QUALIFICATIONS PACK- OCCUPATIONAL STANDARDS FOR PLASTICS INDUSTRY

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What are Occupational Standards (OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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Introduction

Qualifications Pack- Maintenance of Plastic Machinery – Technician

SECTOR: RUBBER

SUB SECTOR: PLASTICS PROCESSING

OCCUPATION: MAINTENANCE

REFERENCE ID: RSC/Q4805 (CPC/Q3004)

ALIGNED TO:

Brief Job Description:
A Maintenance Technician is responsible for carrying out all maintenance activities in all the machines for the smooth functioning of Machines and equipments in Processing, Tool room and Testing departments. They are required to carry out preventive and breakdown maintenance to ensure that the machineries are continuously available. Additional responsibilities include maintaining records of maintenance activities carried out and preparing detailed reports.

Personal Attributes:
This job requires the individual to work independently and with integrity. He should be a quick learner and must have good technical and interpersonal skills. He must be able to interpret findings in a cohesive manner. This job requires the individual to work well individually and with his/her team and achieve joint goals. The individual must be able to prioritize and execute tasks within scheduled time limits. The individual should be able to maintain high concentration levels throughout his/her shift.

Qualifications Pack for Maintenance of Plastic Machinery Technician

Job Details

Qualifications Pack Code	**RSC/Q4805 (CPC/Q3004)**		
Job Role	**Maintenance of Plastic Machinery - Technician**		
Credits (NSQF)	**48**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Maintenance**	**Next review date**	**31/12/2021**
NSQC Clearance on	**21/07/2016**		

Job Role	**Maintenance of Plastic Machinery - Technician**
Role Description	The scope of the job involves for carrying out all maintenance activities in all the machines for the smooth functioning of Machines and equipment's in Processing, Tool room and Testing departments.
NSQF level **Minimum Educational Qualifications*** **Maximum Educational Qualifications***	4 X Standard
Training (Suggested but not mandatory)	Trained in operating and maintaining Machineries
Minimum Job Entry Age	18
Experience	No previous experience required
Applicable National Occupational Standards (NOS)	1. RSC/N4101 (CPC/N0411): Maintain basic health and safety practices at the work place, 5S. 2. RSC/N4814 (CPC/N 3020) Familiarize with using of Hand Tools, prepare for maintenance. 3. RSC/N4815 (CPC/N 3021): Carrying out Repair, troubleshooting of Mechanical/Hydraulic/Electrical Break downs and study of different hydraulic& electrical circuits related to plastics industry. 4. RSC/N4816 (CPC/N 3022) Prepare and Perform preventive maintenance. Documentation & spare parts management
Performance Criteria	As described in the relevant OS units

Definitions

Keywords /Terms	Description
Core Skills/Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working 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.
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.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
Occupational Standards (OS)	OS are Occupational Standards which apply uniquely in the Indian context
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Organizational Context	Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
Qualifications Pack(QP)	Qualifications Pack comprises the set of NOS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Scope	Scope is the 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 the quality of performance required.
Sector	Sector is a conglomeration of different business operations having similar businesses 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.
Sub-functions	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.

Acronyms

Unit Code	Unit Code is a unique identifier for a OS unit, which can be denoted with an '**N**'
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
Keywords /Terms	**Description**
OS	Occupational Standard(s)
NVEQF	National Vocational Education Qualifications Framework
NVQF	National Vocational Qualifications Framework
NSQF	National Skills Qualifications Framework
OEM	Original Equipment Manufacturer
OS	Occupational Standard(s)
QP	Qualifications Pack
5 S	Technique of maintaining orderliness -Japanese terminology
CP	Control Plan
WI	Work Instructions

RSC/N4101 (CPC/N0411) Maintain basic health and safety practices at the workplace, 5S

National Occupational Standards

Overview

This unit covers health, safety and security at the workplace. This includes procedures and practices that Candidates need to follow to help maintain a healthy, safe and secure work environment.

RSC/N4101 (CPC/N0411) Maintain basic health and safety practices at the workplace, 5S

National Occupational Standards

Unit Code	RSC/N4101 (CPC/N 0411)
Unit Title (Task)	**Maintain basic health and safety practices at the workplace, 5S**
Description	This OS unit is about knowledge and practices relating to health, safety and security that candidates need to use in the workplace. It covers responsibilities towards self, others, assets and the environment. It includes understanding of risks & hazards in the workplace, along with common techniques to minimize risk, deal with accidents, emergencies etc. It covers knowledge of fire safety, common first aid applications and safe practice. This OS is about ensuring all 5S activities both at the shop floor and the office area to facilitate increase in work productivity.
Scope	The role holder will be responsible for • Health and safety procedure. • Fire safety procedure. • Emergencies, rescue and first aid procedures. • Ensure sorting, stream lining, storage and documentation, cleaning, standardization and sustenance across the plant premises of the organization.
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Health and safety	The individual on the job should be able to: PC1. Wear protective clothing/equipment for specific tasks and work conditions PC2. Carry out safe working practices while dealing with hazards to ensure the safety of Self and others. PC3. Ensure good housekeeping practices at all times
Fire safety	The individual on the job should be able to: PC4. Use appropriate fire extinguishers on different types of fires correctly PC5. Demonstrate rescue techniques applied during fire hazard, demonstrate good housekeeping in order to prevent fire hazards, demonstrate the correct use of a fire extinguisher.
Emergencies, rescue and first aid procedures.	PC6. Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals, loud noise, and Identify areas in the plant which are potentially hazardous / unhygienic in nature. Conduct regular checks with support of the maintenance team on machine health to identify potential hazards due to wear and tear of machine. PC7. Inform the concerned authorities on the potential risks identified in the processes, workplace area/ layout, materials used etc, Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations.

RSC/N4101 (CPC/N0411) Maintain basic health and safety practices at the workplace, 5S

	PC8. Create awareness amongst others by sharing information on the identified risks.
Ensure sorting, stream lining, storage and documentation, cleaning, standardization and sustenance across the plant premises of the organization.	PC9. Follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and un- necessary items are not cluttering the workbenches or work surfaces. PC10. Ensure segregation of waste in hazardous/ non Hazardous waste as per the sorting work instructions PC11. Follow the technique of waste disposal and waste storage in the proper bins as per SOP PC12. Segregate the items which are labeled as red tag items for the process area and keep them in the correct places PC13. Sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/ work instructions PC14. Ensure that areas of material storage areas are not overflowing PC15. Ensure properly stack the various types of boxes and containers as per the size/ utility to avoid any fall of items/ breakage and also enable easy sorting when required PC16. Return of extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area PC17. Follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards PC18. Follow the proper labelling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists PC19. Ensure to check the items in the respective areas have been identified as broken or damaged PC20. Follow the given instructions and check for labelling of fluids, oils, lubricants, solvents, chemicals etc. and proper storage of the same to avoid spillage, leakage, fire etc. PC21. Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. The relevant standards, procedures and policies related to Health, Safety and Environment followed in the company KA2. The emergency handling procedures & hierarchy for escalation
B. Technical Knowledge	**The user/individual on the job needs to know and understand:** KB1. The basic knowledge of Safety procedures (fire fighting, first aid) within the

	organization KB2. The basic knowledge of various types of PPEs and their usage KB3. The basic knowledge of risks/hazards associated with each occupation in the organization KB4. The knowledge of personal hygiene and how an individual contribute towards creating a highly safe and clean working environment the individual on the job needs to know and understand. KB5. The meaning of "hazards" and "risks" KB6 The health and safety hazards commonly present in the work environment and related precautions KB7. The possible causes of risk, hazard or accident in the workplace and why risk and/or accidents are possible KB8. The Possible causes of risk and accident (due to oil leakage) KB9. Methods of accident prevention KB9. Safe working practices when working with tools and machines KB10. Safe working practices while working at various hazardous sites KB11. The general health and safety equipment in the workplace KB12. Various dangers associated with the use of electrical equipment KB13. Preventative and remedial actions to be taken in the case of exposure to toxic materials KB14. The Importance of using protective clothing/equipment while working KB15. Precautionary activities to prevent the fire accident KB16. Various causes of fire KB17. The techniques of using the different fire extinguishers KB18. The different methods of extinguishing fire KB19. The different materials used for extinguishing fire KB20. The Rescue techniques applied during a fire hazard KB21. The various types of safety signs and what they mean KB22. The appropriate basic first aid treatment relevant to the condition e.g. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries KB23. The content of written accident report KB24. Potential injuries and ill health associated with incorrect manual handing KB25. Safe lifting and carrying practices KB26. Personal safety, health and dignity issues relating to the movement of a person by others KB27. Potential impact to a person who is moved incorrectly KB28. The basic knowledge of 5S procedures KB29. The various types 5s practices followed in various areas KB30. The 5S checklists provided in the department/ team KB31. Useful & non useful items KB32. The knowledge of labels , signs & colours used as indicators KB33. The knowledge on how to sort and store various types of tools, equipment, material etc. KB34. Various types of waste products

RSC/N4101 (CPC/N0411) Maintain basic health and safety practices at the workplace, 5S

	KB35. Understand to the impact of waste/ dirt/ dust/unwanted substances on the process/ environment/ machinery/ human body. KB36. The knowledge of best ways of cleaning & waste disposal
Skills (S) [Optional]	
Element	**Skills**
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. Understand basic level notes and observations.
	Reading Skills
	The user/ individual on the job needs to know and understand how to: SA2. Put up safety instructions across the plant premises SA3. Put up safety precautions mentioned in equipment manuals and panels and understand the potential risks associated
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA4. Communicate information to the team members effectively SA5. Inform employees in the plant and concerned functions about events, Incidents & potential risks observed related to Safety, Health and Environment. SA6. Question operator/ supervisor in order to understand the safety related issues SA7. Listen with full attention and comprehend the information given by the speaker during safety drills and training programs attentively
B. Professional Skills	**Plan and Organize**
	The user/individual on the job needs to know and understand how to: SB1. Process the work order and jobs received from the internal customers. SB2. Design documents received from internal customers SB3. Understand & organize all process/ equipment manuals so that sorting out information is fast.
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB4. Use common sense and make judgments during day to day basis SB5. Use intuition to detect any potential problems which could arise during operations
	Problem solving
	The user/individual on the job needs to know and understand how to: SB6. Follow instructions and work on areas of improvement identified SB7. Complete the assigned tasks with minimum supervision SB8. Complete the job defined by the supervisor within the timelines and quality norms

RSC/N4101 (CPC/N0411) Maintain basic health and safety practices at the workplace, 5S

NOS Version Control

NOS Code	**RSC/N4101 (CPC/N0411)**		
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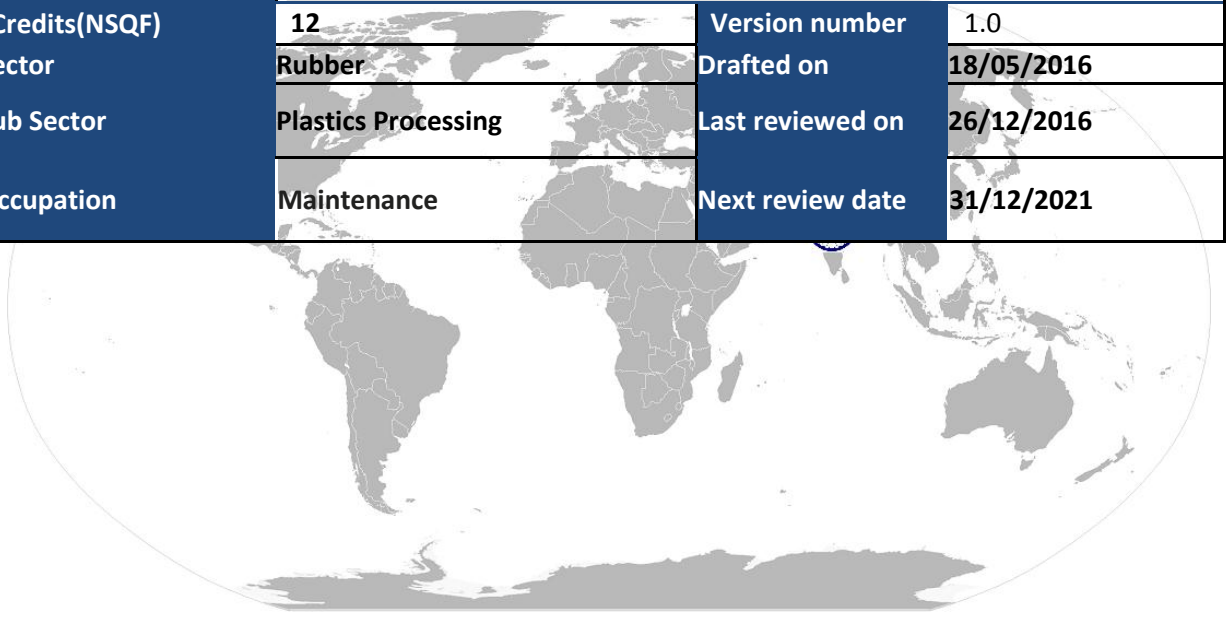
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Maintenance**	**Next review date**	**31/12/2021**



RSC/N4814 (CPC/N 3020)Familiarize with using of Hand Tools, prepare for maintenance.

National Occupational Standards

Overview

This unit is about preparing to carry out maintenance activities on Plastics Machinery.

RSC/N4814 (CPC/N 3020)Familiarize with using of Hand Tools, prepare for maintenance.

National Occupational Standards

Unit Code	RSC/N4814 (CPC/N 3020)
Unit Title (Task)	**Familiarize with using of Hand Tools ,prepare for maintenance**
Description	This unit is about preparing for maintenance.
Scope	This OS unit/task covers the following: • Obtain information and checklists • Collect necessary tools and supplies
Performance criteria (PC) w.r.t. the Scope	
Element	**Performance criteria**
Obtain information and checklists	The individual on the job should be able to: PC1. Collect the daily maintenance checklist from the supervisor. PC2. Find out from the supervisor if there is any breakdown or problems in any of the equipment and collect the special maintenance checklist. PC3. Follow maintenance, understand which particular machine(s) are to be checked and where they are located. PC4. Ensure which the critical equipment is and attend to it first so as to minimize losses to the company. PC5. Find and read up on maintenance history from previous reports of the specific Equipment if required. PC6. Plan the sequence in which the maintenance would be carried out so as to Optimize time and travel distance.
Collect necessary tools and supplies	PC7. Collect and wear all the necessary Personal Protective Equipment (PPE). PC8. Assess the tooling requirement and collect the necessary tools from the tool Crib/storage racks. PC9. Collect any grease, lubricants, fluids or replacement parts that would be used from the store area. PC10. Fill out any forms required by the store after receiving the supplies.
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. Types of documentation used in organization e.g. daily maintenance checklist and importance of the same KA2. Risk and impact of not following defined procedures/work instructions KA3. The records to be maintained and implications of non-maintenance of the same KA4. The security procedures e.g. secure storage of inventory KA5. The rules and regulations of shop floor as per company's standard operating procedure (SOP) KA6. Risk and impact of not following safety procedures KA7. Escalation matrix for reporting identified problems KA8. Cost of equipment and loss for the company that results from damage of equipment KA9. Implications of delays in process to the company

RSC/N4814 (CPC/N 3020)Familiarize with using of Hand Tools, prepare for maintenance.

B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Controls and switches used to operate the machinery properly KB2. Basic physics and mechanics associated with the machinery KB3. Safety signs, factory signs and other safety and emergency signals KB4. The hazard labels for the supplies being used. KB5. Correct maintenance procedures for machinery. KB6. The response to emergencies e.g. fire KB7. Safety regulations while operating the machinery KB8. Optimal working condition of machinery and their components. KB9. Optimal levels of fluids and lubricants. KB10. Machinery Components and particular areas that require greasing. KB11. The knowledge of all the machinery components and their functions KB12. Machine handling such as processing, tool room machine and testing equipment's. KB13. The test procedures and safely carry out maintenance tasks on the machinery. KB14. The Identification of deviations from normal operations, diagnose and repair machinery.
Skills (S)	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. Fill out checklists, maintenance logbooks detailing maintenance activities conducted SA2. Prepare detailed technical reports. SA3. Construct simple sentences and express ideas clearly through written communication SA4. Fill up appropriate technical forms, process charts, activity logs in required format of the company SA5. Write simple letters, mails, etc. SA6. Perform functional mathematical operations, including apply basic Physics principles, such as pressure, flow, electricity, numbers and space, and techniques such as estimation and approximation, for practical purposes Writing
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA7. Read labels to identify product and its associated hazard. SA8. Read and understand instructions from checklists /company log books and records SA9. Read manuals, circuit diagrams and safety signs
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA10.Communicate clearly with supervisors and peers SA11.Regularly communicate with all employees in the chain of activities on the shop floor to ensure activities are running smoothly

RSC/N4814 (CPC/N 3020)Familiarize with using of Hand Tools, prepare for maintenance.

	SA12.Provide advice and guidance to peers and juniors
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. Act objectively, rather than impulsively or emotionally when faced with difficult/stressful or emotional situations SB2. Ability to make a judgment as to whether the machinery are in good condition or not.
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB3. Adjust according to volume, capacity and manpower needs during peak and non-peak hours SB4. Prioritize and execute tasks within the scheduled time limits SB5. Maintain schedules and punctuality. Avoid absenteeism. SB6. Be a team player and achieve joint goals. SB7. Re-assess the schedule in case of delays/additional orders.
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB8. Understand the internal customer requirements and ensure that they are met.
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB9. Identify trends/common causes for errors and suggest possible solutions to the supervisor SB10. Handle day to day problems like delays, staffing shortage, etc.
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB11. Suggest methods to streamline the maintenance process. SB12. Assess the condition of each Machinery.
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB13. Concentrate on task at hand and complete it without errors

RSC/N4814 (CPC/N 3020)Familiarize with using of Hand Tools, prepare for maintenance.

NOS Version Control

NOS Code	**RSC/N4814 (CPC/N3020)**		
Credits(NSQF)	**10**	**Version number**	**1.0**
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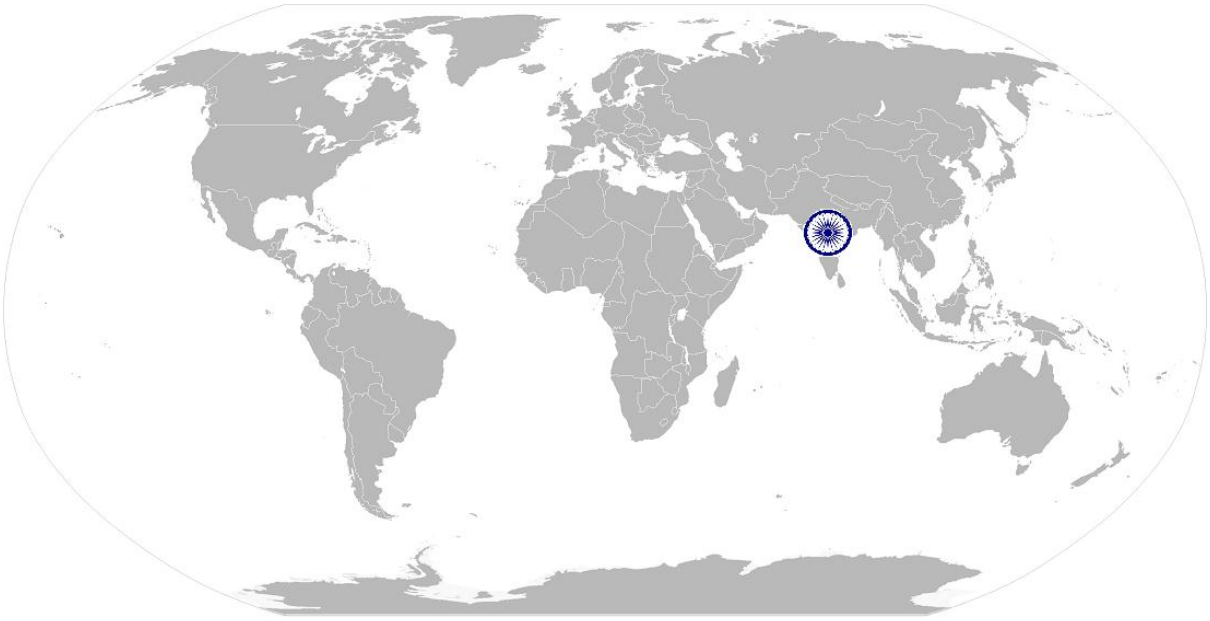
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Maintenance**	**Next review date**	**31/12/2021**

National Occupational Standards



Overview

This unit is about performing maintenance operations.

RSC/N4815 (CPC/N 3021) Carrying out Repair, troubleshooting of Mechanical/ Hydraulic/Electrical Break downs and study of different Hydraulic & electrical circuits related to plastics industry.

National Occupational Standards

Unit Code	RSC/N4815 (CPC/N 3021)
Unit Title (Task)	Carrying out Repair, troubleshooting of Mechanical/Hydraulic/Electrical Break downs and study of different hydraulic& electrical circuits related to plastics industry.
Description	This OS unit is about performing maintenance operations.
Scope	The unit/ task covers the following: • Carry out preventive maintenance • Carry out breakdown maintenance

Performance criteria (PC) w.r.t. the Scope	
Element	**Performance criteria**
Carry out preventive maintenance	The individual on the job should be able to: PC1. Observe the overall functioning of the machinery to identify problems if any. PC2. Make any minor adjustments in settings or parameters if required to ensure smooth functioning. PC3. Plan well in advance and perform it during holidays or nonpeak hours. PC4. Check for visual damage, oil leakage etc. PC5. Check oil levels of tanks and top up any fluids as required for hydraulic systems and gear boxes. PC6. Apply grease and lubricants where required. PC7. Replace any parts that have worn out at the times specified by the manufacturer. PC8. Complete and check off all the line items in the preventive maintenance checklist. PC9. Ensure that it is fully functional and safe for use. PC10. Assess the machinery and escalate to supervisor if there is a likelihood of future problems or replacement is required. PC11. Conduct regular awareness on safety devices function in to all operators PC12. Regularly maintain check batteries and ensure they are fully charged for CNC controls PC13. Prepare health card for every machinery.
Carry out breakdown maintenance	PC14. Examine the machinery to determine the source of the problem. PC15. Determine if the problem could be resolved using existing skills or if it requires the attention of a specialized technician from the manufacturing company. PC16. Determine whether the part could be repaired or if replacement is necessary If the problem could be resolved. PC17. Carry out repairs using available machine shop equipment If the part could be repaired. PC18. Obtain the required parts from the store (if available) or inform inventory

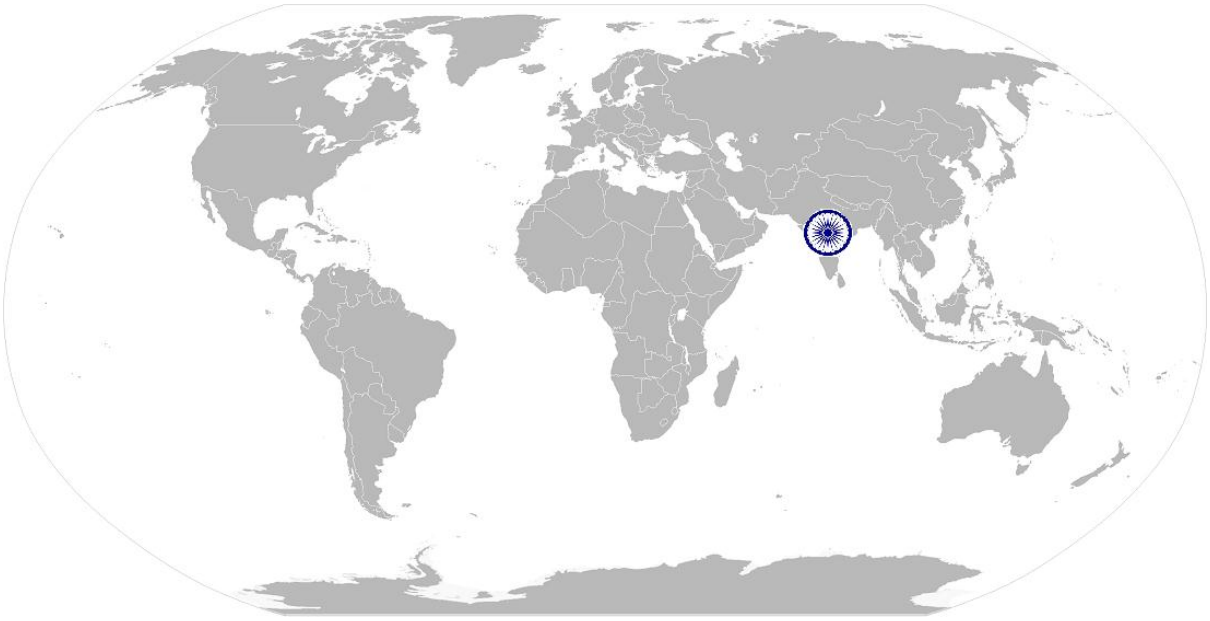
	clerk to place orders. PC19. Receive required parts and change the parts as per manufacturer's guidelines. PC20. Check fluid levels of oil tanks for hydraulic system & gear boxes and top up any fluids as required. PC21. Apply grease and lubricants where required. PC22. Complete and check off all the line items in the breakdown maintenance Checklist. PC23. Test the machinery to ensure that it is fully functional and safe for use. PC24. Escalate to supervisor in case of delays or if a specialized technician from the Manufacturing company is required to solve the problem.
Knowledge and Understanding(K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. Types of documentation used in organization e.g. daily maintenance checklist and importance of the same KA2. Risk and impact of not following defined procedures/work instructions KA3. Records to be maintained and implications of non-maintenance of the same KA4. The security procedures e.g. secure storage of inventory KA5. Rules and regulations of shop floor as per company's standard operating procedure (SOP) KA6. Risk and impact of not following safety procedures KA7. Escalation matrix for reporting identified problems KA8. Cost of equipment and loss for the company that results from damage of equipment KA9. Implications of delays in process to the company
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Controls and switches used to operate the machinery properly KB2. Basic physics and mechanics associated with the machinery KB3. Safety signs, factory signs and other safety and emergency signals KB4. The hazard labels for the supplies being used. KB5. Correct maintenance procedures for machinery. KB6. The response to emergencies e.g. fire KB7. Safety regulations while operating the machinery KB8. Optimal working condition of machinery and their components. KB9. Optimal levels of fluids and lubricants. KB10. Machinery components and particular areas that require greasing. KB11. The machinery components and their functions KB12. Handling of machinery activities such as processing, tool room and testing equipment's. KB13. The testing and safely carry out maintenance tasks on the machinery. KB14. Identification of deviations from normal operations, diagnose and repair machinery.
Skills (S)	
A. Core Skills/	**Writing Skills**

RSC/N4815 (CPC/N 3021) Carrying out Repair, troubleshooting of Mechanical/ Hydraulic/Electrical Break downs and study of different Hydraulic & electrical circuits related to plastics industry.

Generic Skills	The user/ individual on the job needs to know and understand how to: SA1. Fill out checklists, maintenance logbooks detailing maintenance activities conducted SA2. Prepare detailed technical reports.
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA3. Read labels to identify product and its associated hazard. SA4. Read and understand instructions from manuals, checklists /company log books and records SA5. Read Circuit diagrams, manuals and safety signs for machinery.
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA6. Communicate clearly with supervisors and peers SA7. Regularly communicate with all employees in the chain of activities on the shop floor to ensure activities are running smoothly SA8. Provide advice and guidance to peers and juniors
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. Act objectively , rather than impulsively or emotionally when faced with difficult/stressful or emotional situations SB2. Make a judgment as to whether the machinery are in good condition or not.
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB3. Adjust according to volume, capacity and manpower needs during peak and non-peak hours SB4. Prioritize and execute tasks within the scheduled time limits SB5. Maintain schedules and punctuality. Avoid absenteeism. SB6. Be a team player and achieve joint goals SB7. Flexibility to re-assess schedule in case of delays/additional orders
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB8. Understand the internal customer requirements and ensure that they are met.
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB9. Identify trends/common causes for errors and suggest possible solutions to the supervisor SB10. Handle day to day problems like delays, staffing shortage, etc.
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB11. Suggest methods to streamline the maintenance process. SB12. Assess the condition of each machinery.

RSC/N4815 (CPC/N 3021) Carrying out Repair, troubleshooting of Mechanical/ Hydraulic/Electrical Break downs and study of different Hydraulic & electrical circuits related to plastics industry.

	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB13. Concentrate on task at hand and complete it without errors



RSC/N4815 (CPC/N 3021) Carrying out Repair, troubleshooting of Mechanical/ Hydraulic/Electrical Break downs and study of different Hydraulic & electrical circuits related to plastics industry.

NOS Version Control

NOS Code	**RSC/N4815 (CPC/N 3021)**		
Credits(NSQF)	**10**	**Version number**	1.0
Sector	**Rubber**	**Drafted on**	**18/05/2016**
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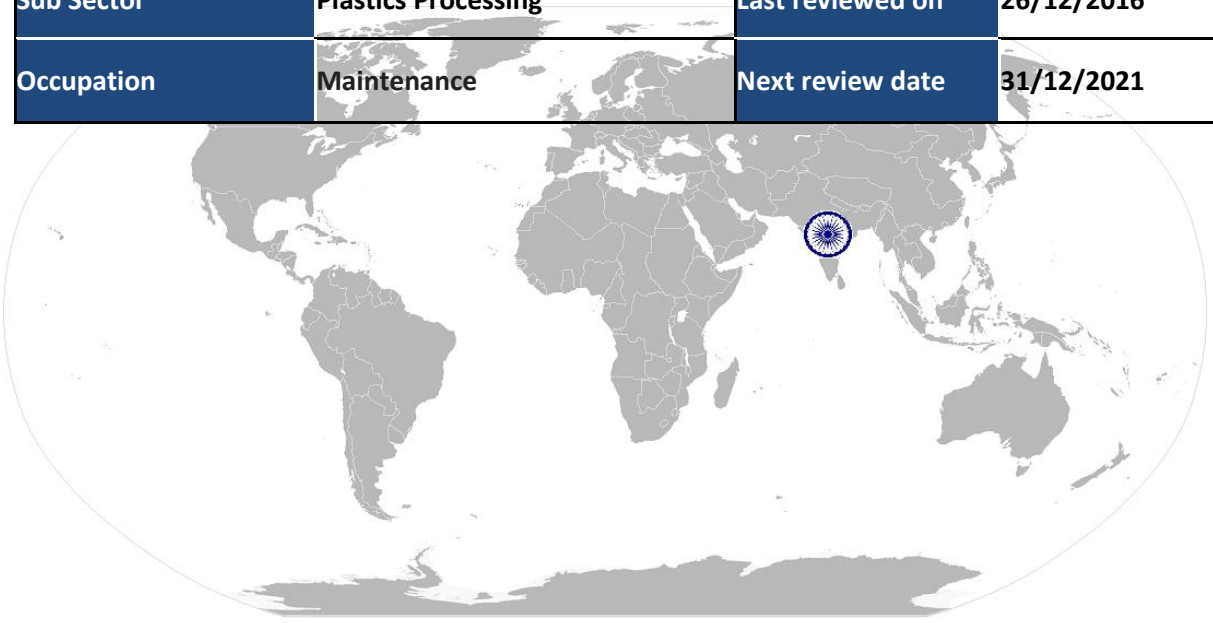
Occupation	**Maintenance**	**Next review date**	**31/12/2021**



National Occupational Standards

Overview

This unit is about carrying out preventive maintenance activities performing post maintenance activities.

RSC/N4816 (CPC/N3022 Prepare and Perform preventive maintenance. Documentation & spare parts management

Unit Code	RSC/N4816 (CPC/N3022
Unit Title (Task)	**Prepare and Perform preventive maintenance. Documentation & spare parts management**
Description	This unit is about carrying out preventive maintenance activities performing post maintenance activities.
Scope	This unit/task covers the following: • Inspecting the working condition of machine parts • Carrying out Preventive maintenance work • oiling and greasing the machine parts • Carry out housekeeping • Reporting and documentation
Performance criteria (PC) w.r.t. the Scope	
Element	**Performance criteria**
Inspecting the working condition of machine parts & Carry out housekeeping	The individual on the job should be able to: PC1. Check the proper functioning of machines and the ancillaries. PC2. Check the conditions of machine parts while they are being cleaned/scoured or overhauled PC3. Ensure the use of safety gadgets like caps, masks, gloves and shoes by all maintenance workers PC4. Dispose any damaged/worn out components and used up fluids appropriately as per company policy. PC5. Return any unused fluids or components back to the store. PC6. Carry out a basic visual safety inspection of the work area where maintenance activities were carried out. PC7. Remove any sharp objects and clean up any spills in the work area. PC8. Return any tools used to the tool crib/storage racks. PC9. Return any PPE used to their respective storage racks.
Carrying out maintenance work	PC10. Change the settings of the machines on need basis PC11. Identify the worn out parts and getting the worn-out parts replaced. PC12. Verify the safety stop motions and getting them attended PC13. Monitor the stoppages due to breakdowns and analyzing the reasons for breakdowns and taking precautionary measures. PC14. Conduct the tool audits i.e. the tools used for maintenance like spanners, top arm gauge, lubricating and flushing pumps, buffing machines, mounting machines, etc.. PC15. Monitor the cot mounting and buffing activities. conduct the tool audits i.e. the tools used for maintenance like spanners, top arm gauge, lubricating and flushing pumps, buffing machines, mounting machines, etc.
Oiling and greasing the machine	PC16. Oil and grease the different machine parts at scheduled interval for smooth functioning of machines PC17. Schedule the oiling & greasing activities

	PC18. Ensure correct oil and grease are taken PC19. Ensure proper functioning of machines in preparatory department
Reporting and documentation	PC20. Escalate to supervisor if parts have not been received or any other reasons which would increase the downtime. PC21. Notify supervisor regarding any concerns faced during the day. PC22. Provide daily report to manager regarding condition of equipment, damage if any, etc. PC23. Complete any forms as required by the store and by management. PC24. Log any and suggested replacement dates PC25. Carryout maintenance auditing PC26. Record the activities in the log book (report book) and updating the machine maintenance history book PC27. Verify the stock of various spares maintenance activity undertaken. PC28. Update machinery condition in the appropriate history record card/register and the next review dates in the maintenance schedules PC29. Prepare a detailed report explaining the cause for the problem, solution, expected lifespan, accessories and lubricants and working out the indenting plan and placing indents. PC30. Refer the machinery catalogues and identifying the correct spares needed PC31. Check the quality of materials received at stores, for e.g. bearings, wheels, arbours, machine spares, belts, brushes, spanners and other tools, etc. PC32. Carryout maintenance machine audit PC33. Maintain records of maintenance PC34. Ensure availability of spares and giving requisitions on need basis
Knowledge and Understanding (K)w.r.t. the scope	
Element	**Knowledge and Understanding**
A. Organizational Context (Knowledge of the company/ organization and its processes)	The user/individual on the job needs to know and understand: KA1. Types of documentation used in organization e.g. daily maintenance checklist and importance of the same KA2. Risk and impact of not following defined procedures/work instructions KA3. Records to be maintained and implications of non-maintenance of the same KA4. Knowledge of security procedures e.g. secure storage of inventory KA5. Rules and regulations of shop floor as per company's standard operating procedure (SOP) KA6. Risk and impact of not following safety procedures KA7. Escalation matrix for reporting identified problems KA8. Cost of equipment and loss for the company that results from damage of equipment KA9. Implications of delays in process to the company

	KA10. Should have an awareness, knowledge of customers KA11. Potential hazards associated with the machines and the safety precautions must be taken KA12. Protocol to obtain more information on work related tasks KA13. Contact person in case of queries on procedure or products and for revolving issues related to defective machines, tools, materials & equipment's KA14. Details of the various job rolls & responsibilities KA15. Documentation and reporting formats KA16. Work targets & review machine with superiors KA17. Protocol and format for reporting work related risks/ problems KA18. Method of obtaining /giving feedback with respect to performance KA19. Importance of team work, harmonious working relationships KA20. Process for offering /obtaining work related assistance KA21. Responsibilities under health, safety and environmental legislation KA22. Guidelines for storage & disposal of waste materials
B. Technical Knowledge	The user/individual on the job need to know and understand: KB1. Importance and functions of various machines and mechanisms Used in Plastics & allied industry machines. KB2. Planning maintenance activities and preparing date-wise plans for Maintenance and replacement of parts considering their life. KB3. Workloads, work allocation and standard working conditions for Maintenance operatives. KB4. Calculation of maintenance efficiency; time spent for maintenance, men employed, cost of maintenance, costs of spares consumption, Mean time between breakdowns, and the industry norms. KB5. Factors affecting maintenance. KB6. Roles and responsibilities of a maintenance supervisor. KB7. Basic supervisory skills KB8. Importance of conducting the tool audits KB9. Importance of oiling and greasing KB10. General management knowledge of managing subordinates, coordinating with workshop, electrical department, stores and Production. KB11. Standing orders and discipline in working and precautions to be Taken while working. KB12. Safety precautions and gadgets to be used in factory KB13. Controls and switches used to operate the MACHINERY properly KB14. Safety signs and other safety and emergency signals KB15. The hazard labels for the supplies being used. KB16. Correct maintenance procedures for machinery. KB17. Response to emergencies e.g. fire KB18. Safety regulations while operating the machinery KB19. Optimal working condition of machinery and their components. KB20. Optimal levels of fluids and lubricants.

	KB21. The machinery components and their functions. KB22. The testing and safely carry out maintenance tasks on the machinery. KB23. The deviations from normal operations, diagnose and Repair machinery.
Skills (S)w.r.t. the scope	
Element	**Skills**
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. Fill out checklists, maintenance logbooks detailing maintenance activities conducted SA2. Ability to prepare detailed technical reports
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA3. Read labels to identify product and its associated hazard. SA4. Read and understand instructions from checklists /company log books and records SA5. Read Maintenance &safety manuals, read & interpret circuit diagrams and safety signs
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA6. Communicate clearly with supervisors and peers SA7. Regularly communicate with all employees in the chain of activities on the shop floor to ensure activities are running smoothly SA8. Provide advice and guidance to peers and juniors You need to know and understand how to: SA9. Willingly participate in the various programs/ meetings that will be conducted by the superiors & put forth the suggestions in the interest of the company
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. Act objectively, rather than impulsively or emotionally when faced with difficult/stressful or emotional situations SB2. Make a judgment as to whether the machinery are in good condition or not. SB3. Apply problem-solving approaches in different situations
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB4. Adjust according to volume, capacity and manpower needs during peak and non-peak hours SB5. Prioritize and execute tasks within the scheduled time limits SB6. Maintain schedules and punctuality. Avoid absenteeism. SB7. Be a team player and achieve joint goals SB8. Flexibility to re-assess schedule in case of delays/additional orders
7	**Customer Centricity**

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	The user/individual on the job needs to know and understand how to: SB9. Understand the internal customer requirements and ensure that they are met. SB10. Identify trends/common causes for errors and suggest possible solutions to the supervisor SB11. Handle day to day problems like delays, staffing shortage, etc.
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB11. Apply problem-solving approaches in different situations SB12. Refer anomalies to the supervisor SB13. Seek clarification on problems from others
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB14. Suggest methods to streamline the maintenance process. SB15. Assess the condition of each machinery. SB16. Diagnose common problems in the machine based on visual inspection, sound, temperature etc. SB17. Suggest improvements(if any) in process based on experience
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB18. Concentrate on task at hand and complete it without errors SC19. Check the condition of different machine parts SC20. Replace worn-out parts SC21. Oil and grease the different machine parts SC22. Ensure correct oil and grease are taken SC23. Change the settings of the different machine parts of all the machines in spinning preparatory

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NOS Version Control

NOS Code	**RSC/N4816 (CPC/N3022)**		
Credits (NSQF)	**12**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Maintenance**	**Next review date**	**31/12/2021**

CRITERIA FOR ASSESSMENT OF TRAINEES				
Job Role: Maintenance of Plastic Machinery Technician **Qualification Pack Code: RSC/Q4805 (CPC/Q 3004)** **Sector Skill Council: Rubber Skill Development Council**				
Guidelines for Assessment: 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 laydown 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 centre (as per assessment criteria below) 4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on this criteria. 5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS. 6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.				
Assessable Outcome		**Assessment Criteria for the outcome**		
NOS	**Performance criteria**	**Total**	**Theory**	**Practical**
(RSC/N4101 (CPC/N 0411): Maintain basic health and safety practices at the workplace, 5S	PC1. Wear protective clothing/equipment for specific tasks and work conditions	2.5	0.5	2
	PC2. Carry out safe working practices while dealing with hazards to ensure the safety of self and others.	2.5	0.5	2
	PC3. Keep good housekeeping practices at all times	2.5	0.5	2
	PC4. Use the various appropriate fire extinguishers on different types of fires correctly	2.5	0.5	2
	PC5. Demonstrate rescue techniques applied during fire hazard, demonstrate good housekeeping in order to prevent fire hazards, demonstrate the correct use of a fire extinguisher.	2.5	0.5	2
	PC6. Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals, loud noise, and Identify areas in the plant which are potentially hazardous/unhygienic in nature. Conduct regular checks with support of the	2.5	0.5	2

	maintenance team on machine health to identify potential hazards due to wear and tear of machine.			
	PC7. Inform the concerned authorities on the potential risks identified in the processes, workplace area/ layout, materials used etc, Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations.	2.5	0.5	2
	PC8. Create awareness amongst other by sharing information on the identified risks.	2.5	0.5	2
	PC9. Follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and un-necessary items are not cluttering the workbenches or work surfaces.	2.5	0.5	2
	PC10. Ensure segregation of waste in hazardous/ non Hazardous waste as per the sorting work instructions	2.5	0.5	2
	PC11. Follow the technique of waste disposal and waste storage in the proper bins as per SOP	1.5	0.5	1
	PC12. Segregate the items which are labeled as red tag items for the process area and keep them in the correct places	1.5	0.5	1
	PC13. Sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/ work instructions	1.5	0.5	1
	PC14. Ensure that areas of material storage areas are not overflowing PC15. Properly stack the various types of boxes and containers as per the size/ utility to avoid any fall of items/ breakage and also enable easy sorting when required	1.5	0.5	1
	PC16. Return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area	1.5	0.5	1
	PC17. Follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards.	1.5	0.5	1

	PC18. Follow the proper labelling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists	1.5	0.5	1
	PC19. Check that the items in the respective areas have been identified as broken or damaged	1.5	0.5	1
	PC20. Follow the given instructions and check for levelling of fluids, oils, lubricants, solvents, chemicals etc. and proper storage of the same To avoid spillage, leakage, fire etc.	1.5	0.5	1
	PC21. Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions.	1.5	0.5	1
	Sub total	**40**	**10**	**30**
RSC/N4814 (CPC/N 3020) Familiarize with using of Hand Tools, prepare for maintenance.	PC1. Collect the daily maintenance checklist from the supervisor.	15.4	2.4	13
	PC2. Find out from the supervisor if there is any breakdown or problems in any of the Equipment and collect the special maintenance checklist.	15.4	2.4	13
	PC3. In case of special maintenance, understand which particular machine(s) are to be checked and where they are located.	15.4	2.4	13
	PC4. Understand which the critical equipment is and attend to it first so as to minimize losses to the company.	15.4	2.4	13
	PC5. Find and read up on maintenance history from previous reports of the specific equipment if required.	15.4	2.4	13
	PC6. Plan the sequence in which the maintenance would be carried out so as to optimize time and travel distance.	15.4	2.4	13
	PC7. Collect and wear all the necessary Personal Protective Equipment (PPE).	15.4	2.4	13
	PC8. Assess the tooling requirement and collect the necessary tools from the tool crib/storage racks.	15.4	2.4	13
	PC9. Collect any grease, lubricants, fluids or replacement parts that would be used from the store area.	15.4	2.4	13
	PC10. Fill out any forms required by the store after receiving the supplies.	15.4	2.4	13
	Sub total	**154**	**24**	**130**

RSC/N4815 (CPC/N 3021) Carrying out Repair, troubleshooting of Mechanical/Hydraulic /Electrical Break downs and study of different hydraulic & electrical circuits related to plastics industry.	PC1. Observe the overall functioning of the machinery to identify problems if any.	7	2	5
	PC2. Make any minor adjustments in settings or parameters if required to ensure smooth functioning.	7	2	5
	PC3. In case of a machine overhaul, plan well in advance and perform it during holidays or non-peak hours.	7	2	5
	PC4. Check for visual damage, oil leakage etc.	7	2	5
	PC5. Check oil levels of tanks and top up any fluids as required for hydraulic systems and gear boxes.	7	2	5
	PC6. Apply grease and lubricants where required.	7	2	5
	PC7. Replace any parts that have worn out at the times specified by the manufacturer.	7	2	5
	PC8. Complete and check off all the line items in the preventive maintenance checklist.	7	2	5
	PC9. Test the MACHINERY to ensure that it is fully functional and safe for use.	7	2	5
	PC10. Assess the MACHINERY and escalate to supervisor if there is a likelihood of future problems or replacement is required.	7	2	5
	PC11. Conduct regular awareness on safety devices function in to all operators	7	2	5
	PC12. Regularly maintain check batteries and ensure they are fully charged for CNC controls	7	2	5
	PC13. Prepare health card for every machinery.	7	2	5
	PC14. Examine the MACHINERY to determine the source of the problem.	7	2	5
	PC15. Determine if the problem could be resolved using existing skills or if it requires the attention of a specialized technician from the manufacturing company.	7	2	5
	PC16. If the problem could be resolved, determine whether the part could be repaired or if replacement is necessary.	7	2	5
	PC17. If the part could be repaired, carry out repairs using available machine shop equipment.	7	2	5
	PC18. If part cannot be repaired or if replacement is required, obtain the required parts from the store (if available) or inform inventory clerk to place orders.	7	2	5
	PC19. Receive required parts and change the parts as per manufacturer's guidelines.	7	2	5

	PC20. Check fluid levels of oil tanks for hydraulic system & gear boxes and top up any fluids as required.	7	2	5
	PC21. Apply grease and lubricants where required.	7	2	5
	PC22. Complete and check off all the line items in the breakdown maintenance checklist.	7	2	5
	PC23. Test the machinery to ensure that it is fully functional and safe for use.	7	2	5
	PC24. Escalate to supervisor in case of delays or if a specialized technician from the manufacturing company is required to solve the problem.	7	2	5
	Sub total	**168**	**48**	**120**
RSC/N4816 (CPC/N3022) Prepare and Perform preventive maintenance. Documentation & spare parts management	PC1. Check the proper functioning of machines and the ancillaries.	7	2	5
	PC2. Check the conditions of machine parts while they are being cleaned/scoured or overhauled	7	2	5
	PC3. Ensure the use of safety gadgets like caps, masks, gloves and shoes by all maintenance workers	7	2	5
	PC4. Dispose any damaged/worn out components and used up fluids appropriately as per company policy.	7	2	5
	PC5. Return any unused fluids or components back to the store.	7	2	5
	PC6. Carry out a basic visual safety inspection of the work area where maintenance activities were carried out.	7	2	5
	PC7. Remove any sharp objects and clean up any spills in the work area.	7	2	5
	PC8. Return any tools used to the tool crib/storage racks.	7	2	5
	PC9. Return any PPE used to their respective storage racks.	7	2	5
	PC10. Change the settings of the machines on need basis.	7	2	5
	PC11. Identify the worn out parts and getting the worn-out parts replaced.	7	2	5
	PC12. Verify the safety stop motions and getting them attended.	7	2	5
	PC13. Monitor the stoppages due to breakdowns and analyzing the reasons for breakdowns and taking precautionary measures.	7	2	5
	PC14. Conduct the tool audits i.e. the tools used	7	2	5

	for maintenance like spanners, top arm gauge, lubricating and flushing pumps, buffing machines, mounting machines, etc.			
	PC15. Monitor the cot mounting and buffing activities	7	2	5
	PC16. Oil and grease the different machine parts at scheduled interval for smooth functioning of machines.	7	2	5
	PC17. Scheduling the oiling & greasing activities	7	2	5
	PC18. Ensure correct oil and grease are taken	7	2	5
	PC19. Ensure proper functioning of machines in preparatory department.	7	2	5
	PC20. Escalate to supervisor if parts have not been received or any other reasons which would increase the downtime.	7	2	5
	PC21. Notify supervisor regarding any concerns faced during the day.	7	2	5
	PC22. Provide daily report to manager regarding condition of equipment, damage if any, etc.	7	2	5
	PC23. Complete any forms as required by the store and by management.	7	2	5
	PC24. Log any and suggested replacement dates	7	2	5
	PC25. Carryout maintenance auditing	7	2	5
	PC26. Record the activities in the log book (report book) and updating the machine maintenance history book	7	2	5
	PC27. Verify the stock of various spares maintenance activity undertaken.	7	2	5
	PC28. Update machinery condition in the appropriate history record card/register and the next review dates in the maintenance schedules	7	2	5
	PC29. Prepare a detailed report explaining the cause for the problem, solution, expected lifespan, accessories and lubricants and working out the indenting plan and placing indents.	7	2	5
	PC30. Refer the machinery catalogues and identifying the correct spares needed	7	2	5
	PC31. Check the quality of materials received at stores, for e.g. bearings, wheels, arbours, machine spares, belts, brushes, spanners and Other tools, etc.	7	2	5
	PC32. Carryout maintenance machine audit	7	2	5

	PC33. Maintain records of maintenance	7	2	5
	PC34. Ensure availability of spares and giving requisitions on need basis	7	2	5
	Sub total	**238**	**68**	**170**
	total	**600**	**150**	**450**