RSDC
RUBBER SKILL DEVELOPMENT COUNCIL

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GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
National Skill Development Corporation
Transforming the skill landscape

QUALIFICATIONS PACK- OCCUPATIONAL STANDARDS FOR PLASTICS INDUSTRY

Contents

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- Machine Operator Assistant – Blow Moulding

SECTOR: RUBBER

SUB SECTOR: MANUFACTURING/ PLASTICS PROCESSING

OCCUPATION: BLOW MOULDING

REFERENCE ID: RSC/Q4101 (CPC/Q0403)
ALIGNED TO:
Brief Job Description:
The individual will be assisting the machine operator. They will be assisting for Smooth and safe operation/ repair/ maintenance of the equipment at site, help the operator for operating semi & fully automatic and advance blow moulding machines. Monitoring during loading & unloading of Moulds, Machine Set up, Moving Spare parts, raw material & finished components from and to the stores etc. They are having basic knowledge of troubleshooting process problems and performing minor maintenance to ensure continued operation of the production line.
Personal Attributes:
This job requires the basic communication & written abilities for the individuals to be result oriented. Basic Knowledge of maintaining equipments & housekeeping process, ability to do physical tasks like lifting, holding etc. and dexterity. He must also demonstrate strong work ethics, courteously with co-workers, and must be good with following instructions of the supervisor/operator.

Job Details

Qualifications Pack Code	**RSC/Q4101 (CPC/Q0403)**		
Job Role	**Machine Operator Assistant - Blow Moulding**		
Credits (NSQF)	**24**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Manufacturing / Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Blow Moulding**	**Next review date**	**31/12/2021**
NSQC Clearance on	**21/07/2016**		

Job Role	**Machine Operator Assistant- Blow Moulding**
Role Description	This role is involved in assisting the operator and the entire team in peripheral activities/ non core activities in the production process.
NSQF level **Minimum Educational Qualifications*** **Maximum Educational Qualifications***	3 VIIIth Standard
Training (Suggested but not mandatory)	No previous training required
Minimum Job Entry Age	18
Experience	No previous experience required
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. RSC/N4101 (CPC/N0411): Maintain basic health and safety practices at the workplace, 5S. 2. RSC/N4102 (CPC/N0412): Fitting Tools Measuring Equipments & Practice 3. RSC/N4103 (CPC/N0413): Introduction to Polymers and thermoplastics Materials 4. RSC/N4104 (CPC/N0414): Basics of Plastics Processing methods 5. RSC/N4105 (CPC/N0415): Blow Moulding Techniques for Plastics processing and inspection of the finished products. 6. RSC/N4106 (CPC/N0416): Auxiliary equipments in Plastics processing. 7. RSC/N4107 (CPC/N0417): Mould Technology Techniques for Plastics Processing 8. RSC/N4108 (CPC/N0418) : Basic Knowledge of Communication/soft skills.
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.
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.

Acronyms

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

National Occupational Standards

Overview

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

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 ensure 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 the various 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.
Identify and report the risks identified	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. PC8. Create awareness amongst others by sharing information on the identified risks.

Ensure sorting	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 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
Ensure proper documentation and storage(organizing, streamlining)	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. To 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. To 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. To know the where to find all 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. To know the techniques of using the different fire extinguishers KB18. To know the different methods of extinguishing fire KB19. To know the different materials used for extinguishing fire KB20. Rescue techniques applied during a fire hazard KB21. Various types of safety signs and what they mean KB22. To know 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. To know 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. To have basic knowledge of 5S procedures KB29. To know the various types 5s practices followed in various areas KB30. Understand to the 5S checklists provided in the department/ team KB31. To have skills to identify useful & non useful items KB32. To have knowledge of labels , signs & colours used as indicators KB33. To have knowledge on how to sort and store various types of tools, equipment, material etc. KB34. To know , how to identify various types of waste products KB35. Understand to the impact of waste/ dirt/ dust/unwanted substances on the

	process/ environment/ machinery/ human body. KB36. To have 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 about the: SA2. safety instructions put up across the plant premises SA3. 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. Effectively communicate information to team members 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. Attentively listen with full attention and comprehend the information given by the speaker during safety drills and training programs
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.
	Judgment and 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
	Desire to learn and take initiatives
	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

NOS Version Control

NOS Code	**RSC/N4101 (CPC/N 0411)**		
Credits (NSQF)	**2**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Manufacturing / Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Blow Moulding**	**Next review date**	**31/12/2021**

National Occupational Standards

Overview

This unit covers for provides basic knowledge on fitting operations on machining components using hand tools to make shape of the component from raw material as per given drawing specifications. Basic knowledge about performing fitting operation to maintain blow moulding machine and mould.

Nationnal Occupational Standards

Unit Code	**RSC/N4102 (CPC/N0412)**
Unit Title (Task)	**Fitting Tools Measuring Equipment's and Practice**
Description	This OS unit give Basic knowledge to candidates for fitting of machining components using hand tools and manually operated machines, to form the shape of a component from raw material, as per given specifications in the drawing. This involves assisting for smooth & safe operation/repair/maintenance of the equipment at site. The candidate will be expected to perform under minimum supervision, taking self-interest at work and for the quality and accuracy of the work.
Scope	**The blow Moulding person will be responsible for** • Working safely • Basics of fitting operations • Marking components • Basics about performing fitting operation to maintain blow Moulding machine and Mould.
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Working safely	**The individual on the job shall be able to:** PC1 Comply with health and safety, environmental and other relevant regulations PC2 Adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety regulations while performing die fitting operations PC3 Work following laid down procedures and instructions PC4 Ensure work area is clean and safe from hazards PC5 Ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition
Preparing for fitting operations	**The individual on the job shall be able to:** PC6. Ensure job specification from a valid and approved source PC7. Adhere to job requirements from the job specification document properly PC8. Report to operator information time to time. PC9. Learn basic fitting operations as per procedure PC10. Ensure that all calibrated measuring instruments used. PC11. Ensure that the components used are free from foreign objects, dirt and corrosion PC12. Obtain appropriate tools and measuring instruments. PC13. Adhere to work pieces as per job requirements using appropriate holding devices
Marking components	**The individual on the job shall be able to:** PC14. Help the operator while marking specified features with the help of marking-out methods on the work pieces as per job specification by using appropriate measuring and marking tools.
Performing fitting operations on machining components using	**The individual on the job should be able to:** PC15. Learn the different fitting operations on various forms of metal components using a range of hand tools and manually operated machines PC16. Carrying & return to all tools and equipment to the correct location on

hand tools and conventional machines e.g. Drilling and Shaper	completion of the fitting activities PC17. Clean the work area in a safe and tidy condition on completion of job activities
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	**The individual on the job needs to know and understand:** KA1. The policies and procedures followed in the company relevant to own employment and performance conditions KA2. The health and safety requirements in the work place KA3. Working in clean and safe environment KA4. The job responsibilities and information related to employment terms, entitlements, job role and responsibilities KA5. Reporting mechanism, department functions and procedures in the work place KA6. The related workforce and their responsibilities within the work area KA7. The procedures for reporting at work and employment related issues
B. Technical Knowledge	**The individual on the job needs to know and understand:** KB1. The specific safe working practices, fitting procedures KB2. The hazards associated with carrying out the fitting operations and how can they be minimized KB3. The personal protective equipment to be used during the fitting activities and where can it be obtained KB4. The common terminology used in fitting KB5. The importance of following specified fitting sequences and procedures KB6. The importance and procedures of ensuring suitability of work piece and consumables for the specified job KB7. The tools and equipment used for the fitting operations KB8. The importance and procedures to ensure that tools and equipment are in a safe and usable condition KB9. The importance of securing the work piece correctly using appropriate devices and mechanisms KB10. The common problems that can occur in the fitting operations and their implications KB11. The correct procedures to address problems commonly encountered during fitting operations KB12. The importance of reporting problems immediately and accurately
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/individual on the job needs to know and understand how to: SA1. Discuss task lists, schedules, and work-loads with co-workers SA2. Question internal customers/ Moulding shop supervisor appropriately in order to understand the nature of the problem and make a Diagnosis
	Reading Skills
	The user/individual on the job needs to know and understand how to:

	SB1 Communicate problems appropriately to others SB2. Identify sources of information and support for problem solving SB3. Seek assistance and support from other sources to solve problems SB4. Identify effective resolution techniques SB5. Select and apply resolution techniques SB6. Seek evidence for problem resolution
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SB7. Understand prioritize and sequence work operations as per job requirements SB8. Understand basic concepts of shop-floor work productivity including waste reduction, efficient material usage and optimization of time
	Initiative and Enterprise
	The individual on the job needs to know and understand how to: SB9. Undertake and express new ideas and initiatives to others SB10. Participate in improvement procedures including process, quality and customer relationships SB11. Competencies in new and different situations to achieve more
	Desire to learn and take initiatives
	The user/individual on the job needs to know and understand how to: SB12. Follow instructions and work on areas of improvement identified SB13. Complete the assigned tasks with minimum supervision SB14. Complete the job defined by the supervisor within timelines and quality norms.

NOS Version Control

NOS Code	**RSC/N4102 (CPC/N0412)**		
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Sub Sector	**Manufacturing / Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Blow Moulding**	**Next review date**	**31/12/2021**

National Occupational Standards

Overview

This unit covers for provide basic Knowledge of polymers and Understanding the difference between plastics & other materials. Thermoplastics materials and their properties and end use application. Basic Knowledge of Polymer Identification Methods.

RSC/N4103 (CPC/N 0413) Introduction to Ploymers and Thermoplastics Materials

Unit Code	**RSC/N4103 (CPC/N0413)**
Unit Title (Task)	**Introduction to Polymers and Thermoplastics Materials**
Description	This unit is about Introduction to Polymers Thermoplastics Materials 1. Types of Polymers. 2 Difference between plastics & other materials. 3. Become familiar with thermoplastics materials. 4. Recognize the potential value of polymeric materials and their areas of Application.
Scope	The Blow moulding person will be learning about. • Types of Polymers, Types of Plastics & its Properties. Processing behavior and applications • Use of Polymers and their applications in industries like Bottles, Hollow container, automotive fuel aerospace, etc.
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Introduction To Polymers	**To be competent, the user/individual on the job must be able to** Introduction:- PC1. Learn the basic Importance of polymers in Human Life. PC2. Learn the fundamental terminology of polymers PC3. Identify the types of polymers & its application.
Study of Plastics Material	PC4. Learnig about types of Polymers-Thermoplastics, Elastomers. PC5. Learn the plastic Material Applications- Commodity sector, telecommunications, automobiles, packaging medical, Electrical and Electronics & aerospace etc.
Thermoplastic Materials	PC6. Study about Commodity Polymers: Polyolefin: LDPE – HDPE – LLDPE, PP etc. PC7. Study about Engineering Polymers: PC, ABS, PMMA, POM, PA-NYLON etc. PC8. Study about Special Polymers: FEP, PVDF etc.
Identification of Plastics Material	PC9. Learn the Identification Method:-Drop Test, water floatation Test, Scratch test. PC10. Learn the advanced methods of Identification:-MFI, Melting etc.
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. Relevant standards specified to identify the polymers KA2. Basic process to be followed for inspection of the lot. KA3. Batch size, material grade and nomenclature.
B. Technical	**The user/individual on the job needs to know and understand:**

Knowledge	KB1. About identification of polymers. KB2. About the instruments burner, copper rods, solvents, weighing scales and other instruments and machineries to identify the polymers and its properties. KB3. Knowledge to identify quality defects. KB4. Working knowledge and procedure of testing and identifying machines.
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. Read the values and process of polymer with specification. SA2. Knowledge about different type of format relevant to the polymer identification.
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA3. Read values and equipment manuals to understand the working of the equipment SA4. Understand measuring instruments reading to identify any deviations from the dimensions given in the standards.
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA5. Inform supervisor/operator of any quality related defects arising out of the manufacturing process SA6. Question internal customers/ supervisor appropriately in order to understand the nature of the problem and make a Diagnosis
B. Professional Skills	**Plan and Organize**
	The user/individual on the job needs to know and understand how to: SB1. Use common sense and make judgments during day to day basis use reasoning skills to identify and resolve basic problems SB2. Understand & Carefully analyze the body part for various assembling defects at every station. SB3. Carefully analyze each defect observed during inspection and try to find solution for the defect along with the assembly line operator.
	Quality Consciousness
	The user/individual on the job needs to know and understand how to: SB4. Identify defective materials in the manufacturing line by comparing manufactured hollow articles(container; bottles) with the work standard SB5. Link the defect observed with the overall impact on the performance of the output.

NOS Version Control

NOS Code	**RSC/N4103 (CPC/N0413)**		
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National Occupational Standards

Overview

This unit provides basic knowledge of plastics processing methods with respect to various products, types of equipment /process used and melt processing ranges of various polymer formulations to make plastic products in comparison with blow mouldings are discussed. Depending upon the configuration of the part, the selection of processing methods and economic viability are also discussed.

Unit Code	**RSC/N4104 (CPC/N 0414)**
Unit Title (Task)	**Basics of Plastics Processing Methods**
Description	This unit is about Basics of Plastics Processing methods 1. There are a variety of methods used to process plastic. Each method has its advantages and disadvantages and are better suited for specific applications. 2. Plastics processing encompasses the processing, design, development, and Manufacture of plastics products.
Scope	1. Plastic industry is making significant contribution.development and growth of various key sectors such as: Automotive, Construction, Electronics, Healthcare, Textiles etc. 2. Ensure the merits and demerits of Blow Moulding to over the all others plastic Process. 3. Basic fundamental of Plastics Processing Methods.
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Introduction to Plastics Processing	**To be competent, the user/individual on the job must be able:** PC1. Learn the all plastics processing Machineries. PC2. Identify merits and demerits of Blow Moulding and over all others plastic Process. PC3. Ensure the definition and terminology related to Plastic Processing. PC4. Ensure the finishing operation including surface treatment of the fabricated product if required as per SOP.
Classification of processing methods	PC5. Follow the Primary Processing Methods as per SOP. PC6. Follow the Secondary Processing Methods as per SOP. PC7. Follow the Fundamentals of processing method.
Processing methods	PC8. Adhere the type of process to be used depends on a variety of factors, including product shape and size, plastic type, quantity to be produced, quality and accuracy (Tolerances) required, design load performance, cost limitation, and time schedule. PC9. Follow the Machine Operation Terminology: as per manual, semiautomatic, fully automatic. PC10. Learning about the type of Conversion Techniques: Injection, Blow, Compression, Transfer, Rotational and Other processes. PC11. Identify the Material to be processed PC12. Ensure the Product design / configuration, Tolerance. PC13. Ensure the process Limitations PC14. Ensure the quality PC15. Ensure the cost / Performance balance.
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. Relevant standards specified for the Processing KA2. Basic process followed through manual.

B. Technical Knowledge	**The user/individual on the job needs to know and understand:** KB1. The Processes and procedures followed for Processing the lot/ pieces/ products. KB2. The Techniques of using measurement instruments like rulers, Vernier calipers, micrometers, weighing scales etc. KB3. The Methods to identify quality defects in the Processing. KB4. The Methods used for cutting, finishing which can repair lot with minor defects
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. Note the number of lot with defects which can be repaired to number of lot which will be discarded.
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA2. Understand process and equipment manuals to understand the working of the equipment SA3. Understand measuring instruments reading to identify any deviations from the dimensions given in the product engineering drawing
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA4. Inform supervisor/operator of any quality related defects arising out of the manufacturing process SA5. Question internal customers/ supervisor appropriately in order to understand the nature of the problem and make a Diagnosis
B. Professional Skills	**Plan and Organize**
	The user/individual on the job needs to know and understand how to: SB1. Maintain all process/ equipment manuals so that sorting/ accessing information is easy SB2. Keep fixtures, tools, drawings, Work Instructions, SOP manuals as per the part number, colour codes etc. as defined under the 5S systems.
	Critical Thinking & Judgment
	The user/individual on the job needs to know and understand how to: SB3. Use common sense and make judgments during day to day basis SB4. Carefully analyze the body part for various assembling defects at every station
	Quality Consciousness
	The user/individual on the job needs to know and understand how to: SB5. Identify defective parts in the manufacturing line by comparing manufactured hollow articles (container; bottles) with the work standard and other processes.

NOS Version Control

NOS Code	RSC/N4104 (CPC/N 0414)		
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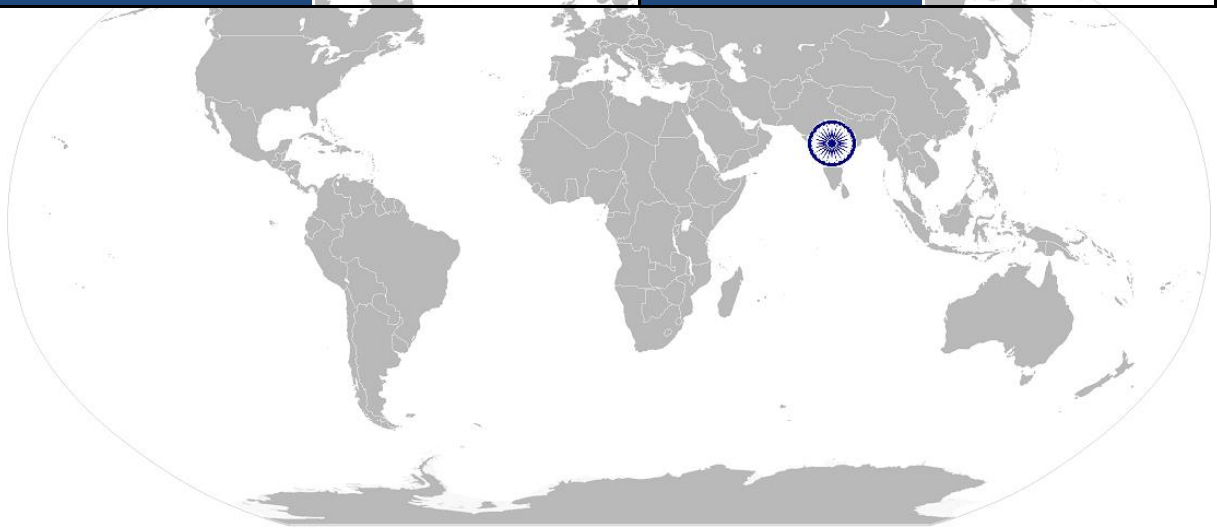
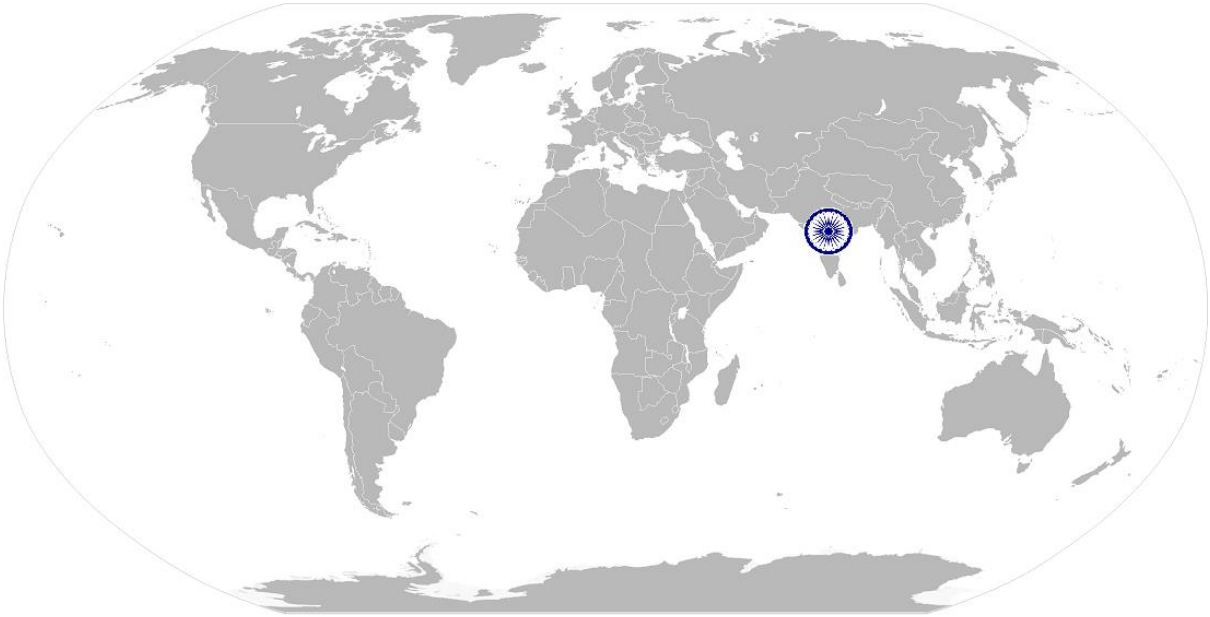
Occupation	Blow Moulding	Next review date	31/12/2021



National Occupational Standards



Overview

In this unit to understand for provide basic knowledge of blow moulding process, the most popular way of producing blow bottles, drums, and other hollow products with thermoplastic materials. This unit is about moulding the plastic in the desired mouldings for EBM, IBM, and SBM as per the final output specifications and the standards specified by the organization/institution.

National Occupational Standards

Unit Code	**RSC/N4105 (CPC/N0415)**
Unit Title (Task)	**Blow Moulding Techniques for Plastics Processing & Inspection of the finished goods**
Description	This unit is about the various Blow Moulding Techniques for Plastics. The person will gain a knowledge of EBM,IBM and SBM for - 1. Blow Moulding process and its basic principles. 2. Detailed types of blow moulding process. 3. Production of Parisons / Performs. 4. About Continuous and intermittent blow Moulding process. 5. Machine Startup & Shut down Procedure.
Scope	The blow moulding person will be responsible for • Helping to operator in Blow moulding machine to produce the Parison/ Performs and identify the sequence of operation to produce the required output EBM, IBM and SBM. • Feeding the granules as per requirement. • Inspect the finished hollow articles (Bottles; container). • Auto / manual deflashing the product. • Keeping records of production and defects. • Conducting minor repair on output parts which can be reworked. • Involving in Prepare & document daily production reports, including rejects, regrinds, line efficiencies and other.
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Principles and basics of Blow Moulding	**To be competent, the user/individual on the job must be able to** PC1. Learn the basic Principle of Blow Moulding process & its Types. PC2. Ensure the basic need of Tools, Accessories and Machineries. PC3. Identify the Plastic Materials required for Blow Moulding PC4. Learning about the Machine Start up & Shut down Procedure.
Typologies of blow moulding Process and type of Die/ Mould	PC5. Learn various types of extrusion blow moulding Process. PC6. Learn continuous blow moulding process:- single head method, Twin station method, Rotary table system PC7. Learn Intermitted blow moulding process:- Reciprocating screw extruder, Ram accumulator extrusion Accumulator head method PC8. Study the Extrusion blow moulding (EBM) PC9. Study the Injection blow moulding(IBM) PC10. Study the Injection Stretch blow moulding process (ISBM) PC11. Study the Extrusion Stretch Blow Moulding PC12. Study the various types of blow moulds-Side feed, Centre Feed, Spiral Mandrel, Extrusion Blow, stretch Blow, Injection Blow moulds etc.
Study of Injection Moulding Machine for performs production and	PC13. Make the plastic compound or granule ready for feeding into the machine PC14. Start the machine and feeding simultaneously PC15. Ensure that moulding pressure and temperature is maintained during the process cycle

process parameters	PC16. Ensure mould lifting/ ejection/ slide mechanism of the press are properly functioning PC17. Add the manufacturing preform as per SOP PC18. Remove the Manufacturing preform from the mould as per SOP.
Check the operations of the equipment used in the Extrusion blow moulding process	PC19. Check for operation of moulding apparatus like hopper, heaters, extruder, blow moulding die/mould, screen pack etc. as per the checklist provided PC20. Fix the desired die/mould to the blow moulding machine apparatus in order to achieve the desired operation as per the Work Instructions/ SOPs
Study of process parameters for the blow moulding as per SOP	PC21. Ensure the preliminary requirement and preparation of raw material use weighing machines to measure the quantity of granules and ensure that the correct quantity of granules are put in the hopper PC22. Setup the apparatus as per the selected process and the moulding standards used in the processing industry PC23. Ensure availability of the coolant and working of valves to circulate the coolant to cool and solidify plastic.
Study of parison Programming and Controlling of Parison and Preform	PC24. Ensure the functionality and assembly of die as per SOP. PC25. Ensure the die shaping in blow moulding. PC26. Ensure the basic study of Blow Ratio, Parison swell, Die Swell, Types of Parison Blowing system:-Pneumatic and ejection system.
Organize for the material to be moulded and apparatus required for the same	PC27. Ensure the basic Study of moulding procedure and process to be adopted for completing the work order from the supervisor/operator by referring the Work Instruction document/ SOP manual PC28. Identify the raw material like plastics granules, fillers, bonding additives grades etc. required for executing the activity PC29. Ensure that the required material is procured from the store before starting the process. PC30. Ensure that type of die required for executing the required operation and ensure that the same is available for operations PC31. Ensure that number of heaters required for the extruder assembly, heater temperature and current required for the heating operations as mentioned in the Work Instructions/ SOP manual. Ensure housekeeping safety in the moulding area. Use lifting equipments or for lift/trolley for mould/material. Keep all safety requirements.
Feed the plastic granules in the hopper and conduct a test process	PC32. Ensure that plastic granules are mixed with additives (if any) before being fed into the hopper PC33. Check the hollow articles (bottles, container) for geometry, material & dimensional parameters as per the Control Plan before starting the production. PC34. Ensure that the dimensions of the output product are measured as per the process given in the Work Instructions/ SOP PC35. Start the production process If the test product matches the dimensions and quality of the final output,

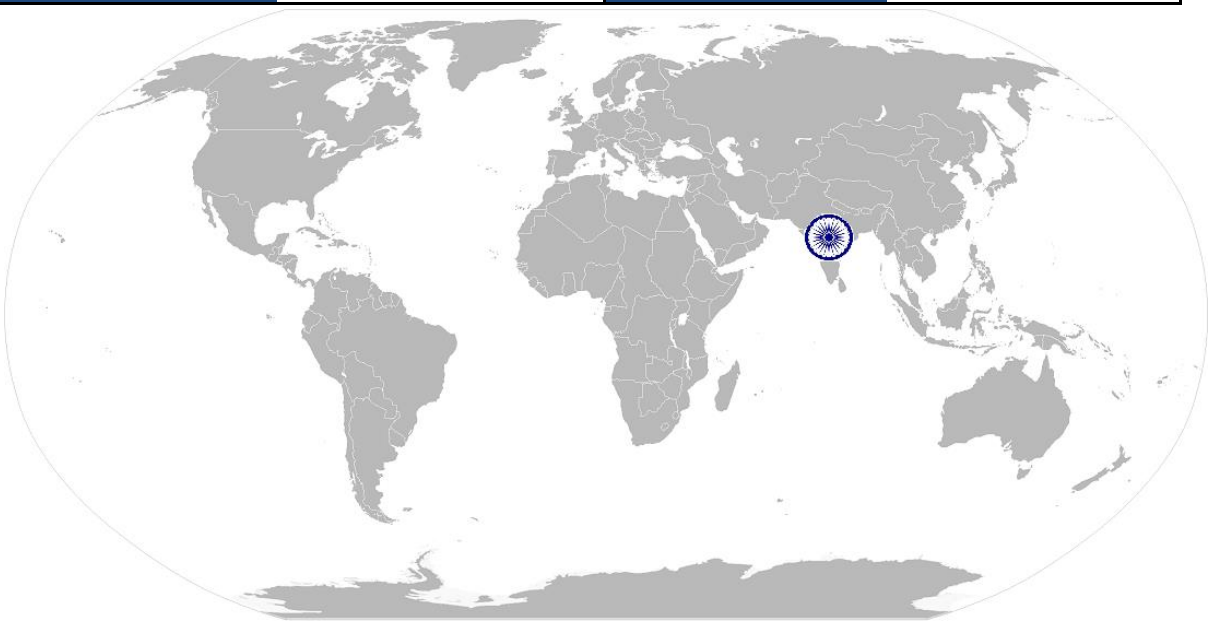
Conduct the actual moulding process monitor the moulding process variations	PC36. Feed the required plastic material in the apparatus for heaters to melt the plastic granules at the predefined temperature PC37. Ensure feeding in line with the defined standards and specifications PC38. Ensure the proper functioning of screen pack and die for uniform melting of plastic and removal of the contaminants (if any) PC39. Monitor & understand the process (parameters like temperature, pressure, speed etc.) by observing and analyzing the readings on various panels/ meters to prevent machine breakdown and deviations of the output from desired specifications PC40. Clean the die opening & die; changing the screen pack. PC41. Ensure code printing of the product with the identifying information (wherever required) and send the same for further processing PC42. Instruct the helper to neck finishing and pinch off of the product as per the desired geometric specifications.(doesn't required for IBM)
Perform the visual inspection of the output and finishing operation	PC43. Measure the final plastic moulded product and compare the dimensions as prescribed in the work order/ engineering drawing PC44. In case the parts are not as per the given measurements, send the same for further processing in terms of cutting, finishing etc.
Inspection of finished goods to detect any deviations from the product design	PC45. Help the operator to Measure the specifications of the finished products using devices like micrometers, Vernier calipers, gauges, rulers, weighing scales, Thickness Gauge and any other inspection equipment and compare with the parameters given in the work order.
Record log of defective products and discard defective batch process	PC46. Note down the observations of the basic inspection process and Identify pieces which are OK and also not meeting the specified standards PC47. Maintain records of each category of work outputs as per the batch etc. so that correction can be organized.
Perform Batch Quality Procedure	PC48. Provide first and last output from each batch to the lab for quality check on its composition, properties etc. PC49. Obtain clearance for the entire batch from the lab
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 processes and procedures followed for manufacturing the lot/pieces/ products. KA2. The techniques of using measurement instruments like rulers, Vernier calipers, micrometers, weighing scales etc. KA3. The methods to identify quality defects in the lot. KA4. The methods used for cutting, finishing which can repair lot with minor defects KA5. The types of documentation in organization and importance of the same KA6. Records to be maintained and implications of non-maintenance of the same KA7. The importance of housekeeping & good shop floor practices KA8. Health, Safety and Environment guidelines, legislation and regulations as applicable

	KA9. The personal protection (Which protective equipment to be used and how) KA10. The impact of poor practices on health, safety and environment KA11. The potential hazards and actions to minimize the same KA12. The escalation matrix and escalation procedure for reporting hazards KA13. The usage of different fire extinguisher KA14. The impact of various practices on cost, quality, productivity, delivery and safety KA15. Handover/ Takeover the equipment/ work area as per company's SOP
B. Technical Knowledge	**The user/individual on the job needs to know and understand** KB1. The startup procedure as per SOP KB2. The cleanliness and safety requirements for operating a blow moulding machine KB3. The influence of parameters (e.g. time, temperature, pressure) on blow moulding operation KB4. The injection moulding operation to get minimum rejection KB5. The operation of moulding machine (Equipment working, possible setting levels, typical process followed for different batches) KB6. The different types of blow moulding machine, distributions systems and moulds. KB7. The operation of multiple presses with common power pack and importance of sequencing KB8. The specific pressure required for different types of moulding KB9. The influence of time and temperature on curing of thick products KB10. The state of curing – undercuring and overcuring KB11. The effect of improper processing on properties of rubber compound & product KB12. Units of measurement KB13. Response to emergencies e.g. Power failures, fire and system failures and manual intervention to avoid disaster KB14. The appropriate batch size with respect to appropriate machinery KB15. The use of weighing scale, time, temperature & pressure measurement KB16. The possible causes of common moulding problems & their remedies KB17. The shut down procedure for blow Moulding-IBM,EMB,SBM as per SOP
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. Understand number of lot with defects which can be repaired to number of lot which will be discarded
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA2. Read measuring instruments reading to identify any deviations from the dimensions given in the product engineering drawing

	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA3. Inform supervisor /operator of any quality related defects arising out of the manufacturing process SA4. Question internal customers/ supervisor appropriately in order to understand the nature of the problem and make a Diagnosis.
B. Professional Skills	**Plan and Organize**
	The user/individual on the job needs to have Basic Knowledge on: SB1. All process/ equipment manuals so that sorting/ accessing information is easy SB2. Fixtures, tools, drawings, Work Instructions, SOP manuals as per the part number, colour codes etc as defined under the 5S systems.
	Critical Thinking and Judgment
	The user/individual on the job needs to know and understand how to: SB3. Use common sense and make judgments during day to day basis use reasoning skills to identify and resolve basic problems SB4. Carefully analyze the body part for various assembling defects at every station SB5. Carefully analyze each defect observed during inspection and try to find solution for the defect along with the assembly line operator
	Quality Consciousness
	The user/individual on the job needs to know and understand how to: SB6. Identify defective parts in the manufacturing line by comparing manufactured (lot/articles) with the work standard

NOS Version Control

NOS Code	**RSC/N4105 (CPC/N 0415)**		
Credits (NSQF)	**8**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Manufacturing / Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Blow Moulding**	**Next review date**	**31/12/2021**



National Occupational Standard

Overview

This unit is to understand basic types of Auxiliary equipment's used in Plastics processing consisting of several components, such as material management, reclamation, heat transfer. Auxiliary equipment provides the source for every possible processing advantages in terms of productivity and quality output.

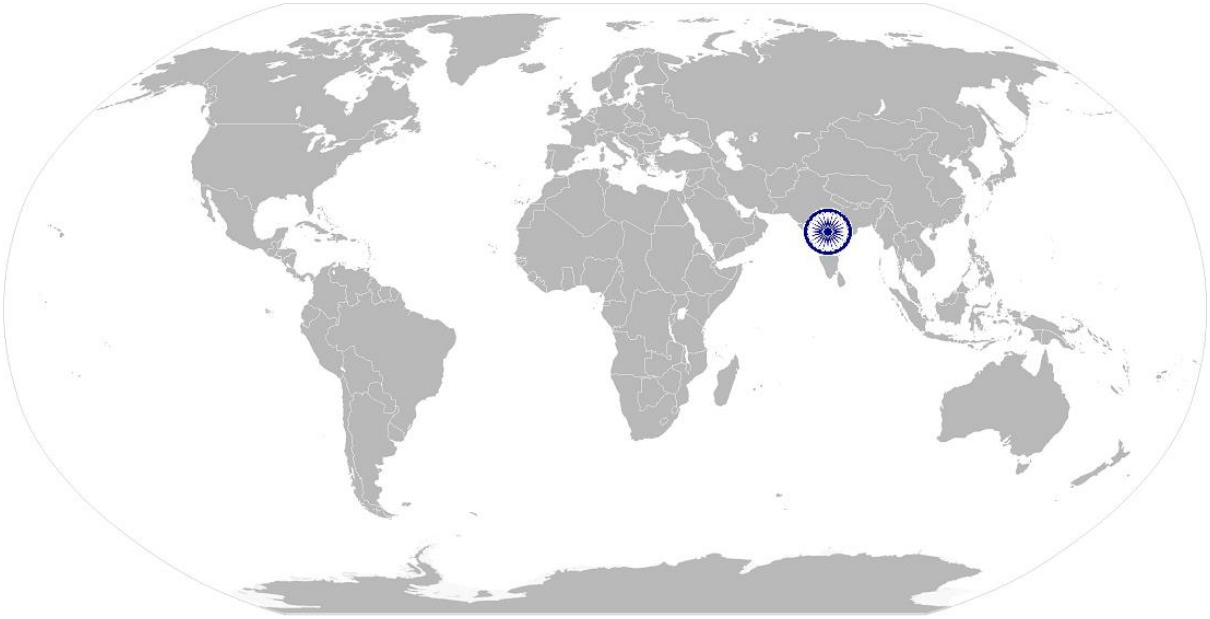
RSC/N4106 (CPC/N0416) Auxiliary equipments in Plastics Processing

Unit Code	**RSC/N4106 (CPC/N0416)**
Unit Title (Task)	**Auxiliary equipment's in Plastics processing**
Description	This OS unit is about Control and maintains auxiliary equipment, such as chillers pumps, fans, compressors, condensers, feed water heaters, filters, and chlorinators that supply water, fuel, lubricants, air, and auxiliary power for chillers.
Scope	The role holder will be responsible for • Opens and closes valves and switches in sequence upon signal from other worker to start or shut down auxiliary units.
Performance Criteria (PC) w.r.t. scope	
Element	**Performance Criteria**
Basic requirement of Auxiliary Equipments and machineries	**To be competent, the user/individual on the job must be able to** PC1. Inspect, monitor, operating fuel systems, fuel oil transfer, supply lines & associated equipment and fossil fuel chillers. PC2. Operate condensate and feed water systems, circulating and cooling water systems, condensate and makeup systems, circulating service water treatment equipment, auxiliary lube oil systems, emission control equipment and miscellaneous equipment. Pass onsite training programs. Follow the safety rules, regulations and procedures. PC3. Connects basic plant services as needed to meet production requirements and makes initial checks of operating conditions before initiating production runs. PC4. Assist in cleaning and lubrication of equipment and tooling and performs various preventative maintenance tasks as needed.
Different type of Auxiliary Equipment	PC5. Study adout different types of Predrier-Hot air Oven, Hopper Driers, Dehumidifiers etc. PC6. Study the basics of Chiller, Cooling Tower for the controlling temperature of Mould, machine and Fluids. PC7. Ensure the basic Operation and Monitoring -- Watching gauges, dials, or other indicators to make sure a machine is working properly. PC8. Study about the Compressor and Scrap Grinder.
Study process of operation and maintenance of auxiliary equipment	PC9. Ensure the equipment maintenance -- Performing routine maintenance on equipment and determining when and what kind of maintenance is needed. PC10. Ensure the Equipment Selection -- Determining the kind of tools and equipment needed to do a job. PC11. Follow the instructions given on the equipment manual describing the operating process of the equipment PC12. Follow the Safety, Health and Environment related practices developed by the organization PC13. Ensure relevant safety board's/ signs are placed on the shop floor PC14. Operate the machine using the recommended Personal Protective Equipment (PPE) and ensure team members also use the related PPEs at the workplace PC15. Maintain a clean and safe working environment near the work place and ensure there is no spillage of chemicals, production waste, oil, solvents etc. PC16. Attend all safety and fire drills to be self-aware of safety hazards and preventive

	techniques PC17. Maintain high standards of personal hygiene at the work place PC18. Ensure that the waste disposal is done in the designated area and manner as per organization SOP.
Knowledge and Understanding (K)w.r.t. the scope	
A. Organizational Context (Knowledge of the company / organization and its processes)	**The user/individual on the job needs to know and understand:** KA1. Relevant standards, procedures and policies related to auxiliaries machineries followed in the company KA2. Emergency handling procedures & hierarchy for escalation
B. Technical Knowledge	**The user/individual on the job needs to know and understand:** KB1. The startup procedure as per SOP KB2. To have basic knowledge of Safety procedures(fire fighting, first aid) within the organization KB3. Basic knowledge of various types of PPEs and their usage KB4. Basic knowledge of risks/hazards associated with each occupation in the organization KB5. Knowledge of personal hygiene and how an individual an contribute towards creating a highly safe and clean working environment KB6. Basic knowledge of various operations of machineries and equipment as per the operation manual. KB7. The shut down procedure as per SOP
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. Understand basic level notes and observations
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA2. Read safety instructions put up across the plant premises SA3. Read safety precautions mentioned in equipment manuals and panels to 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. Effectively communicate information to team members 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. Attentively listen with full attention and comprehend the information given by the speaker during safety drills and training programs.
B. Professional Skills	**Judgmental Thinking**
	The user/individual on the job needs to know and understand how to: SB1. Use common sense and make judgments during day to day basis

NOS Version Control

NOS Code	**RSC/N4106 (CPC/N 0416)**		
Credits (NSQF)	**2**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Manufacturing / Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Blow Moulding**	**Next review date**	**31/12/2021**



National Occupational Standard

Overview

This unit is the understand for provide basic knowledge about operating and tending metal or plastic moulding, core making, or casting machines to mould or cast metal or thermoplastic parts or products. This unit Provide basic knowledge of blow mould manufacturing process, Polishing Process & Mould Maintenance Process.

RSC/N4107 (CPC/N0417) Mould Technology for Plastics Processing

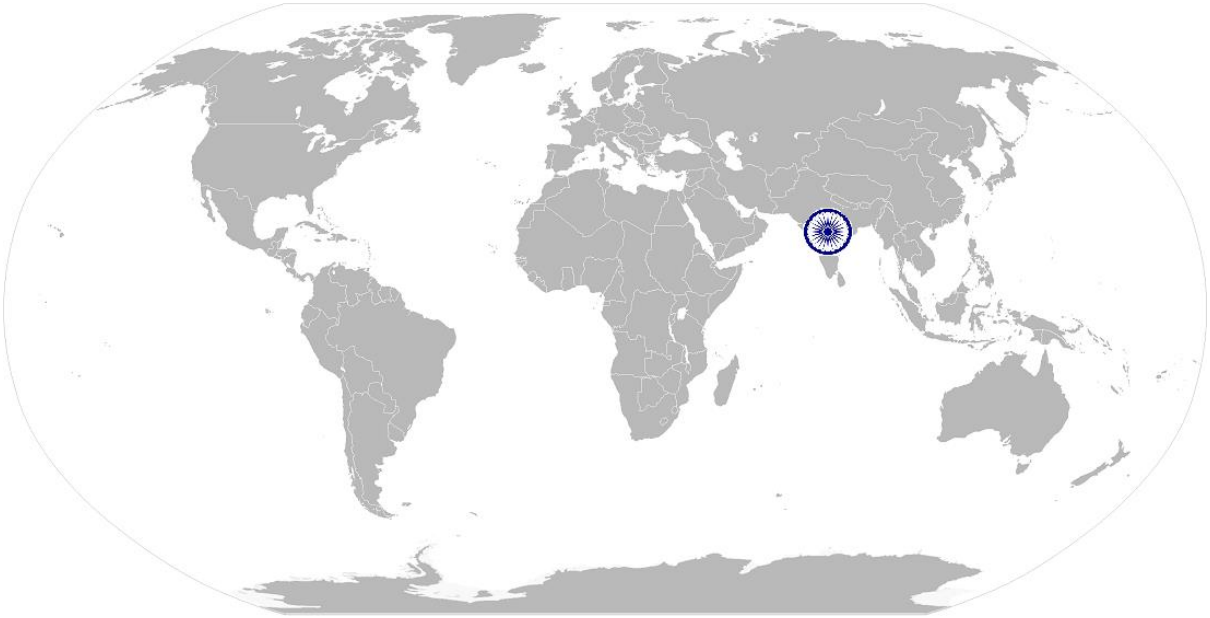
National Occupational Standards

Unit Code	**RSC/N4107 (CPC/N0417)**
Unit Title (Task)	**Mould Technology for Plastics Processing**
Description	This OS unit is about Basic Knowledge of Mould Technology Techniques for Plastics Processing
Scope	The role holder will be responsible for • Basic Knowledge of blow Moulds manufacturing. • Basic Knowledge of Steel Mould and cast metal aluminum mould. • Responsible for Polishing of Mould. • Responsible for Mould Maintenance. • Responsible for Mould loading & unloading.
Performance Criteria (P.C.) w.r.t scope	
Element	**Performance Criteria**
Study of type of mould Manufacturing	**To be competent, the user/individual on the job must have** PC1. Study the Mould Manufacturing Process and machineries. PC2. Identify and confirm resources required such as components, machinery, range of materials and processes PC3. Learning about the basics of Mould making materials. PC4. Identify type of equipment required for machining components based on the operations selected. PC5. Study the basics of Construction and study of Moulds for EBM, IBM, and SBM. PC6. Study of Mould cooling systems:-Pneumatic, water cooling
PET Preform mould construction and polish requirements.	PC7. To study the Mould Polishing & its kits. PC8. Follow the instructions given on the equipment manual describing the operating process of the equipment.
Knowledge and Understanding (K)w.r.t. the scope	
Element	**Performance Criteria**
A. Organizational Context (Knowledge of the company / organization and its processes)	**The individual on the job needs to know and understand:** KA1. The health and safety requirements in the work place KA2. The working in clean and safe environment KA3. Job responsibilities and information related to employment terms, entitlements, job role and responsibilities KA4. Reporting mechanism, department functions and procedures in the work place KA5. Related workforce and their responsibilities within the work area KA6. The procedures for reporting at work and employment related issues KA7. Maintaining documentation and related procedures applicable related to employment and work.
B. Technical Knowledge	**The individual on the job needs to know and understand:** KB1. Specific safe working practices, fitting procedures KB2. Hazards associated with carrying out the fitting operations and how can they be minimized KB3. Personal protective equipment to be used during the fitting activities and where can it be obtained KB4. Basic terminology used in fitting

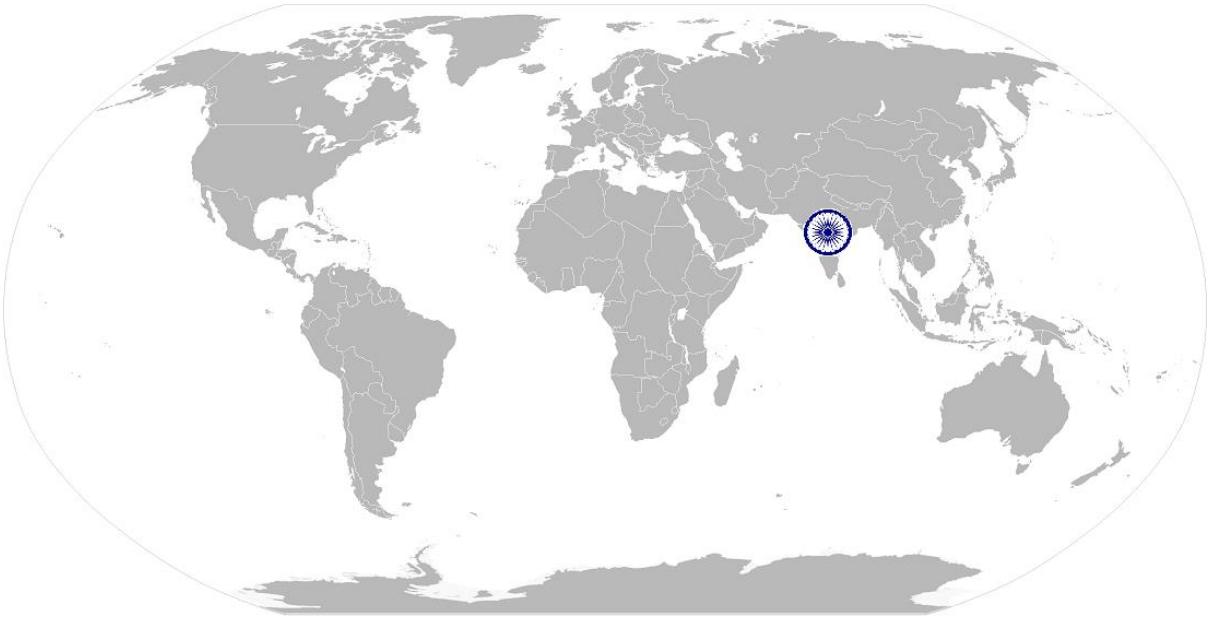
	Suitability of work pieces and consumables: e.g. correct type and code; correct form; correct dimensions; damage free; correctly issued KB5. Knowledge of tools and equipment used for the fitting operations KB6. Importance and procedures to ensure that tools and equipment are in a safe and usable condition. KB7. Correct techniques and procedures to carry out specific fitting operations by hand tools and manually operated machines KB8. Understanding importance of securing the work piece correctly using appropriate devices and mechanisms KB9. Importance of reporting problems immediately and accurately
Skills (S)w.r.t. the scope	
Element	**Skills**
A. Core Skills/ Generic Skills	**Communication**
	The individual on the job needs to know and understand how to: SA1. Interpret information correctly from various job specification documents, manuals, health and safety instructions, etc. SA2. Communicate with people in respectful form and manner in line with organizational protocol.
	Numerical and computational skills
	The individual on the job needs to know and have: SA3. Basic Knowledge of numerical operations, and calculations/ formulae etc. **Basic shapes**: Basic Knowledge of shapes like square, rectangle, triangle, circle etc. SA4. Basic Knowledge of appropriate measuring techniques and units of measurement
B. Professional Skills	**Judgmental Thinking**
	The user/individual on the job needs to know and understand how to: SB1. Use common sense and make judgments during day to day basis SB2. Communicate problems appropriately to others SB3. Identify sources of information and support for problem solving SB4. Seek assistance and support from other sources to solve problems.

NOS Version Control

NOS Code	**RSC/N4107 (CPC/N 0417)**		
Credits (NSQF)	**2**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Manufacturing / Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Blow Moulding**	**Next review date**	**31/12/2021**



National Occupational Standards



Overview

This unit Provides basic Knowledge of behavioral science. Other soft skills include situational awareness and the ability work on computer.

RSC/N4108 (CPC/N0418) Basic Knowledge of Communication/soft skills

National Occupational Standards

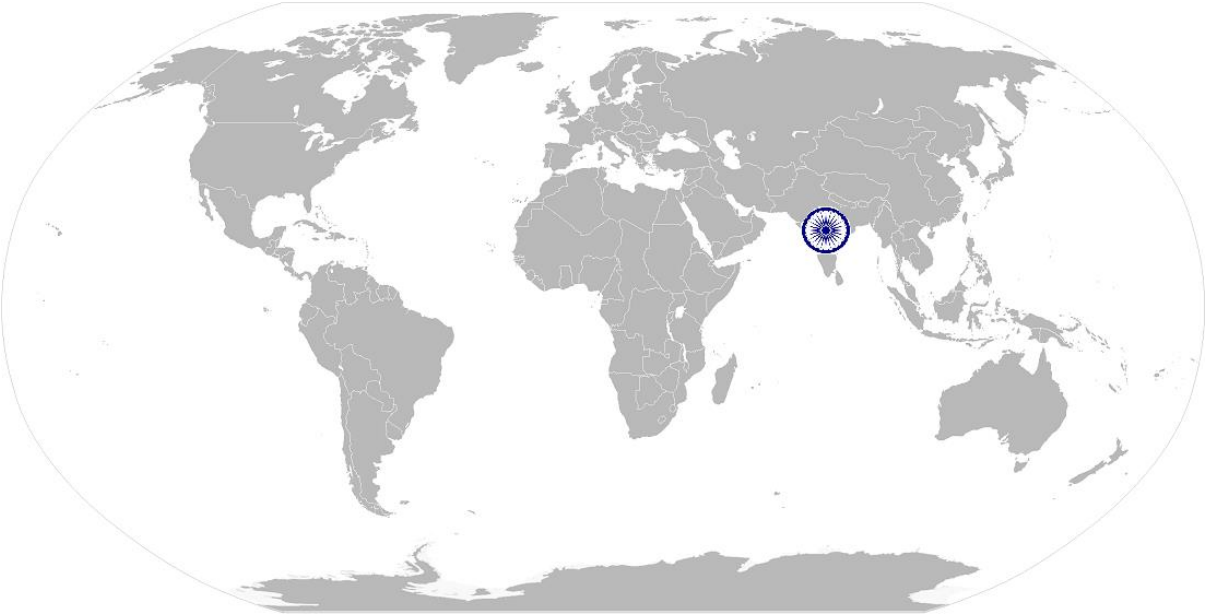
Unit Code	**RSC/N4108 (CPC/N0418)**
Unit Title (Task)	**Basic Knowledge of Communication/soft skills**
Description	This OS is about ensuring a Person with this attribute has the ability to work in various situations equally well and move from one situation to another with ease and grace. The ability to be diplomatic and respectful even when there are disagreements is also a key soft skill. This skill requires the employee to maintain a professional tone and demeanor even when frustrated.
Scope	The individual needs to • Basic Knowledge on functions of computer & operations of computer. • Effective communication. • Inter personal skills
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Communication and its importance	**The individual on the job should be able to:** PC1. Learn about Fundamental of Computers. PC2. Identify the components of Computer: - Hardware and the software PC3. Accurately receive information and instructions from the supervisor/operator and fellow workers, getting clarification where required PC4. Accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt PC5. Display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible PC6. Consult with and assist others to maximize effectiveness and efficiency in carrying out tasks. PC7. Display active listening skills while interacting with others at work PC8. Use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism PC9. Demonstrate responsible and disciplined behaviors at the workplace PC10. Escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict.
Elements and Principles of Communication	Basic Study of Elements of the Soft communication skills:- • Stimulus • Encoding/message • Channel • Decoding • Receiver • Barriers • Principle of Communication Process • Clarity • Conciseness

	• Objectivity • Consistency • Completeness • Relevancy • Audience Knowledge
How does a computer work?	A computer functions in the following manner: • The computer accepts input • The computer performs useful operations • The computer stores data • The computer produces output. • Turning the Computer On and Logging On
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 individual on the job needs to know and understand:** KA1. Standards, policies, and procedures followed in the company relevant to own employment and performance conditions KA2. Reporting structure, inter-dependent functions, lines and procedures in the work area KA3. Relevant people and their responsibilities within the work area
B. Technical Knowledge	**The individual on the job needs to know and understand:** KB1. Various categories of people that one is required to communicate and co-ordinate with in the organization KB2. The importance of effective communication in the workplace KB3. Key elements of active listening KB4. The value and importance of active listening and assertive communication KB5. The importance of tone and pitch in effective communication KB6. The importance of ethics for professional success KB7. The importance of discipline for professional success. KB8. The Importance of developing effective working relationships for professional success. KB9. Expressing and addressing grievances appropriately and effectively KB10. The importance and ways of managing interpersonal conflict effectively

NOS Version Control

RSC/N4108 (CPC/N0418) Basic Knowledge of Communication/soft skills

NOS Code	RSC/N4108 (CPC/N 0418)		
Credits (NSQF)	2	Version number	1.0
Sector	Rubber	Drafted on	18/05/2016
Sub Sector	Manufacturing / Plastics Processing	Last reviewed on	26/12/2016
Occupation	Blow Moulding	Next review date	31/12/2021



CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role: Machine Operator Assistant – Blow Moulding
Qualification Pack Code: RSC/Q 4101 CPC/Q0403
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			Marks Allocation	
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. Apply 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 maintenance team on machine health to identify potential hazards due to wear and tear of machine.	2.5	0.5	2
	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/N4102 (CPC/N 0412): Fitting Tools	PC1. Comply with health and safety, environmental and other relevant regulations	1.5	0.5	1

Measuring Equipments & Practice	PC2.	Adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety regulations while performing die fitting operations	1.5	0.5	1
	PC3.	Work following laid down procedures and instructions	1.5	0.5	1
	PC4.	Ensure work area is clean and safe from hazards	1.5	0.5	1
	PC5.	Ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition.	2.5	0.5	2
	PC6.	Basic Knowledge of job specification from a valid and approved source	2.5	0.5	2
	PC7.	Understand job requirements from the job specification document properly	2.5	0.5	2
	PC8.	Report to operator information time to time.	2.5	0.5	2
	PC9.	Basic Knowledge of the fitting operations as per procedure	2.5	0.5	2
	PC10.	Ensure that all calibrated measuring instruments used.	2.5	0.5	2
	PC11.	Ensure that the components used are free from foreign objects, dirt and corrosion	2.5	0.5	2
	PC12.	Obtain appropriate tools and measuring instruments.	2.5	0.5	2
	PC13.	Understand of work pieces as per job requirements using appropriate holding devices.	2.5	0.5	2
	PC14.	Helping to operator while marking specified features with the help of marking-out methods on the work pieces as per job specification by using appropriate measuring and marking tools.	2.5	0.5	2
	PC15.	Basic knowledge of different fitting operations on various forms of metal components using a range of hand tools and manually operated machines	3	1	2
	PC16.	Basic knowledge of Carrying & return all tools and equipment to the correct location on completion of the fitting activities	3	1	2
	PC17.	Cleaning the work area in a safe and tidy condition on completion of job activities	3	1	2
		Sub total	**40**	**10**	**30**
RSC/N4103 (CPC/N 0413): Introduction to Polymers and thermoplastics Materials	PC1.	Basic Importance of polymers in Human Life.	3	1	2
	PC2.	Understand fundamental terminology of polymers	3	1	2
	PC3.	Types of polymers & its application.	3	1	2
	PC4.	Basic Knowledge of Polymers- 1. Types of Polymers- Thermoplastics, Elastomers	3	1	2

	PC5.	Plastic Material Application- 1. Commodity sector, telecommunications, automobiles, packaging medical, Electrical and Electronics & aerospace etc.	3	1	2
	PC6.	Commodity Polymers: Polyolefin: LDPE – HDPE – LLDPE, PP etc.	5	1	4
	PC7.	Engineering Polymers: PC, ABS, PMMA, POM, PA-NYLON etc.	5	1	4
	PC8.	Special Polymers: FEP, PVDF etc.	5	1	4
	PC9.	Basic Knowledge of Identification Method:-Drop Test, water floatation Test, Scratch test.	5	1	4
	PC10.	Basic Knowledge of Advanced Methods of Identification:-MFI, Melting etc.	5	1	4
		Sub total	**40**	**10**	**30**
RSC/N4104 (CPC/N 0414): Basics of Plastics Processing methods	PC1.	The need for plastics processing	3	1	2
	PC2.	Ensure merits and demerits of Blow Moulding to over the all others plastic Process.	3	1	2
	PC3.	Definition and terminology related to Plastic Processing.	3	1	2
	PC4.	Ensure finishing operation including surface treatment of the fabricated product if required as per SOP.	4	1	3
	PC5.	Primary Processing Methods as per company's SOP.	3	1	2
	PC6.	Secondary Processing Methods as per company's SOP.	3	1	2
	PC7.	Processing fundamentals	3	1	2
	PC8.	The type of process to be used depends on a variety of factors, including product shape and size, plastic type, quantity to be produced, quality and accuracy (Tolerances) required, design load performance, cost limitation, and time schedule.	3	1	2
	PC9.	Machine Operation Terminology: as per manual, semiautomatic, fully automatic.	5	1	4
	PC10.	Type of Conversion Techniques: Injection, Blow, Compression, Transfer, Rotational and Other processes.	5	1	4
	PC11.	Material to be processed	5	1	4
	PC12.	Product design / configuration, Tolerance.	5	1	4
	PC13.	Process Limitations	5	1	4
	PC14.	Quality	5	1	4
	PC15.	Cost / Performance balance.	5	1	4
		Sub total	**60**	**15**	**45**

RSC/N4105 (CPC/N 0415): Blow Moulding Techniques for Plastics processing and inspection of the finished products.	PC1.	Understanding basic Principle of Blow Moulding process & its Types.	1.5	0.5	1
	PC2.	Basic Need of Tools and Accessories and Machineries.	1.5	0.5	1
	PC3.	Understanding of Plastic Materials for Blow Moulding	1.5	0.5	1
	PC4.	Basic Knowledge of Machine Start up & Shut down Procedure.	1.5	0.5	1
	PC5.	Basic Knowledge of Various types of extrusion blow moulding Process.	1.5	0.5	1
	PC6.	Basic Knowledge of Continuous blow moulding process:- single head method, Twin station method, Rotary table system	1.5	0.5	1
	PC7.	Basic Knowledge of Intermitted blow moulding process:- Reciprocating screw extruder, Ram accumulator extrusion Accumulator head method	1.5	0.5	1
	PC8.	Basic Study of Extrusion blow moulding (EBM)	1.5	0.5	1
	PC9.	Basic Study of Injection blow moulding(IBM)	1.5	0.5	1
	PC10.	Basic Study of Injection Stretch blow moulding process (ISBM)	1.5	0.5	1
	PC11.	Basic Study of Extrusion Stretch Blow Moulding	1.5	0.5	1
	PC12.	Basic Knowledge of Various types of blow moulds- Side feed, Centre Feed, Spiral Mandrel, Extrusion Blow, stretch Blow, Injection Blow moulds etc.	1.5	0.5	1
	PC13.	Make the plastic compound or granule ready for feeding into the machine	2.5	0.5	2
	PC14.	Start the machine and feeding simultaneously	2.5	0.5	2
	PC15.	Ensure that moulding pressure and temperature is maintained during the process cycle	2.5	0.5	2
	PC16.	Ensure mould lifting/ ejection/ slide mechanism of the press are properly functioning	2.5	0.5	2
	PC17.	Manufacturing the preform as per SOP	2.5	0.5	2
	PC18.	Remove the Manufacturing the preform from the mould as per SOP.	2.5	0.5	2
	PC19.	Check for operation of moulding apparatus like hopper, heaters, extruder, blow moulding die/mould, screen pack etc. as per the checklist provided	2.5	0.5	2
	PC20.	Fix the desired die/mould to the blow moulding machine apparatus in order to achieve the desired operation as per the Work Instructions/ SOPs.	2.5	0.5	2

	PC21. Preliminary requirement and preparation of raw material use weighing machines to measure the quantity of granules and ensure that the correct quantity of granules are put in the hopper	2.5	0.5	2
	PC22. Setup the apparatus as per the selected process and the moulding standards used in the processing industry	2.5	0.5	2
	PC23. Ensure availability of the coolant and working of valves to circulate the coolant to cool and solidify plastic.	2.5	0.5	2
	PC24. Ensure the functionality and assembly of die as per SOP.	2.5	0.5	2
	PC25. Die shaping in blow moulding.	2.5	0.5	2
	PC26. Basic Study of Blow Ratio, parison swell, Die Swell, Types of Parison Blowing system:-Pneumatic and ejection system.	2.5	0.5	2
	PC27. Understand & Basic knowledge about the moulding procedure and process to be adopted for completing the work order from the supervisor/operator by referring the Work Instruction document/ SOP manual	2.5	0.5	2
	PC28. Understanding the raw material like plastics granules, fillers, bonding additives grades etc. required for executing the activity	2.5	0.5	2
	PC29. Ensure that the required material is procured from the store before starting the process.	2.5	0.5	2
	PC30. Understand the type of Die required for executing the required operation and ensure that the same is available for operations	2.5	0.5	2
	PC31. Understand the number of heaters required for the extruder assembly, heater temperature and current required for the heating operations as mentioned in the Work Instructions/ SOP manual. Ensure housekeeping safety in the moulding area. Use lifting equipments or for lift/trolley for mould/material. Keep all safety requirements.	2.5	0.5	2
	PC32. Ensure that the plastic granules are mixed with additives (if any) before being fed into the hopper	2.5	0.5	2
	PC33. Check the hollow articles (bottles, container) for geometry, material & dimensional parameters as per the Control Plan before starting the production.	2.5	0.5	2
	PC34. Ensure that the dimensions of the output product are measured as per the process given in the Work Instructions/ SOP	2.5	0.5	2
	PC35. In case the test product matches the dimensions and quality of the final output, start the production process	2.5	0.5	2
	PC36. Feed the required plastic material in the apparatus for heaters to melt the plastic granules at the	2.5	0.5	2

	predefined temperature			
	PC37. Ensure feeding in line with the defined standards and specifications	2.5	0.5	2
	PC38. Ensure the proper functioning of screen pack and die for uniform melting of plastic and removal of the contaminants (if any)	2.5	0.5	2
	PC39. Monitor & understand the process (parameters like temperature, pressure, speed etc.) by observing and analyzing the readings on various panels/ meters to prevent machine breakdown and deviations of the output from desired specifications	1.5	0.5	1
	PC40. Clean the die opening & die; changing the screen pack.	1.5	0.5	1
	PC41. Ensure code printing of the product with the identifying information (wherever required) and send the same for further processing	1.5	0.5	1
	PC42. Instruct the helper to neck finishing and pinch off of the product as per the desired geometric specifications.(doesn't required for IBM)	1.5	0.5	1
	PC43. Measure the final plastic moulded product and compare the dimensions as prescribed in the work order/ engineering drawing	1.5	0.5	1
	PC44. In case the parts are not as per the given measurements, send the same for further processing in terms of cutting, finishing etc.	1.5	0.5	1
	PC45. Helping to operator to Measure the specifications of the finished products using devices like micrometers, Vernier calipers, gauges, rulers, weighing scales, Thickness Gauge and any other inspection equipment and compare with the parameters given in the work order.	1.5	0.5	1
	PC46. Note down the observations of the basic inspection process and Identify pieces which are OK and also not meeting the specified standards	1.5	0.5	1
	PC47. Maintain records of each category of work outputs as per the batch etc. so that correction can be organized.	1.5	0.5	1
	PC48. Provide first and last output from each batch to the lab for quality check on its composition, properties etc.	1.5	0.5	1
	PC49. Obtain clearance for the entire batch from the lab	2	1	1
	Sub total	**100**	**25**	**75**
RSC/N4106 (CPC/N 0416):	PC1. Some duties include: Inspecting, monitoring, operating fuel systems, fuel oil transfer & supply lines & associated equipment and fossil fuel chillers.	1.5	0.5	1

Auxiliary equipments in Plastics processing.	PC2.	Operating condensate & feed water systems, circulating & cooling water systems, condensate & makeup systems, circulating service water treatment equipment, auxiliary lube oil systems, emission control equipment and miscellaneous equipment. Pass onsite training programs. Follow safety rules, regulations and procedures.	1.5	0.5	1
	PC3.	Connects basic plant services as needed to meet production requirements and makes initial checks of operating conditions before initiating production runs.	1.5	0.5	1
	PC4.	Connects basic plant services as needed to meet production requirements and makes initial checks of operating conditions before initiating production runs.	1.5	0.5	1
	PC5.	Basic Knowledge of different types of Predrier-Hot air Oven, Hopper Driers, Dehumidifiers etc.	1.5	0.5	1
	PC6.	Basic Knowledge of Chiller, Cooling Tower for the controlling temperature of Mould, machine and Fluids.	2.5	0.5	2
	PC7.	Basic Knowledge of Operation and Monitoring -- Watching gauges, dials, or other indicators to make sure a machine is working properly.	2.5	0.5	2
	PC8.	Basic Knowledge of Compressor and Scrap Grinder.	2.5	0.5	2
	PC9.	Understand Equipment Maintenance -- Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.	2.5	0.5	2
	PC10.	Understand Equipment Maintenance -- Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.	2.5	0.5	2
	PC11.	Understand & Follow the instructions given on the equipment manual describing the operating process of the equipment	2.5	0.5	2
	PC12.	Follow the Safety, Health and Environment related practices developed by the organization	2.5	0.5	2
	PC13.	Ensure relevant safety board's/ signs are placed on the shop floor	2.5	0.5	2
	PC14.	Operate the machine using the recommended Personal Protective Equipment (PPE) and ensure team members also use the related PPEs at the workplace	2.5	0.5	2
	PC15.	Maintain a clean and safe working environment near the work place and ensure there is no spillage of chemicals, production waste, oil, solvents etc.	2.5	0.5	2
	PC16.	Attend all safety and fire drills to be self-aware of safety hazards and preventive techniques	2.5	0.5	2
	PC17.	Maintain high standards of personal hygiene at the work place	2	1	1
	PC18.	Ensure that the waste disposal is done in the designated area and manner as per organization SOP.	3	1	2

	Sub total	**40**	**10**	**30**
RSC/N4107 (CPC/N 0417): Mould Technology Techniques for Plastics Processing	PC1. Basic Knowledge about Mould Manufacturing Process and machineries.	5	1	4
	PC2. Basic Knowledge to identify and confirm resources required such as components, machinery, range of materials and processes	3	1	2
	PC3. Basic Knowledge about Mould Materials.	7	3	4
	PC4. Identify type of equipment required for machining components based on the operations selected.	5	1	4
	PC5. Basic knowledge about Construction and study of Moulds for EBM, IBM, and SBM.	5	1	4
	PC6. Basic Knowledge of Mould cooling systems:- Pneumatic, water cooling	5	1	4
	PC7. Basic Knowledge of Mould Polishing & its kits	5	1	4
	PC8. Understand & Follow the instructions given on the equipment manual describing the operating process of the equipment	5	1	4
	Sub total	**40**	**10**	**30**
RSC/N4108 (CPC/N 0418): Basic Knowledge of Communication /soft skills	PC1. Accurately receive information and instructions from the supervisor/operator and fellow workers, getting clarification where required PC2. Accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt	8	2	6
	PC3. Display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible	4	1	3
	PC4. Basic Knowledge of consult with and assist others to maximize effectiveness and efficiency in carrying out tasks.	4	1	3
	PC5. Basic Study of Fundamental of Computers.	4	1	3
	PC6. Components of Computer: - Hardware and the software	4	1	3
	PC7. Display active listening skills while interacting with others at work	4	1	3
	PC8. Use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism	4	1	3
	PC9. Demonstrate responsible and disciplined behaviors at the workplace	4	1	3
	PC10. Escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict.	4	1	3
	Sub total	40	10	30
	Total	**400**	**100**	**300**