporting manager	-	-	-	-
PC2. ensure to meet goals and timelines set by the supervisor/ reporting manager and report any anticipated reasons for delays	-	-	-	-
PC3. ensure timely intimation to supervisor/ reporting manager about his/ her planned absence as well as any illness/ dizziness during work	-	-	-	-
PC4. inform supervisor/ reporting manager on critical issues, requiring his/her intervention, proactively	-	-	-	-
PC5. engage with supervisor/ reporting manager on work-related and behavioral feedback	-	-	-	-
<i>Interact with colleagues and cross-functional teams</i>	10	20	-	5
PC6. takeover/ handover the shift from colleagues in previous shift/ to colleagues in the next shift as per defined guidelines	-	-	-	-
PC7. coordinate with concerned personnel in stores for replenishing required material and spares	-	-	-	-
PC8. follow the protocols of cross-functional sections	-	-	-	-
PC9. plan the work in consultation with impacted cross-functional teams	-	-	-	-
PC10. respect others time and meet timelines for any cross-functional deliverable	-	-	-	-
PC11. resolve interpersonal conflicts at work with other colleagues, if any	-	-	-	-
<i>Sensitivity towards all genders and people with disability</i>	10	20	-	5



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. respect all genders, religions, and caste	-	-	-	-
PC13. empathize with people with disability	-	-	-	-
PC14. offer support or help to a person with disability only when asked	-	-	-	-
PC15. adhere with the guidelines laid in POSH Act	-	-	-	-
PC16. report any violation of prevention of sexual harassment (POSH) rules immediately to the POSH committee	-	-	-	-
NOS Total	30	55	-	15



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	LFS/N0801
NOS Name	Coordinate with reporting manager, teammates, and cross-functional teams
Sector	Life Sciences
Sub-Sector	Pharmaceutical, Bio Pharmaceutical, Contract Research
Occupation	Engineering and Maintenance
NSQF Level	4
Credits	1.00
Version	2.0
Last Reviewed Date	01/11/2023
Next Review Date	01/11/2026
NSQC Clearance Date	01/11/2023



Qualification Pack

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

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Introduction to Employability Skills

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

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

Constitutional values – Citizenship

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

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

Becoming a Professional in the 21st Century

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

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

Basic English Skills

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



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- 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.



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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



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- 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

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values – Citizenship</i>	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	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	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	-	-	-	-
<i>Basic English Skills</i>	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	-	-	-	-
<i>Career Development & Goal Setting</i>	1	2	-	-

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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	-	-	-	-
<i>Communication Skills</i>	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	-	-	-	-
<i>Diversity & Inclusion</i>	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	-	-	-	-
<i>Financial and Legal Literacy</i>	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	-	-	-	-
<i>Essential Digital Skills</i>	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	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Entrepreneurship</i>	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	-	-	-	-
<i>Customer Service</i>	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	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	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	-	-



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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	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by Life Sciences Sector Skill Development Council (LSSSDC)
2. Each Element will be assigned marks proportional to its importance in NOS. LSSSDC will also lay down the proportion of marks for Theory, Practical, Project, and Viva for each Element.
3. The assessment for the theory part will be based on the knowledge bank of questions created by the LSSSDC.
4. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
5. LSSSDC as assessment and awarding body will create unique evaluations for each assessment component i.e. theory, practical, project and viva for every student at each examination/training center based on this criterion.
6. Wherever any assessment component is not applicable/ feasible, the balance assessment components will be used to assess the candidate and accordingly the total marks will be calculated only for the applied



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assessment component.

7. To pass the Qualification Pack, every trainee should score a minimum of 50%-70% of marks in each NOS (depending on NSQF Level) to successfully clear the assessment. In the case of a Govt funded program, the program guidelines will be overarching on the pass percentage rules.

8. 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
LFS/N0135.Ensure adherence to Environment, Health and Safety guidelines in automated plant	30	50	10	10	100	10
LFS/N0816.Prepare for scheduled maintenance as per guidelines	30	50	10	10	100	15
LFS/N0817.Plan and Prepare for maintenance using hand tools	30	50	10	10	100	15
LFS/N0818.Perform machine maintenance and its documentation	30	50	10	10	100	20
LFS/N0819.Perform maintenance (preventive/breakdown) of automated and robotics machines	30	50	10	10	100	20



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National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
LFS/N0801.Coordinate with reporting manager, teammates, and cross-functional teams	30	55	-	15	100	10
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
Total	200	335	50	65	650	100



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Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
PPE	Personal Protective Equipment
ISO	International Organization for Standardization
SOP	Standard Operating Procedure
SOP	Standard Operating Procedure
GMP	Good Manufacturing Practices
EHS	Environment, Health, and Safety
SOP	Standard Operating Procedure
EHS	Environment, Health, and Safety
PPE	Personal protective equipment
SOP	Standard Operating Procedure
PPE	Personal protective equipment
ALCOA	Attributable, Legible, Contemporaneous, Original, and Accurate
SOP	Standard Operating Procedure
PPE	Personal protective equipment
ALCOA	Attributable, Legible, Contemporaneous, Original, and Accurate
POSH	Prevention of Sexual Harassment
PWD	Person With Disability

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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.

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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.
NOS	NOS define the measurable performance outcomes required from an individual engaged in a particular task. They list down what an individual performing that task should know and also do
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