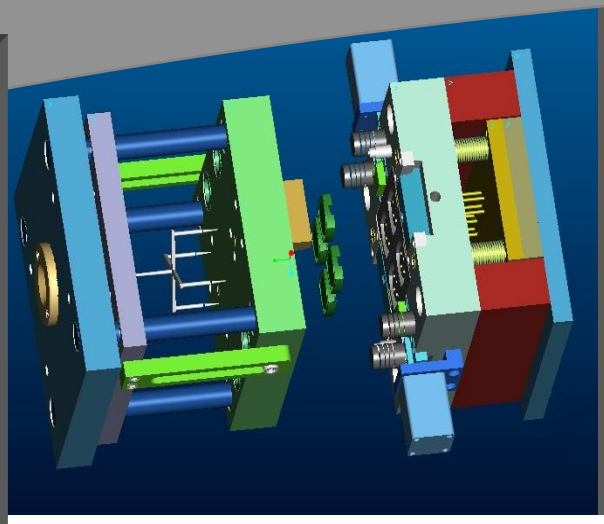
QUALIFICATIONS PACK- OCCUPATIONAL STANDARDS FOR PLASTICS INDUSTRY



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- Plastics Product and Mould Designer

SECTOR: RUBBER

SUB SECTOR: PLASTICS PROCESSING

OCCUPATION: DESIGN

REFERENCE ID: RSC/Q4402 (CPC/Q3104)

ALIGNED TO:

Brief Job Description:
It is also known as tool designer. Individuals in this job need to design details of mould/Die parts. Its working mechanism and other require system for manufacturing & measuring the quality standards of the plastics production process.

Personal Attributes:
This job requires the individual to work independently and be judicious in making decisions pertaining to one`s area of work The individual should be result oriented .The individual should also be able to demonstrate skills for information ordering imagination oral expression ,analytical approach deductive reasoning and comprehensive.

Qualifications Pack for Plastics Product & Mould Designer (L4)

Job Details

Qualifications Pack Code	**RSC/Q4402 (CPC/Q 3104)**		
Job Role	**Plastics Product & Mould Designer (L4)**		
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	**Design**	**Next review date**	**31/12/2021**
NSQC Clearance on	**21/07/2016**		

Job Role	**Plastics Product & Mould Designer (L4)**
Role Description	Developing Plastics Mould and Dies for production and maintain the quality standard
NSQF level **Minimum Educational Qualifications*** **Maximum Educational Qualifications***	4 10th Standard
Training (Suggested but not mandatory)	General Information about drawing and design
Minimum Job Entry Age	18
Experience	No previous experience required
Applicable National Occupational Standards (NOS)	Compulsory: 1. RSC/N4401 (CPC/N3104) Communication skill and personality development 2. RSC/N4101 (CPC/N0411) Maintain basic health and safety practices at the workplace,5s 3. RSC/N4405 (CPC/N3113) Collection of data/information with the concept , layout of impression & Planning of the process for all assembly parts and dies and coordinating with others 4. RSC/N4406 (CPC/N3115) Preparation of drawings by using CAD/CAE/CAM software and release it as per the documentation procedure 5. RSC/N4407 (CPC/N3116) Prepare lab model of the mould to verify the process followed for the designing of mould. Optional: N.A.
Performance Criteria	As described in the relevant OS units

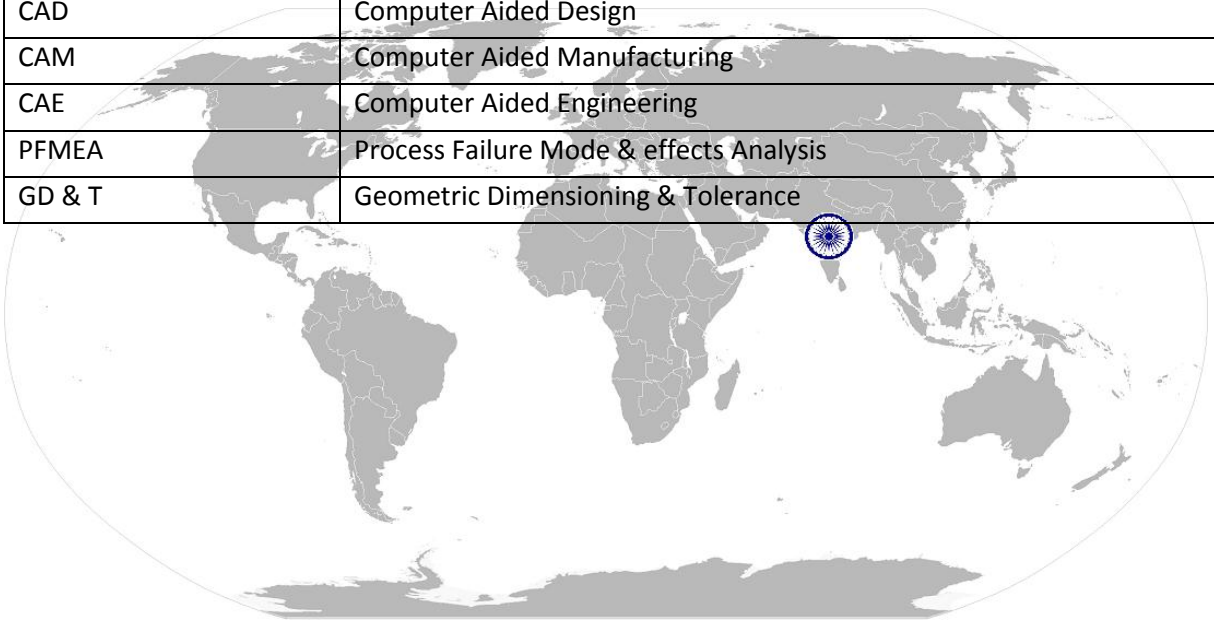
Definitions

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.

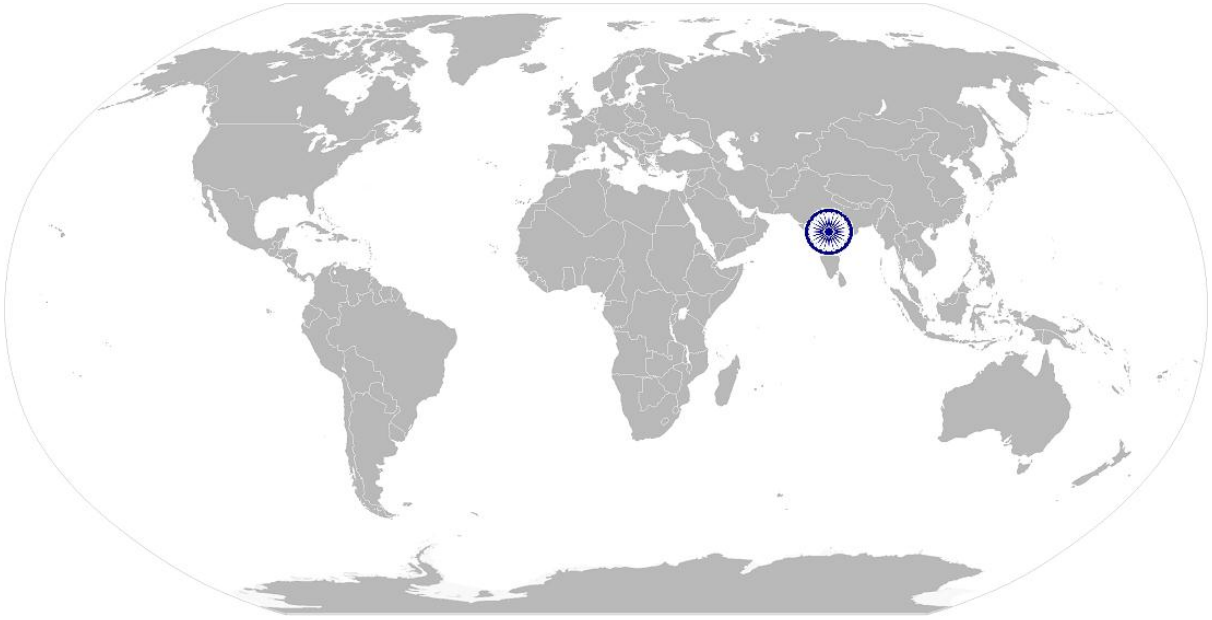
Acronyms

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
CAD	Computer Aided Design
CAM	Computer Aided Manufacturing
CAE	Computer Aided Engineering
PFMEA	Process Failure Mode & effects Analysis
GD & T	Geometric Dimensioning & Tolerance



RSC/N4401 (CPC/N3104) Communication skill and personality development

National Occupational Standards



Overview

Work with clear communication skill and personality development.

RSC/N4401 (CPC/N3104) Communication skill and personality development

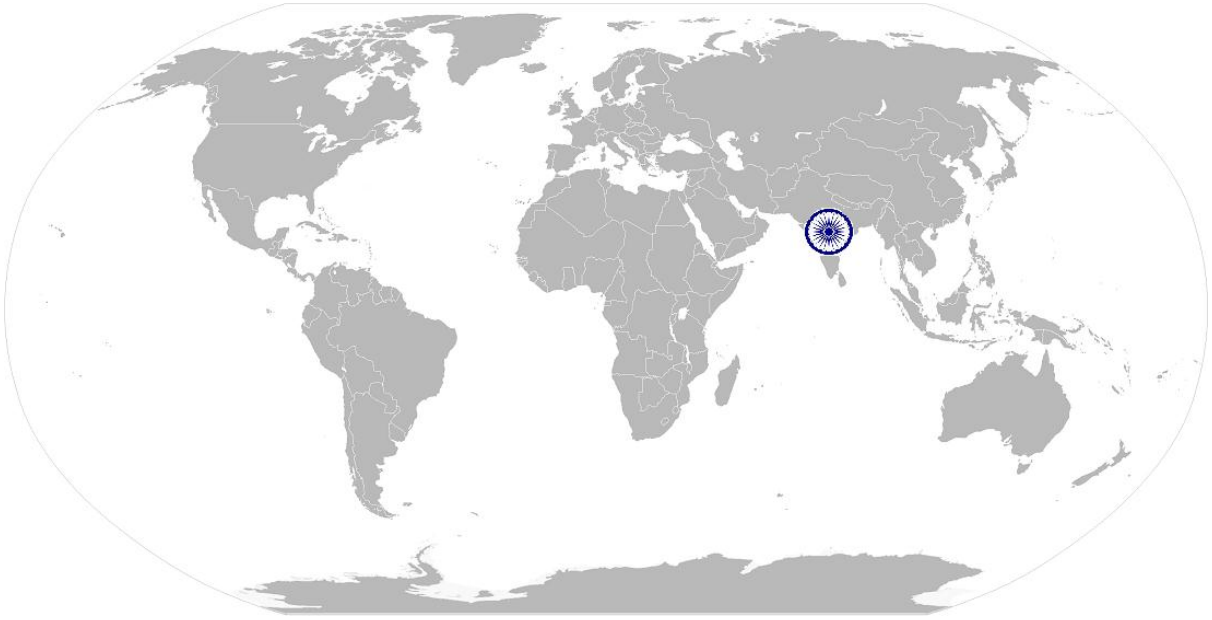
National Occupational Standards

Unit Code	**RSC/N4401 (CPC / N 3104)**
Unit Title (Task)	**Communication Skill and Personality development.**
Description	This OS unit is about working effectively within a team, either in individual's own work group or in other work groups outside the organization
Scope	This unit/task covers the following: • Colleagues • Superiors • Members of own work group • People in other work groups within or outside the organization • Communicate: • Face-to-face • By telephone • In writing
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
A. Compulsory	To be competent, the user/individual on the job should be able to: PC1. Maintain clear communication with colleagues PC2. Work with colleagues PC3. Pass on information to colleagues in line with organizational requirements PC4. Work in ways that show respect for colleagues PC5. Carry out commitments made to colleagues PC6. Let colleagues know in good time if cannot carry out commitments, explaining the reasons PC7. Identify problems in working with colleagues and take the initiative to solve these problems PC8. Follow the organization's policies and procedures for working with colleagues PC9. Share the resources with other members as per priority of tasks
Record log of defective products and discard defective pieces	To be competent the Mould Designer should be able to : PC10. Note down the observations of the basic inspection process and identify pieces which are OK and also not meeting the specified standards PC11. Separate the defective pieces into two categories – pieces which can be repaired/ modified and pieces which are beyond repair, PC12. Discard the pieces which are beyond repair and repair the ones which need minor modifications/ rework PC13. Maintain records of each category of work outputs as per the batch/ cavity etc. so that correction can be organized. PC14. Establish linkage between rejection of output and the pertinent causes for the same (process/ material etc.); Recommend the means for rejection control. PC15. Rectify minor defects like shape deformation, grooves, holes etc. by

	cutting, finishing etc. PC16. Escalate all issues related to change in surface properties, hardness etc. so that the manufacturing equipment can be reset to achieve the specified output
Perform Batch Quality Procedure	PC17. Provide first and last moulding from each batch to the lab for quality check on its composition, properties etc. PC18. 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 organization's policies and procedures for working with colleagues, role and Responsibilities in relation to this KA2. The importance of effective communication and establishing good working relationships with colleagues KA3. Different methods of communication and the circumstances in which it is appropriate to use these KA4. The importance of creating an environment of trust and mutual respect KA5. The implications of own work on the work and schedule of others
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Different types of information that colleagues might need and the importance of providing this information when it is required KB2. The importance of helping colleagues with problems, in order to meet quality and time standards as a team
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/individual on the job needs to know and understand how to: SA1. Complete written work with attention to detail
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA2. Read instructions, guidelines/procedures
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA3. Listen effectively and orally communicate information SA4. Ask for clarification and advice from the concerned person
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. Make decisions on a suitable course of action or response keeping in view resource utilization while meeting commitments
	Plan and Organize
	The user/individual on the job needs to know understand how to: SB2. Plan and organise work to achieve targets and deadlines
	Customer Centricity
	The user/individual on the job needs to know and understand how to:

RSC/N4401 (CPC/N3104) Communication skill and personality development

	SB3. Check that the work meets customer requirements SB4. Deliver consistent and reliable service to customers
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB5. Apply problem solving approaches in different situations
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB6. Apply balanced judgments to different situations



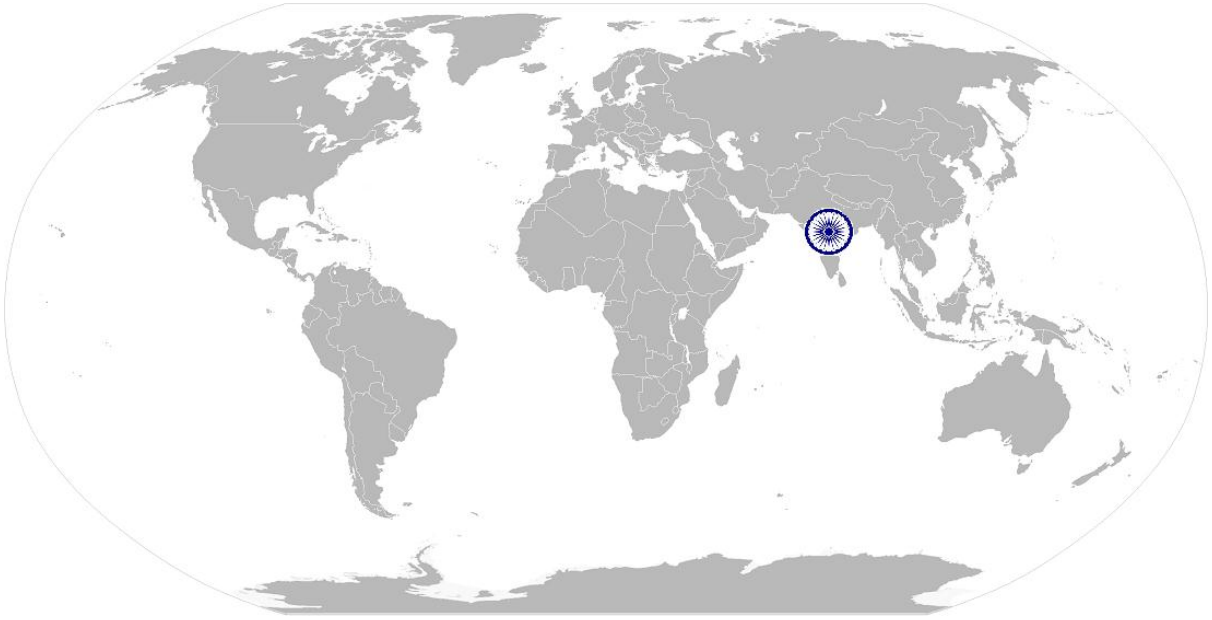
RSC/N4401 (CPC/N3104) Communication skill and personality development

NOS Version Control

NOS Code	**RSC/N4401 (CPC/N3104)**		
Credits (NSQF)	**1**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Design**	**Next review date**	**31/12/2021**

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

National Occupational Standards



Overview

Maintain a safe healthy work environment and 5s.

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

National Occupational Standards

Unit Code	RSC/N4101 (CPC/N0411)
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. Keep 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.

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	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. 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)	
B. 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

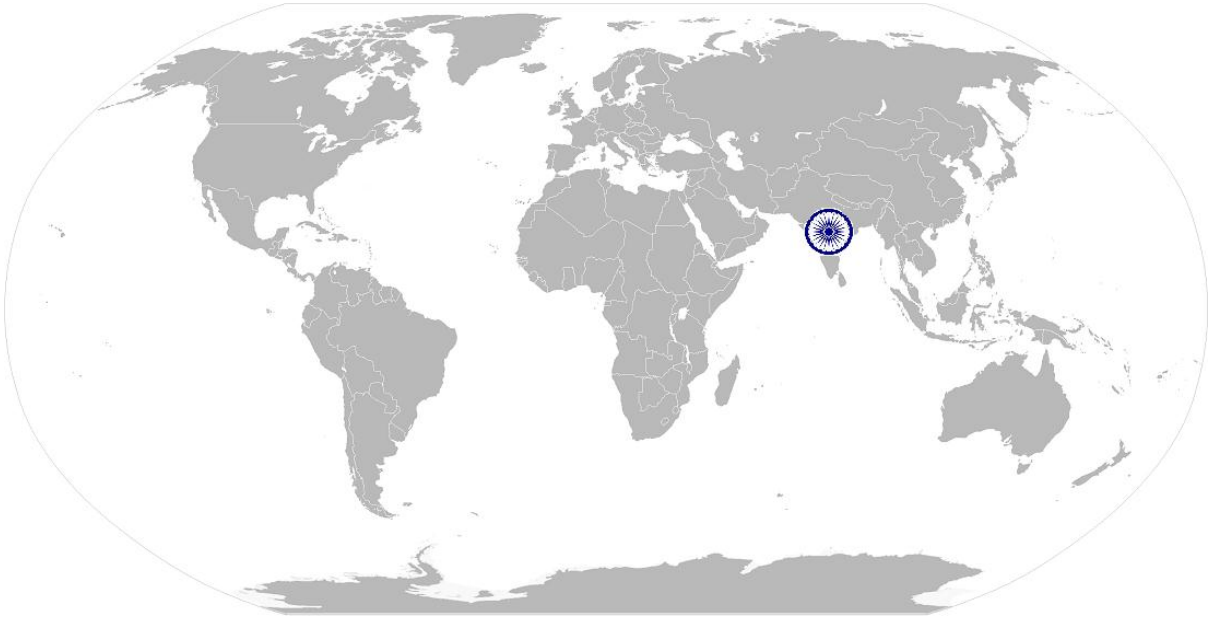
RSC/N4101 (CPC/N0411) Maintain basic health and safety practices at the workplace, 5s

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. 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. 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. 5S procedures KB29. various types 5s practices followed in various areas KB30. The 5S checklists provided in the department/ team KB31. The useful & non useful items

	KB32. The of labels , signs & colours used as indicators KB33. how to sort and store various types of tools, equipment, material etc. KB34. how to identify various types of waste products KB35. the impact of waste/ dirt/ dust/unwanted substances on the process/ environment/ machinery/ human body. KB36. The best ways of cleaning & waste disposal
Skills (S) [Optional]	
Element	**Skills**
C. 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 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. Attentively listen with full attention and comprehend the information given by the speaker during safety drills and training programs
D. 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:

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

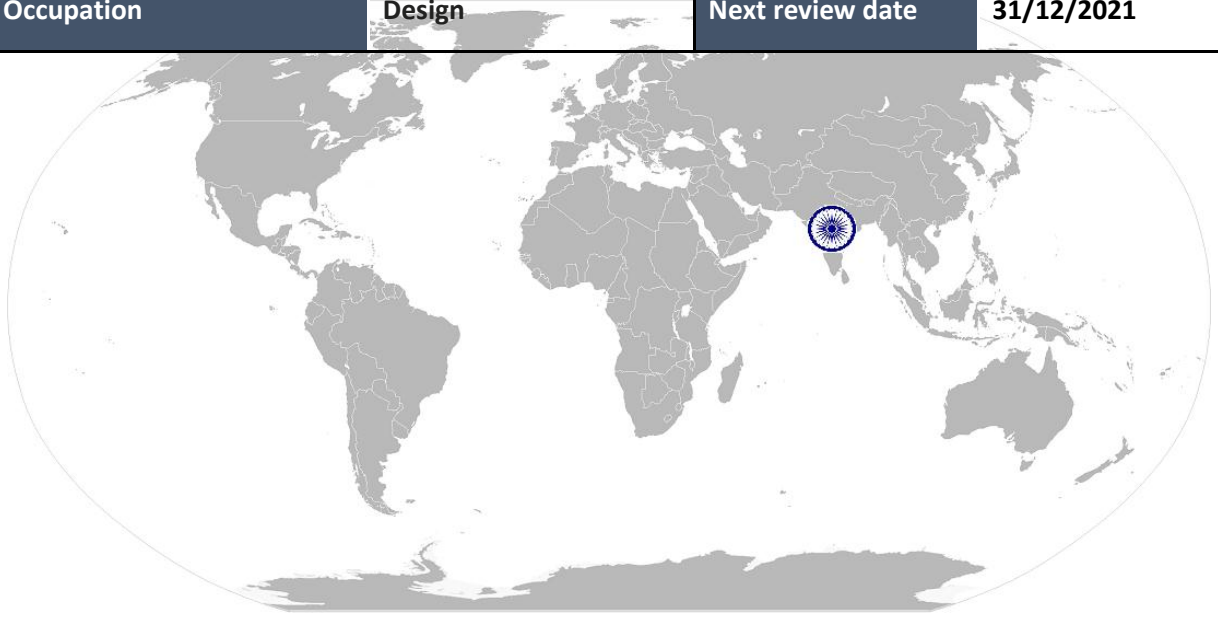
	SB6. Follow instructions and work on areas of improvement identified SB7. Complete the assigned tasks with minimum supervision SB8. Complete the job defined by the supervisor within the timelines and quality norms



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

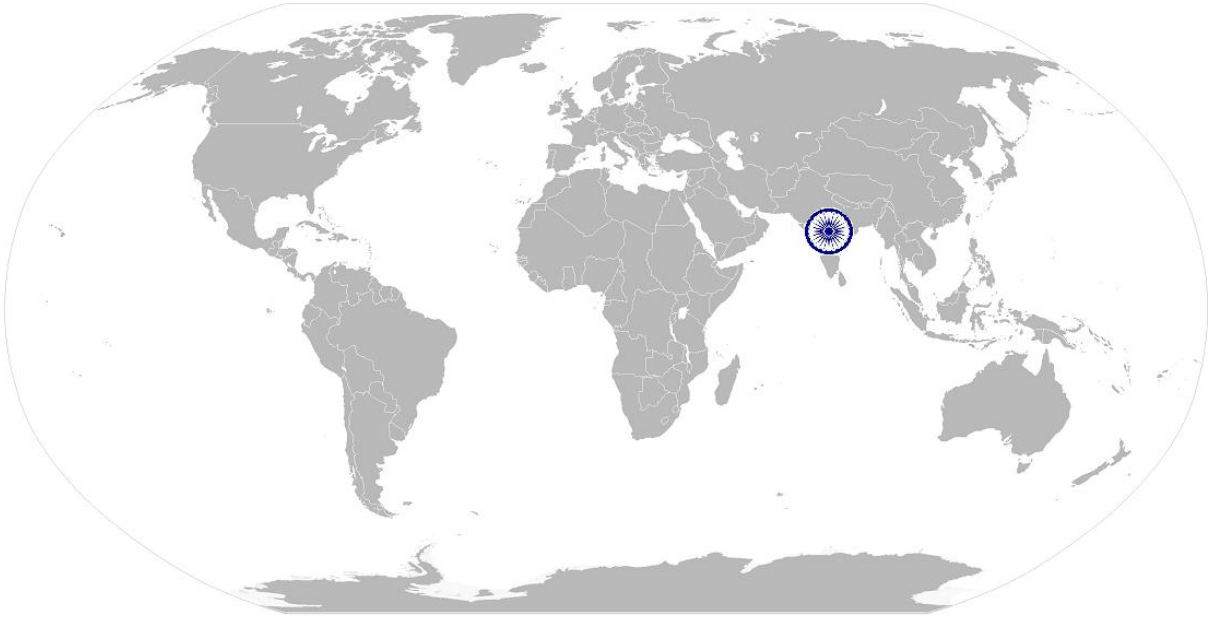
NOS Version Control

NOS Code	RSC/N4101 (CPC/N0411)		
Credits (NSQF)	1	Version number	1.0
Sector	Rubber	Drafted on	18/05/2016
Sub Sector	Plastics Processing	Last reviewed on	26/12/2016
Occupation	Design	Next review date	31/12/2021



RSC/N4405 (CPC/N3113) Collection of data/information with the concept, layout of impression & Planning of the process for all assembly parts and dies and coordinating with others

National Occupational Standards



Overview

Collection of data/information with the concept, layout of impression & Planning of the process for all assembly parts and dies and coordinating with others

RSC/N4405 (CPC/N3113) Collection of data/information with the concept, layout of impression & Planning of the process for all assembly parts and dies and coordinating with others

National Occupational Standards

Unit Code	**RSC/N4405 (CPC/N3112)**
Unit Title (Task)	**Collection of data/information with the concept, layout of impression & planning of the process for all assemply parts and dies and coordinating with others**
Description	This OS unit is about the designer to applying his technical knowledge related to plastics for designing the mould/die like Moulds , fixtures and their mechanism along with the technical software required for the designing process
Scope	The unit/ task covers the following: • Preparing the drawings for the products ,moulds & fixtures • Prepare part lists including associated mechanisms
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Understand the work order and the process requirements	To be competent, the user/individual on the job should be able to PC1. Follow the work order (work output) required from the process and discuss the same with the supervisor PC2. Refer all sketches/ work orders/ process related documents to understand dimensions and properties of the required work output PC3. Learn the process requirements in terms of Temperature required for the Mould and Plastics material required and its quantity with its market rate, hydraulic pressure/ air pressure/ vacuum pressure in the machine, weight of the product. injection time, refilling time etc. as mentioned in the Work Instruction/ SOP/ Control Diagrams PC4. Follow the does and don'ts in the working area as defined in OPs/ Work Instructions or defined by supervisors PC5. Learn the moulding procedure and process to be adopted for completing the work order from the supervisor by referring the Work Instruction document/ SOP manual. PC6. Select the raw material like plastics granules, bonding additives etc. required for executing the activity
The drawings designing the mechanism. Layout detailing	To be competent, the user/individual on the job should be able to: PC7. Analyze the requirement a new tool such as ➢ Type of Moulds & Dies ➢ Mechanisms within as per the moulding process ➢ Online gauges if require ➢ Fixtures & associated parts ➢ Robot mechanism required(if require) ➢ for facilitating the process of manufacturing for broad classification of process types such as ➢ Assembly Process ➢ Special processes- Polymer parts, welding, Surface/ Heat treatment. PC8. Finalize the required dimension for new required product in plastics as per

	the application PC9. Decide accurate plastic material of the product as per its application PC10. Prepare the drawings for the required plastics product using /CAE software. PC11. Share the drawings for the Product to the in – house tool room or third party agency9if require) whichever applicable for preview & later for fabrication. Sometimes if require take approval from third party agency/supplier. PC12. Keep on the base of work order and the discussion had with process engineer, get the outline dimensions and other details for selected Machine to be used such as Injection Moulding, Extruder, etc. for preparation of drawing PC13. Follow the sequence of operations required for the Moulding process and required moulding machine, devise the mechanism of working for the Mould/die. Sometimes if require prototype mould may also be prepared for checking its working by using wax PC14. Finalize the rough dimensions for the mould based on the process requirement, space constraints, aux. main equipment selected for the process by the Process Engineer and the above Product drawing. PC15. Prepare the drawings for the required Mould/Dies using CAD/CAE software PC16. Share the drawings for the new mould/Dies to the in – house tool room or third party agency whichever applicable for preview. If require discuss the point with Tool Room engineer. PC17. Keep on the base of feedback received from process engineer, Tool Room engineer, etc. final dimension of the mould decide. PC18. Use the simulation software for understanding the Mould /Die operation and review the drawings. PC19. Maintain design stage , analyze the working of mould/die by CAE software to check end result PC20. Keep ready, in case of robotics/ automation application require for mould functioning, finalize the operation sequence program in consultation with the process engineer. PC21. Decide In consultation with Process Designer/ Manager required working system for the mould/die like Guiding system, Feed system, Ejection system etc. in injection mould. Type of die, size of mandrel required in extrusion die and shape of bottle and its size in blow moulding. PC22. Decide In consultation with Process Designer/ Manager, all the technical dimension of sub parts of the mould/dies as per requirement of sample and process. PC23. Decide typical allowances, Fits and tolerance required on matching parts for process trimming, and warpage etc. are considered based on requirement & past experience of the machining process. PC24. Finalize then inform the in – house tool room or third party agency for

RSC/N4405 (CPC/N3113) Collection of data/information with the concept, layout of impression & Planning of the process for all assembly parts and dies and coordinating with others

	reviewing the complete Mould profile , dimensions and accordingly if required update the drawings PC25. Adhere any on-line gauges designed as part of this exercise ensure GD & T requirements.
C. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: The user/individual on the job needs to know and understand: KA1. Moulding Process Flow KA2. Manufacturing Processes KA3. Sequence of Operations for the design process KA4. Development Process follow
B. Technical Knowledge	The individual on the job needs to have knowledge of: KB1. Technical and functional requirements for moulds/Dies, online gauges, fixtures, etc. KB2. Various types of plastics like thermoplastics/ thermosetting plastics and the additives to be used. KB2. the economic factors involved in the activity KB3. Previous similar design & achieved data for Quality Control
Skills (S) [Optional]	
E. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. Read the moulding process literature & understand its features. SA2.Compile all the data related to main parts of Mould & auxiliary parts required in the processes
	Team Work and multitasking Skills
	The user/individual on the job needs to know and understand how to: SA3.Communicate with the moulding operator to take inputs for finalizing the drawings of the mould/dies. SA4. Make regular Communication with third party consultants /user of the die(if required) for the Engineering data about Mould/Die design
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA3.Communicate with the moulding operator to take inputs for finalizing the drawings of the mould/dies. SA4. Make regular Communication with third party consultants /user of the die (if require) for the Engineering data about Mould/Die design
F. Professional Skills	**Decision Making**
	SB1. Plan the execution of Mould designing activity ; long term (assembly drawing etc.), short term activities (detailed drawing)& conduct analysis activities in the stipulated time
	Plan and Organize

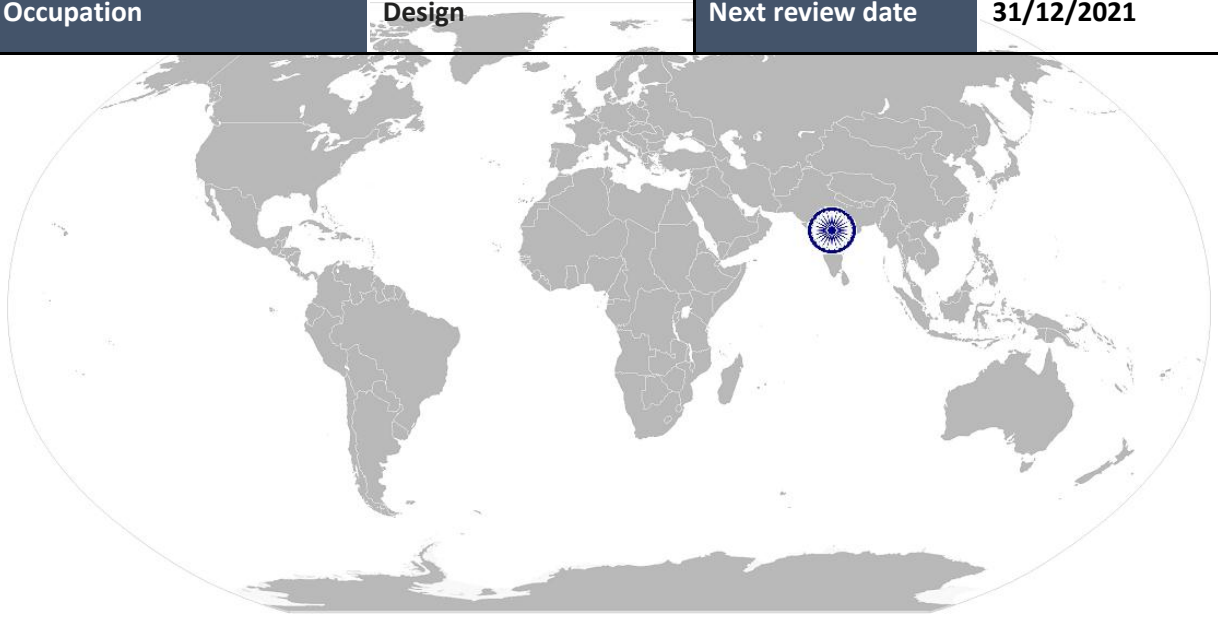
RSC/N4405 (CPC/N3113) Collection of data/information with the concept, layout of impression & Planning of the process for all assembly parts and dies and coordinating with others

	The user/individual on the job needs to know and understand: SB2 Plan and organize the design work and received customer feedback files/ documents
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB3 Manage proper relationships with customers for whom design work it processed
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB4 Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s) SB5 Identify immediate or temporary solutions to resolve delays
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB6 Use the existing data to improve and generate required data for design work to reduce delivery time.
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB7. Analyze the way in which job is being performed and think of some other suitable method in order to optimize the process while performing the work that may also be done by CAE software SB8. Co-ordinate and use experience of the work as inputs for the make design perfectly.

RSC/N4405 (CPC/N3113) Collection of data/information with the concept, layout of impression & Planning of the process for all assembly parts and dies and coordinating with others

NOS Version Control

NOS Code	RSC/N4405 (CPC/N3113)		
Credits (NSQF)	18	Version number	1.0
Sector	Rubber	Drafted on	18/05/2016
Sub Sector	Plastics Processing	Last reviewed on	26/12/2016
Occupation	Design	Next review date	31/12/2021



RSC/N4406 (CPC/N3115) Preparation of drawings by using CAD/CAE/CAM software and release it as per the documentation procedure

National Occupational Standards

Overview

Preparation of drawings by using CAD/CAE/CAM software and release it as per the documentation procedure.

RSC/N4406 (CPC/N3115) Preparation of drawings by using CAD/CAE/CAM software and release it as per the documentation procedure

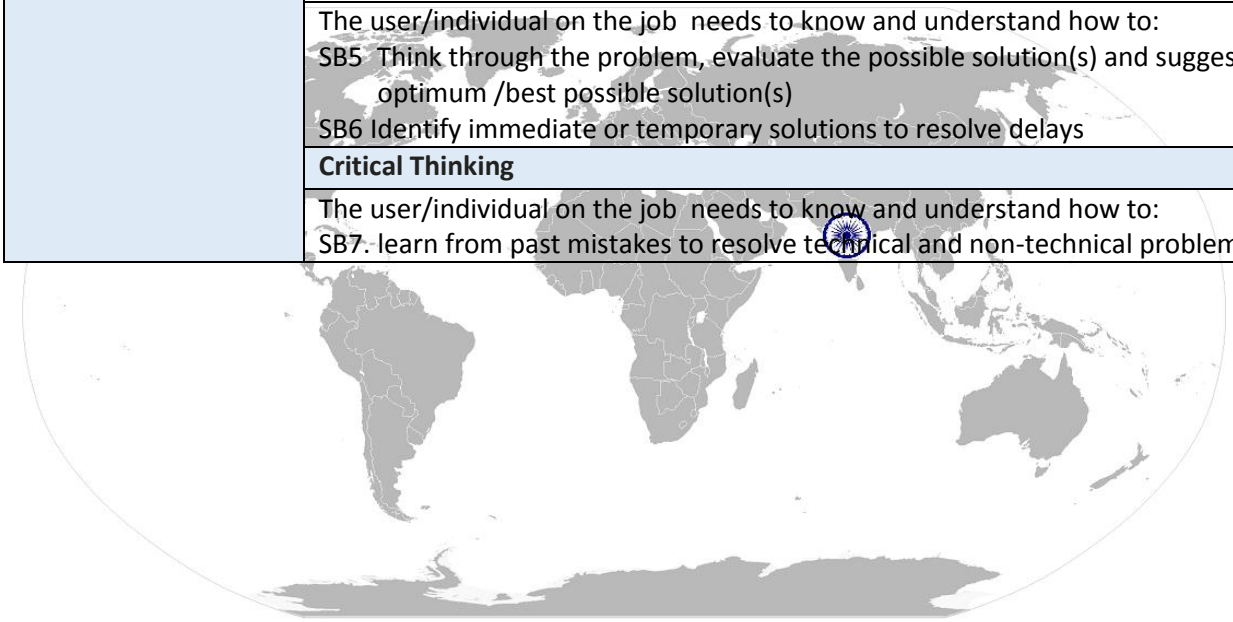
National Occupational Standards

Unit Code	RSC/N4406 (CPC/N3115)
Unit Title (Task)	**Preparation of drawings by using CAD/CAE/CAM software and release it as per the documentation procedure**
Description	This OS unit is about the equipment designer releasing the drawings of the finalized Moulds/Dies and making the documentation for change management
Scope	This unit/ task covers the following: • Release of equipment drawings • Documentation for change management
Performance criteria (PC) w.r.t. the Scope	
Element	**Performance criteria**
Release of tool drawings	To be competent the Mould designer should be able to PC1. Complete the parts- list and drawings / specifications for all the plates/items required for the Mould/Dies PC2. Prepare require raw material list with it's require size as per the finished plates/items. PC3. Release the drawings of the Mould/Die to Production department/ In – House / user PC4. Release the model of the core & cavity along with drawing PC5.Monitor its development as per machining process in Tool Room for any revisions, clarity required etc. PC6.Find the problem encountered while development of the Mould , usage by Production during process , probe the reasons and if required , modify/re-design in coordination with in – house tool room or third party agency, based on the severity of problem. PC7.Follow the Drawings during assembly of parts of the mould, if further any modification require ,release new sub drawing to overcome the problem PC8.Make a trial of the mould, if any parts of the mould is required to modify, release new drawing of the part with consultant to process engineer
Documentation for change management	To be competent the Mould Designer should be able to : PC9. Take Decision In case of any Engineering Change require in the design OR a process or any part dimension change , review the impact on fixture parts / mechanism and decide the action of Rework / re make based on cost and time available / production requirement schedules by the moulds. Check the size, stock and raw material available with the company or in the market. PC10. Save the time, the discussion may be done with process engineer, Tool Room engineer analyzer to use the material available in the company by changing the shape /dimension. Re-draw the parts and release the issue-II drawing. PC11.Aprove that Based on the above make the changes in drawing / part-list and order the new parts/ rework with help of Validation/ Process engineer. PC12. Make final changes in documentation after trials by declaring successful design

	by the user and release the change documents as per SOP. PC13.Consult with the process engineer / Tool room /Mould Designer ,maintain the performance data of the mould and keep in safe custody for next project
Knowledge and Understanding (K)	
D. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1.Moulding Process Flow KA2.Manufacturing Processes KA3.Sequence of Operations for the design process KA4.Development Process follow KA5.Norms established by the company
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. Technical and functional requirements for moulds/Dies, online gauges, fixtures, etc. KB2. All the economic factors involved in the activity KB3. Previous similar design & achieved data for Quality Control data KB4. PFMEA/CP/IR documents KB5. APPN documents KB6. MCN/PCN documentation requirements
Skills (S) [Optional]	
G. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. interpret and prepare the PFMEA/CP documents as per the SOP requirements & auxiliary parts required in the processes
	Team Work and multitasking Skills
	The user/individual on the job needs to know and understand how to: SA2. assist Production department if required for Mould operation like dry cycle of the Mould SA3. Share operation knowledge with co-workers and difficulties Faced during operation. SA4. Coordinate and take inputs from the shop floor workers for devising alternative methods for loading unloading of the mould ,how to clear the way of plastic material on loading condition of the mould.
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how: SA5. communicate with Production department for drawings release and equipment modification/re-designing SA6. communicate with the process engineer for documents review

RSC/N4406 (CPC/N3115) Preparation of drawings by using CAD/CAE/CAM software and release it as per the documentation procedure

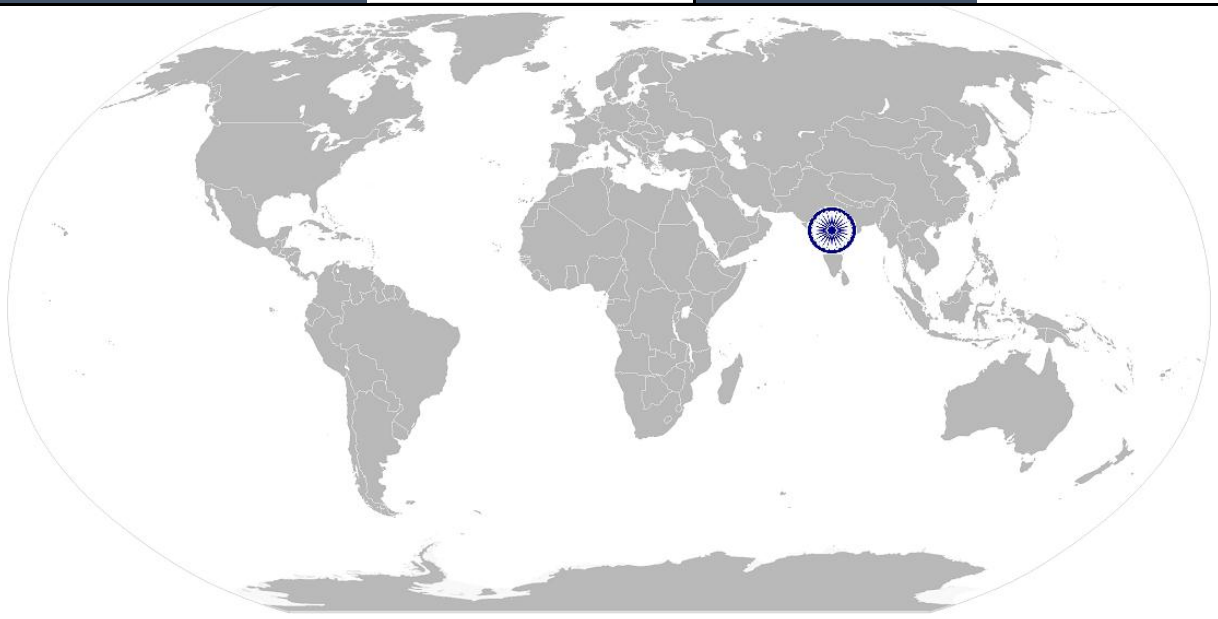
H. Professional Skills	The user/individual on the job needs to know and understand how to: SB1 Plan all the activity of the mould with time bound to complete the Mould, Product and detailed drawings to release the drawings in the stipulated time
	Decision making
	SB2 Mould/Die modification/re-designing SB3 Change in MFAR/CP documents in case of change management
	Problem Solving
	SB4 Assess the problem, evaluate the possible solution(s) and use an optimum /best possible solution(s) SB5 Identify immediate or temporary solutions to resolve delays and crisis situations
	The user/individual on the job needs to know and understand how to: SB5 Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s) SB6 Identify immediate or temporary solutions to resolve delays
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB7. learn from past mistakes to resolve technical and non-technical problems



RSC/N4406 (CPC/N3115) Preparation of drawings by using CAD/CAE/CAM software and release it as per the documentation procedure

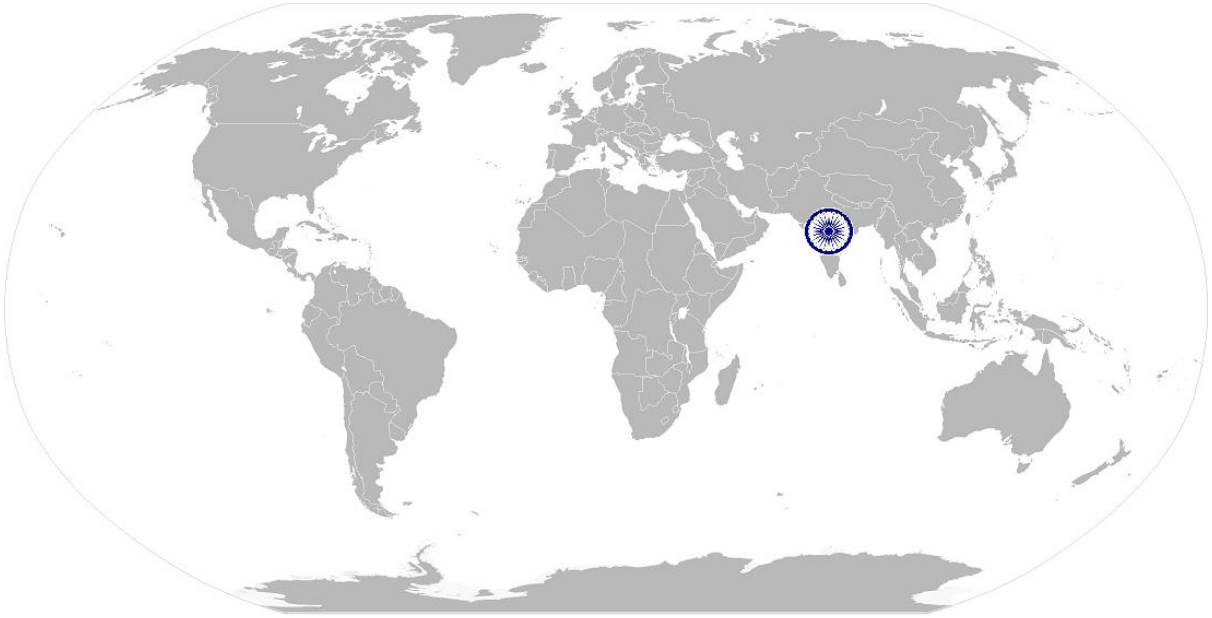
NOS Version Control

NOS Code	RSC/N4406 (CPC/N3115)		
Credits (NSQF)	24	Version number	1.0
Sector	Rubber	Drafted on	18/05/2016
Sub Sector	Plastics Processing	Last reviewed on	26/12/2016
Occupation	Design	Next review date	31/12/2021



RSC/N4407 (CPC/N3116) Prepare lab model of the mould to verify the process followed for the designing of mould

National Occupational Standards



Overview

Prepare lab model of the mould to verify the process followed for the designing of mould

RSC/N4407 (CPC/N3116) Prepare lab model of the mould to verify the process followed for the designing of mould

National Occupational Standards

Unit Code	**RSC/N4407 (CPC/N3116)**
Unit Title (Task)	**Prepare lab model of the mould to verify the process followed for the designing of mould.**
Description	This OS unit is about inspecting the finished goods produced for any damages, deformities and further repairing the parts produced so that the damaged/ defective pieces can be corrected and right quality components are supplied to 1. The customer/ end user 2. Internal manufacturing team
Scope	The moulding Designer(during Mould proving/trial) /Operator will be responsible for • Inspecting the finished goods • Keeping records of production and defects • Conducting minor repair on output parts which can be re worked • The role holder will interact with Designer/Process Engineer/Toolroom Engineer
Performance criteria (PC) w.r.t. the Scope	
Element	**Performance criteria**
Inspection of finished goods to detect any deviations from the product design	To be competent the Mould designer should be able to PC1. Measure the specifications of the finished product using devices like micrometers, Vernier calipers, gauges, rulers, weighing scales and any other inspection equipment and compare with the parameters given in the work order PC2. Compare texture, surface properties, hardness and strength with the given product specifications
Record log of defective products and discard defective pieces	To be competent the Mould Designer should be able to : PC3. Note down the observations of the basic inspection process and identify pieces which are OK and also not meeting the specified standards PC4. Separate the defective pieces into two categories – pieces which can be repaired/ modified and pieces which are beyond repair, PC5. Discard the pieces which are beyond repair and repair the ones which need minor modifications/ rework PC6. Maintain records of each category of work outputs as per the batch/ cavity etc. so that correction can be organized. PC7. Establish linkage between rejection of output and the pertinent causes for the same (process/ material etc.); Recommend the means for rejection control. PC8. Rectify minor defects like shape deformation, grooves, holes etc. by cutting, finishing etc. PC9. Escalate all issues related to change in surface properties, hardness etc. so that the manufacturing equipment can be reset to achieve the specified output

RSC/N4407 (CPC/N3116) Prepare lab model of the mould to verify the process followed for the designing of mould

Perform Batch Quality Procedure	PC10. Provide first and last moulding from each batch to the lab for quality check on its composition, properties etc. PC11. Obtain clearance for the entire batch from the lab
Knowledge and Understanding (K)	
E. 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 manufacturing process KA2. basic process followed for inspection of the pieces KA3. quality Management policy of the organization
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. processes and procedures followed for manufacturing the components/prices/ products KB2. Techniques of using measurement instruments like rulers, Vernier calipers, micrometers, weighing scales etc. KB3. methods to identify quality defects in work pieces KB4. impact of defects on the overall working of the component KB5. methods used for cutting, finishing which can repair pieces with minor defects KB6. various quality standards in India (ISO) used by the organization
Skills (S) [Optional]	
I. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. note the number of pieces with defects which can be repaired to number of pieces which will be discarded The user/individual on the job needs to know and understand how to: SA2. read process and equipment manuals to understand the working of the equipment SA3. read measuring instruments reading to identify any deviations from the dimensions given in the product engineering drawing
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA2. read process and equipment manuals to understand the working of the equipment SA3. read measuring instruments reading to identify any deviations from the dimensions given in the product engineering drawing
	Oral Communication (Listening and Speaking skills)

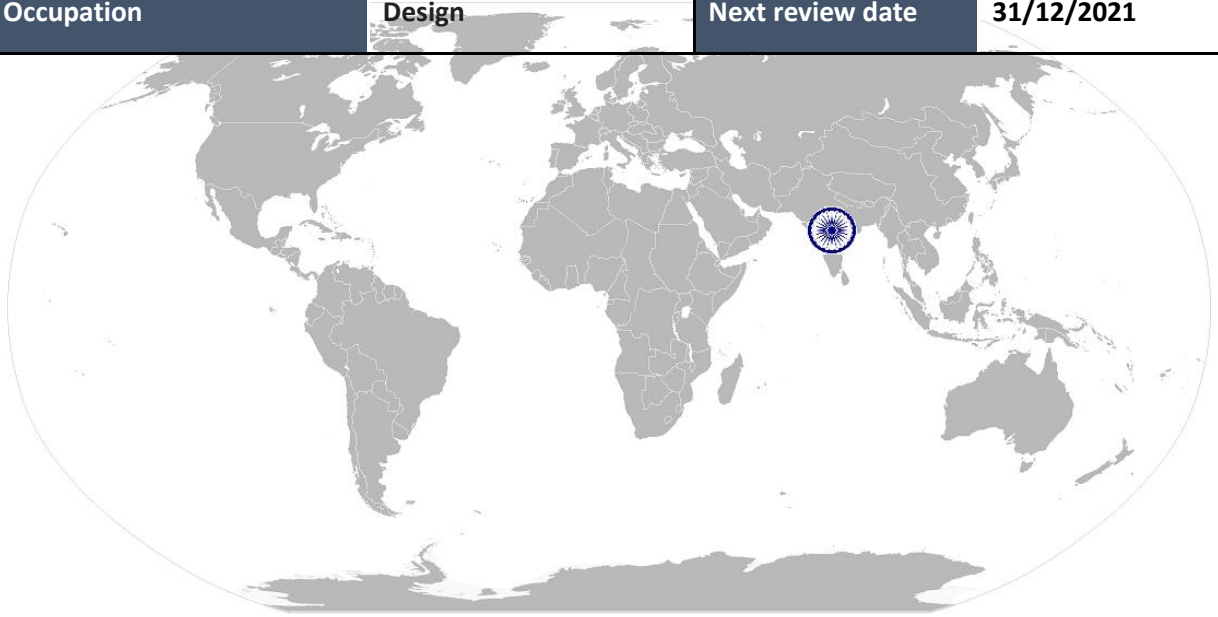
RSC/N4407 (CPC/N3116) Prepare lab model of the mould to verify the process followed for the designing of mould

	The user/individual on the job needs to know and understand how to: SA4. inform supervisor 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
J. Professional Skills	**Plan and Organize**
	The user/individual on the job needs to know and understand how to: SB1. plan and organize the work order and jobs received from the supervisor SB2. organize all process/ equipment manuals so that sorting/ accessing information is easy SB3. keep fixtures, tools, drawings, Work Instructions, SOP manuals as per the part number, colour codes etc as defined under the 5S systems
	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 use reasoning skills to identify and resolve basic problems SB5. carefully analyse the body part for various assembling defects at every station SB6. carefully analyse 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: SB7. identify defective parts in the manufacturing line by comparing manufactured pieces with the work standard SB8. link the defect observed with the overall impact on the performance of the component

RSC/N4407 (CPC/N3116) Prepare lab model of the mould to verify the process followed for the designing of mould

NOS Version Control

NOS Code	**RSC/N4407 (CPC/N3116)**		
Credits (NSQF)	**4**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Design**	**Next review date**	**31/12/2021**



CRITERIA FOR ASSESSMENT OF TRAINEES				
Job Role:Plastic Product and Mould Designer **Qualification Pack Code:RSC/Q4402 (CPC/Q3104)** **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/ N 4401 (CPC/N3104) Communication Skill and Personality development.	PC1.Maintain clear communication with colleagues	2	0.5	1.5
	PC2.Work with colleagues	2	0.5	1.5
	PC3.Pass on information to colleagues in line with organizational requirements	2	0.5	1.5
	PC4. Work in ways that show respect for colleagues	2	0.5	1.5
	PC5. Carry out commitments made to colleagues	2	0.5	1.5
	PC6.Let colleagues know in good time if cannot carry out commitments, explaining the reasons	2	0.5	1.5
	PC7. Identify problems in working with colleagues and take the initiative to solve these problems	2	0.5	1.5
	PC8. Follow the organization's policies and procedures for working with colleagues	2	0.5	1.5
	PC9. Ability to share resources with other members as per priority of tasks	2	0.5	1.5
	PC10. Note down the observations of the basic inspection process and identify pieces which are OK and also not meeting the specified standards	2	0.5	1.5
	PC11. Separate the defective pieces into two categories – pieces which can be repaired/ modified and pieces which are beyond repair,	2	0.5	1.5
	PC12. Discard the pieces which are beyond repair and repair the ones which need minor modifications/ rework	2	0.5	1.5

	PC13. Maintain records of each category of work outputs as per the batch/ cavity etc. so that correction can be organized.	2	0.5	1.5
	PC14. Establish linkage between rejection of output and the pertinent causes for the same (process/ material etc.); Recommend the means for rejection control.	1	0.5	0.5
	PC15. Rectify minor defects like shape deformation, grooves, holes etc. by cutting, finishing etc.	1	0.5	0.5
	PC16. Escalate all issues related to change in surface properties, hardness etc. so that the manufacturing equipment can be reset to achieve the specified output	1	0.5	0.5
	PC17. Provide first and last moulding from each batch to the lab for quality check on its composition, properties etc.	1	0.5	0.5
	PC18. Obtain clearance for the entire batch from the lab	1	0.5	0.5
	Sub total	**31**	**9**	**22**
RSC/N4101 (CPC/N0411): 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 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/N4405 (CPC/N3112)	PC1. Follow the work order (work output) required from the process and discuss the same	13	3	10

Collection of data/information with the concept , layout of impression & Planning of the process for all assembly parts and dies and coordinating with others	with the supervisor			
	PC2. Refer all sketches/ work orders/ process related documents to understand dimensions and properties of the required work output	13	3	10
	PC3. Learn the process requirements in terms of Temperature required for the Mould and Plastics material required and its quantity with its market rate, hydraulic pressure/ air pressure/ vacuum pressure in the machine, weight of the product. injection time, refilling time etc. as mentioned in the Work Instruction/ SOP/ Control Diagrams	13	3	10
	PC4. Follow the does and don'ts in the working area as defined in OPs/ Work Instructions or defined by supervisors	13	3	10
	PC5. Learn the moulding procedure and process to be adopted for completing the work order from the supervisor by referring the Work Instruction document/ SOP manual.	13	3	10
	PC6. Select the raw material like plastics granules, bonding additives etc. required for executing the activity	13	3	10
	PC7. analyze the requirement a new tool such as: • Type of Moulds & Dies • Mechanisms within as per the moulding process • Online gauges if require • Fixtures & associated parts • Robot mechanism required(if require) For facilitating the process of manufacturing for broad classification of process types such as: • Assembly Process • Special processes- Polymer parts, welding, Surface/ Heat treatment.	13	3	10
	PC8. Finalize the required dimension for new required product in plastics as per the application	13	3	10
	PC9. Decide accurate plastic material of the product as per its application	13	3	10
	PC10. Prepare the drawings for the required plastics product using /CAE software.	13	3	10
	PC11. Share the drawings for the Product to the in – house tool room or third party agency (if require) whichever applicable for preview & later for fabrication. Sometimes if require take approval from third party agency/supplier.	13	3	10
	PC12. Keep On the base of work order and the	13	3	10

	discussion had with process engineer ,get the outline dimensions and other details for selected Machine to be used such as Injection Moulding, Extruder, etc. for preparation of drawing			
	PC13. Follow the sequence of operations required for the Moulding process and required moulding machine, devise the mechanism of working for the Mould/die. Sometimes if require prototype mould may also be prepared for checking its working by using wax	13	3	10
	PC14. Finalize the rough dimensions for the mould based on the process requirement, space constraints, aux. main equipment selected for the process by the Process Engineer and the above Product drawing.	13	3	10
	PC15.Prepare the drawings for the required Mould/Dies using CAD/CAE software	13	3	10
	PC16. Share the drawings for the new mould/Dies to the in – house tool room or third party agency whichever applicable for preview. If require discuss the point with Tool Room engineer.	13	3	10
	PC17.On the base of feedback received from process engineer, Tool Room engineer, etc. final dimension of the mould decide.	13	3	10
	PC18. If required, use simulation software for understanding the Mould /Die operation and review the drawings.	13	3	10
	PC19. During design stage , analyze the working of mould/die by CAE software to check end result	13	3	10
	PC20. In case of robotics/ automation application require for mould functioning, finalize the operation sequence program in consultation with the process engineer.	13	3	10
	PC21.Decide In consultation with Process Designer/ Manager required working system for the mould/die like Guiding system, Feed system, Ejection system etc. in injection mould. Type of die, size of mandrel required in extrusion die and shape of bottle and its size in blow moulding.	13	3	10
	PC22.Decide In consultation with Process Designer/ Manager, all the technical dimension of sub parts of the mould/dies as per requirement of sample and process.	13	3	10
	PC23. Decide typical allowances, Fits and tolerance required on matching parts for process trimming, and warpage etc. are considered based	13	3	10

	on requirement & past experience of the machining process.			
	PC24.finalize then inform the in – house tool room or third party agency for reviewing the complete Mould profile , dimensions and accordingly if required update the drawings	13	3	10
	PC25.Adhere any on-line gauges designed as part of this exercise ensure GD & T requirements are adhered to.	13	3	10
	Sub total	**325**	**75**	**250**
RSC/N4406 (CPC/N3115)- Preparation of drawings by using CAD/CAE/CAM software and release it as per the documentation procedure	PC1. Complete the parts- list and drawings / specifications for all the plates/items required for the Mould/Dies	14	4	10
	PC2. Prepare require raw material list with it's require size as per the finished plates/items.	14	4	10
	PC3. Release the drawings of the Mould/Die to Production department/ In – House / user	14	4	10
	PC4.If require, release the model of the core & cavity along with drawing	14	4	10
	PC5.Monitor its development as per machining process in Tool Room for any revisions, clarity required etc.	14	4	10
	PC6.In case of any problem encountered while development of the Mould , usage by Production during process , probe the reasons and if required , modify/re-design in coordination with in – house tool room or third party agency, based on the severity of problem.	14	4	10
	PC7.During assembly of parts of the mould, if further any modification require ,release new sub drawing to overcome the problem	14	4	10
	PC8.After trial of the mould, if any parts of the mould is required to modify, release new drawing of the part with consultant to process engineer	14	4	10
	PC9. In case of any Engineering Change require in the design OR a process or any part dimension change , review the impact on fixture parts / mechanism and decide the action of Rework / re make based on cost and time available / production requirement schedules by the moulds. Check the size, stock and raw material available with the company or in the market.	14	4	10
	PC10.To save the time, the discussion may be done with process engineer, Tool Room engineer analyzer to use the material available in the company by changing the shape /dimension. Re-	14	4	10

	draw the parts and release the issue-II drawing.			
	PC11. Based on the above make the changes in drawing / part-list and order the new parts/ rework with help of Validation/ Process engineer.	14	4	10
	PC12. Make final changes in documentation after trials by declaring successful design by the user and release the change documents as per SOP.	14	4	10
	PC13. In consultation with the process engineer / Tool room /Mould Designer, maintain the performance data of the mould and keep in safe custody for next project	12	2	10
	Sub total	**180**	**50**	**130**
RSC/N4407 (CPC/N3116) – Prepare lab model of the mould to verify the process followed for the designing of mould.	PC1. Measure the specifications of the finished product using devices like micrometers, Vernier calipers, gauges, rulers, weighing scales and any other inspection equipment and compare with the parameters given in the work order	3	1	2
	PC2. Compare texture, surface properties, hardness and strength with the given product specifications	2.5	0.5	2
	PC3. Note down the observations of the basic inspection process and identify pieces which are OK and also not meeting the specified standards	2.5	0.5	2
	PC4. Separate the defective pieces into two categories – pieces which can be repaired/ modified and pieces which are beyond repair,	2.5	0.5	2
	PC5. Discard the pieces which are beyond repair and repair the ones which need minor modifications/ rework	2.5	0.5	2
	PC6. Maintain records of each category of work outputs as per the batch/ cavity etc. so that correction can be organized.	2.5	0.5	2
	PC7. Establish linkage between rejection of output and the pertinent causes for the same (process/ material etc.); Recommend the means for rejection control.	2.5	0.5	2
	PC8. Rectify minor defects like shape deformation, grooves, holes etc. by cutting, finishing etc.	1.5	0.5	1
	PC9. Escalate all issues related to change in surface properties, hardness etc. so that the manufacturing equipment can be reset to achieve the specified output	1.5	0.5	1
	PC10. Provide first and last moulding from each batch to the lab for quality check on its composition, properties etc.	1.5	0.5	1

	PC11. Obtain clearance for the entire batch from the lab	1.5	0.5	1
	Sub total	**24**	**6**	**18**
	Grand total	**600**	**150**	**450**