

Qualification Pack



CAD/ CAM Designer- Plastic Product including toys

Elective: Toy designing

QP Code: RSC/Q8005

QP Version: 2.0

NSQF Level: 5

Rubber, Chemical & Petrochemical Skill Development Council (RCPSDC)217, 2nd Floor, Rectangle One, Saket District Center, New Delhi – 110017, Tel: +91 11 41009347- 48

Qualification Pack

Contents

RSC/Q8005: CAD/ CAM Designer- Plastic Product including toys	2
<i>Brief Job Description</i>	2
Applicable National Occupational Standards (NOS)	2
<i>Compulsory NOS:</i>	2
<i>Elective NOS: Toy designing</i>	2
<i>Qualification Pack (QP) Parameters</i>	2
RSC/N8007: Prepare drawing using CAD/CAM software	4
RSC/N5611: Maintain effectively communicate at the workplace	7
RSC/N5605: Manage housekeeping at workplace	11
RSC/N5609: Manage health and safety practices	18
RSC/N5604: Implement ethical and sustainable practices at workplace	24
RSC/N8008: Design plastic toy using CAD	29
Assessment Guidelines and Assessment Weightage	34
<i>Assessment Guidelines</i>	34
<i>Assessment Weightage</i>	34
Acronyms	36
Glossary	37

Qualification Pack

RSC/Q8005: CAD/ CAM Designer- Plastic Product including toys

Brief Job Description

The individual at work is responsible for designing plastic products including toys using CAD/CAM software.

Personal Attributes

The job requires the individuals to be physically fit, creative, and innovative along with good communication and skills with an eye to detail.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [RSC/N8007: Prepare drawing using CAD/CAM software](#)
2. [RSC/N5611: Maintain effectively communicate at the workplace](#)
3. [RSC/N5605: Manage housekeeping at workplace](#)
4. [RSC/N5609: Manage health and safety practices](#)
5. [RSC/N5604: Implement ethical and sustainable practices at workplace](#)

Elective NOS:

Elective 1: Toy designing

The individual at work responsible for designs plastic toy by using CAD software.

1. [RSC/N8008: Design plastic toy using CAD](#)

Qualification Pack (QP) Parameters

Sector	Rubber, Chemical and Petrochemical
Sub-Sector	Plastic Manufacturing
Occupation	Production/Manufacturing Plastic Processing
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/NIL

Qualification Pack

Minimum Educational Qualification & Experience	ITI (2 years after 10th class) in the relevant field with 3 Years of experience relevant OR 12th Class (Science) with 3 Years of experience relevant OR Diploma ((3 years) in relevant field after class 10th) with 2 Years of experience in relevant field OR Certificate-NSQF (Level 4 - Designer – Plastic Product including toys) with 2 Years of experience relevant
Minimum Level of Education for Training in School	NA
Pre-Requisite License or Training	Designing plastic products
Minimum Job Entry Age	18 Years
Last Reviewed On	30/06/2022
Next Review Date	30/06/2025
NSQC Approval Date	30/06/2022
Version	2.0

RSC/N8007: Prepare drawing using CAD/CAM software

Description

This OS unit is about obtaining and confirming drawing requirements, preparing for drawing work, designing plastic product using CAD, completing CAD operations as per job specification.

Scope

The scope covers the following:

- Confirm drawing requirements
- Prepare for drawing work
- Design plastic product using CAD
- Complete CAD operations

Elements and Performance Criteria

Confirm drawing requirements

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

- PC1.** confirm purpose, scope, and information and presentation requirements for drawing
- PC2.** review available information relevant to project and work requirements, and identify and address further information needs
- PC3.** interpret the technical data of system components to determine parameters to be included in the drawing
- PC4.** identify computing equipment and software used in the organization
- PC5.** examine requirements for presentation of drawings
- PC6.** arrange CAD software, tools and equipment for work in accordance with organizational procedures

Prepare for drawing work

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

- PC7.** record any measurements of components, sub-assemblies, products, models, equipment, layouts or facilities needed for the preparation of the required drawings
- PC8.** calculate the required dimensions and other drafting details based on measurements
- PC9.** check computer peripherals are securely connected to outlet ports and all leads are in good condition following manufacturer's instructions
- PC10.** access software applications following manufacturer's instructions
- PC11.** navigate organizational filing and library system
- PC12.** analyze organizational and software templates
- PC13.** identify organizational symbols, codes and standards to be applied in drafting work
- PC14.** set up working environment as per SOP

Design plastic product using CAD

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

- PC15.** use CAD software program and functions to produce drawing and its elements as per standard protocols
- PC16.** apply editing and transfer tools and methods to modify drawing elements
- PC17.** add dimensions, text and symbols to drawing elements

Qualification Pack

- PC18.** manipulate and alter images in accordance with the scope of the required design to test ideas on the screen using the CAD software
- PC19.** follow standard naming conventions for CAD files and ensure proper organization on computer including saving mechanism
- PC20.** import and export files into/out of working space
- PC21.** generate different views and perspective
- PC22.** organize presentation of work as per organizational standards
- PC23.** review and validate CAD files generated out of reverse engineering
- PC24.** calculate and validate strength analysis of plastic product
- PC25.** record application and testing requirements of plastic product in consideration of end use application

Complete CAD operations

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

- PC26.** save and file drawing elements according to organizational procedures
- PC27.** print drawing elements and evaluate presentation
- PC28.** check drawings for accuracy and compliance with job specifications
- PC29.** create portable document format files for relevant personnel to view completed drawings without using CAD software
- PC30.** submit the drawings to the authorized personnel for approval
- PC31.** modify the drawing, if required
- PC32.** file completed drawings as per organizational procedures
- PC33.** close applications, and perform CAD housekeeping

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** procedure to interpret work requirements
- KU2.** various types and application of peripherals such as printers, plotters, scanners, digitisers and tablets, light pens
- KU3.** design terminology used in building designs for plastic products
- KU4.** relevant industry and organizational standards and codes of practice for producing drawings
- KU5.** fundamentals of CAD software
- KU6.** types of CAD software used for design and detail drafting, their key features and suitability for preparing specific drawing outcomes
- KU7.** various approaches to drawing
- KU8.** capabilities and processes of CAD software
- KU9.** method to manipulate drawing entities and modifying dimension styles
- KU10.** how to create and use layers in CAD software
- KU11.** procedure to prepare advanced drawings in plane orthogonal or equivalent
- KU12.** ways to set up prototype drawings
- KU13.** how to produce hard copies
- KU14.** methods for design calculations to meet end use application (shrinkage calculation)
- KU15.** properties and application of various plastics materials and plastic processing
- KU16.** manufacturing and processing plastic products
- KU17.** process of reverse engineering and prototyping
- KU18.** feasibility of tool design from constraints view point and manufacturability of product

Generic Skills (GS)

Qualification Pack

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

- GS1.** read and interpret job related documents
- GS2.** note down the information communicated by the supervisor
- GS3.** communicate effectively with supervisor and team members

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Confirm drawing requirements</i>	6	6	-	-
PC1. confirm purpose, scope, and information and presentation requirements for drawing /product	1	1	-	-
PC2. review available information relevant to project and work requirements, and identify and address further information needs	1	1	-	-
PC3. interpret the technical data of system components to determine parameters to be included in the drawing	1	1	-	-
PC4. identify computing equipment and software used in the organization	1	1	-	-
PC5. examine requirements for presentation of drawings	1	1	-	-
PC6. arrange CAD software, tools and equipment for work in accordance with organizational procedures	1	1	-	-
<i>Prepare for drawing work</i>	8	16	-	-
PC7. record any measurements of components, sub-assemblies, products, models, equipment, layouts or facilities needed for the preparation of the required drawings	1	2	-	-
PC8. calculate the required dimensions and other drafting details based on measurements	1	2	-	-
PC9. check computer peripherals are securely connected to outlet ports and all leads are in good condition following manufacturer's instructions	1	2	-	-
PC10. access software applications following manufacturer's instructions	1	2	-	-
PC11. navigate organizational filing and library system	1	2	-	-
Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks

Qualification Pack

PC12. analyze organizational and software templates	1	2	-	-
PC13. identify organizational symbols, codes and standards to be applied in drafting work	1	2	-	-
PC14. set up working environment as per SOP	1	2	-	-
<i>Design plastic product using CAD</i>	11	22	-	-
PC15. use CAD software program and functions to produce drawing and its elements as per standard protocols	1	2	-	-
PC16. apply editing and transfer tools and methods to modify drawing elements	1	2	-	-
PC17. add dimensions, text and symbols to drawing elements	1	2	-	-
PC18. manipulate and alter images in accordance with the scope of the required design to test ideas on the screen using the CAD software	1	2	-	-
PC19. follow standard naming conventions for CAD files and ensure proper organization on computer including saving mechanism	1	2	-	-
PC20. import and export files into/out of working space	1	2	-	-
PC21. generate different views and perspective	1	2	-	-
PC22. organize presentation of work as per organizational standards	1	2	-	-
PC23. review and validate CAD files generated out of reverse engineering	1	2	-	-
PC24. calculate and validate strength analysis of plastic product	1	2	-	-
Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks

Qualification Pack

PC25. record application and testing requirements of plastic product in consideration of end use application	1	2	-	-
<i>Complete CAD operations</i>	15	16	-	-
PC26. save and file drawing elements according to organizational procedures	2	2	-	-
PC27. print drawing elements and evaluate presentation	2	2	-	-
PC28. check drawings for accuracy and compliance with job specifications	2	2	-	-
PC29. create portable document format files for relevant personnel to view completed drawings without using CAD software	2	2	-	-
PC30. submit the drawings to the authorized personnel for approval	2	2	-	-
PC31. modify the drawing, if required	2	2	-	-
PC32. file completed drawings as per organizational procedures	2	2	-	-
PC33. close applications, and perform CAD housekeeping	1	2	-	-
NOS Total	40	60	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	RSC/N8007
NOS Name	Prepare drawing using CAD/CAM software
Sector	Rubber, Chemical and Petrochemical
Sub-Sector	Plastic Manufacturing
Occupation	Production/Manufacturing Plastic Processing
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	30/06/2025
NSQC Clearance Date	30/06/2022

Qualification Pack

RSC/N5611: Maintain effectively communicate at the workplace

Description

This OS unit is about communicating effectively with subordinates, colleagues and seniors, at workplace as per standards.

Scope

The scope covers the following:

- Communicate effectively with subordinates, colleagues and seniors

Elements and Performance Criteria

Communicate effectively with subordinates, colleagues and seniors

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

- PC1.** communicate information using different techniques such as face-to-face, telephonic and written means
- PC2.** facilitate respectful communication amongst others, considering the needs of those from diverse backgrounds
- PC3.** ensure all communication is consistent with legislative and organisational requirements
- PC4.** assess and respond appropriately to body language of audience
- PC5.** use active listening skills and questioning techniques to clarify issues or problem areas for resolution
- PC6.** select communication strategies that are appropriate to the social and personal needs of the receiver
- PC7.** apply communication techniques and skills to effectively communicate with individuals and teams, including those of different cultures, according to organizational code of ethics and policies and procedures
- PC8.** make sure communication is clear, concise and accurate
- PC9.** brief subordinates and team members effectively
- PC10.** provide performance feedback and additional support to others when required
- PC11.** seek feedback and assistance from others to improve own communication techniques and work procedures
- PC12.** ensure appropriate usage of agendas and minutes, in accordance with workplace procedures, to convey team decisions to appropriate personnel
- PC13.** identify barriers to communication at workplace and resolve the same
- PC14.** co-ordinate with team to integrate work as per requirements
- PC15.** build effective yet impersonal relationship with subordinates, colleagues and seniors

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** meeting agendas and minutes documentation
- KU2.** various types of workplace communication including communication equipment, document writing and facilitation of team meeting
- KU3.** organizational codes of ethics and policy and procedures relating to effective communication
- KU4.** barriers to effective communication in the workplace
- KU5.** effective interpersonal and group communication processes
- KU6.** meanings of various body language forms
- KU7.** techniques to resolve communication challenges

Qualification Pack

- KU8.** methods and techniques to participate in workplace discussions, including active listening, questioning and providing feedback
- KU9.** presentation methods to present and convey workplace information or instructions
- KU10.** communication methods suited to audience and workplace requirement

Generic Skills (GS)

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

- GS1.** read job sheets, organization policy documents, information displayed at the workplace and
- GS2.** fill up documentation pertaining to job requirement

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicate effectively with subordinates, colleagues and seniors</i>	40	60	-	-
PC1. communicate information using different techniques such as face-to-face, telephonic and written means	3	4	-	-
PC2. facilitate respectful communication amongst others, considering the needs of those from diverse backgrounds	3	4	-	-
PC3. ensure all communication is consistent with legislative and organisational requirements	2	4	-	-
PC4. assess and respond appropriately to body language of audience	3	4	-	-
PC5. use active listening skills and questioning techniques to clarify issues or problem areas for resolution	3	4	-	-
PC6. select communication strategies that are appropriate to the social and personal needs of the receiver	2	4	-	-
PC7. apply communication techniques and skills to effectively communicate with individuals and teams, including those of different cultures, according to organizational code of ethics and policies and procedures	3	4	-	-
PC8. make sure communication is clear, concise and accurate	3	4	-	-
PC9. brief subordinates and team members effectively	2	4	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. provide performance feedback and additional support to others when required	3	4	-	-
PC11. seek feedback and assistance from others to improve own communication techniques and work procedures	3	4	-	-
PC12. ensure appropriate usage of agendas and minutes, in accordance with workplace procedures, to convey team decisions to appropriate personnel	2	4	-	-
PC13. identify barriers to communication at workplace and resolve the same	3	4	-	-
PC14. co-ordinate with team to integrate work as per requirements	2	4	-	-
PC15. build effective yet impersonal relationship with subordinates, colleagues and seniors	3	4	-	-
NOS Total	40	60	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	RSC/N5611
NOS Name	Maintain effectively communicate at the workplace
Sector	Rubber, Chemical and Petrochemical
Sub-Sector	Generic
Occupation	Generic
NSQF Level	6
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	30/06/2025
NSQC Clearance Date	30/06/2022

RSC/N5605: Manage housekeeping at workplace

Description

This unit is about managing housekeeping activities.

Scope

The scope covers the following:

- Manage housekeeping preparatory activities
- Supervise housekeeping activities
- Supervise post-housekeeping activities

Elements and Performance Criteria

Manage housekeeping preparatory activities

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

- PC1.** ensure that all the material and equipment required for cleaning are available in stock all the time
- PC2.** ensure that the cleaning equipment is in proper working condition
- PC3.** support the team in identifying suitable alternatives for cleaning the areas in case the appropriate equipment and materials are not available and inform the concerned person
- PC4.** prepare, plan and schedule for cleaning the area
- PC5.** make arrangements to inform the affected people about the cleaning activity
- PC6.** ensure that relevant safety boards/signs are placed on the shop floor for the safety of self and others
- PC7.** ensure that adequate ventilation is available at workplace for carrying out cleaning work

Supervise housekeeping activities

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

- PC8.** ensure that team is wearing appropriate personal protective equipment for cleaning work
- PC9.** monitor that team is following correct cleaning method for the work area, types of soiling and surface
- PC10.** manage the accidental damage, if any, caused during the cleaning work
- PC11.** report to the appropriate person in case of any difficulties during cleaning or any additional cleaning is required, which is outside the scope of one's responsibility or skill

Supervise post-housekeeping activities

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

- PC12.** check that there is no oily substance left on the floor to avoid slippage
- PC13.** ensure that no scrap material is lying around
- PC14.** observe that team is following workplace procedures to deal with any accidental damage caused during the cleaning process
- PC15.** check that the area is clean, dry and meet the requirements after completion of work
- PC16.** ensure that team is returning back the equipment, materials and personal protective equipment to store as per organisational procedures
- PC17.** ensure that proper mechanism is followed while collecting and disposing off waste
- PC18.** update and maintain schedules and records for housekeeping duty
- PC19.** check that necessary supplies or consumables are filled everytime for use

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organisation cleaning standards and procedures
- KU2.** importance of completing the activities as per the schedule
- KU3.** implications of not following the defined procedures/work instructions
- KU4.** health, safety and environment guidelines, legislation and regulations as applicable
- KU5.** the levels of hygiene required by a workplace and why it is important to maintain them during work
- KU6.** how to inspect a work area to decide what type of cleaning it needs
- KU7.** methods and materials used for cleaning a variety of surfaces
- KU8.** SOP recommended by the manufacturer for using cleaning equipment and/or machinery during cleaning work
- KU9.** appropriate personal protective equipment for work area, cleaning equipment, tools, materials and chemicals used
- KU10.** the correct sequence for cleaning the work area
- KU11.** importance of following the manufacturer's instructions on cleaning agents
- KU12.** the most appropriate place to carry out test cleans and why this should be done before applying treatments
- KU13.** method to check the treated surface and equipment on completion of cleaning
- KU14.** the various materials used and their storage norms
- KU15.** waste management techniques
- KU16.** how to record data on waste disposal at workplace
- KU17.** various statutory documents relevant to safety and hygiene

Generic Skills (GS)

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

- GS1.** read safety instructions/guidelines
- GS2.** modify work practices to improve them
- GS3.** work with seniors/team members to carry out work related tasks
- GS4.** complete tasks efficiently and accurately within stipulated time
- GS5.** inform/report to concerned person in case of any problem
- GS6.** make timely decisions for efficient utilization of resources
- GS7.** write reports such as accident report, in at least English/regional language
- GS8.** organize work schedule, work area, tools, equipment and material to minimize health and safety risk
- GS9.** analyze untoward incidents from the past and follow correct procedures in handling machines, tools or hazardous chemicals

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Manage housekeeping preparatory activities</i>	16	21	-	-
PC1. ensure that all the material and equipment required for cleaning are available in stock all the time	2	3	-	-
PC2. ensure that the cleaning equipment is in proper working condition	2	2	-	-
PC3. support the team in identifying suitable alternatives for cleaning the areas in case the appropriate equipment and materials are not available and inform the concerned person	2	2	-	-
PC4. prepare, plan and schedule for cleaning the area	3	4	-	-
PC5. make arrangements to inform the affected people about the cleaning activity	2	2	-	-
PC6. ensure that relevant safety boards/signs are placed on the shop floor for the safety of self and others	3	4	-	-
PC7. ensure that adequate ventilation is available at workplace for carrying out cleaning work	2	4	-	-
<i>Supervise housekeeping activities</i>	8	13	-	-
PC8. ensure that team is wearing appropriate personal protective equipment for cleaning work	2	2	-	-
PC9. monitor that team is following correct cleaning method for the work area, types of soiling and surface	2	2	-	-
PC10. manage the accidental damage, if any, caused during the cleaning work	2	7	-	-
PC11. report to the appropriate person in case of any difficulties during cleaning or any additional cleaning is required, which is outside the scope of one's responsibility or skill	2	2	-	-
<i>Supervise post-housekeeping activities</i>	16	26	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. check that there is no oily substance left on the floor to avoid slippage	2	5	-	-
PC13. ensure that no scrap material is lying around	2	5	-	-
PC14. observe that team is following workplace procedures to deal with any accidental damage caused during the cleaning process	2	3	-	-
PC15. check that the area is clean, dry and meet the requirements after completion of work	2	4	-	-
PC16. ensure that team is returning back the equipment, materials and personal protective equipment to store as per organisational procedures	2	2	-	-
PC17. ensure that proper mechanism is followed while collecting and disposing off waste	2	2	-	-
PC18. update and maintain schedules and records for housekeeping duty	2	2	-	-
PC19. check that necessary supplies or consumables are filled every time for use	2	3	-	-
NOS Total	40	60	-	-

National Occupational Standards (NOS) Parameters

NOS Code	RSC/N5605
NOS Name	Manage housekeeping at workplace
Sector	Rubber
Sub-Sector	Generic
Occupation	Generic
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	30/06/2025
NSQC Clearance Date	30/06/2022

RSC/N5609: Manage health and safety practices

Description

This unit is about maintaining health and safety of self and others at workplace.

Scope

The scope covers the following:

- Maintain safe and secure working environment
- Follow appropriate emergency procedures
- Maintain health and hygiene

Elements and Performance Criteria

Maintain safe and secure working environment

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

- PC1.** identify hazardous activities and the possible causes of risks or accidents in the workplace
- PC2.** implement safe working practices for dealing with hazards to ensure safety of self and others
- PC3.** ensure that regular checks of the machines are conducted to identify potential hazards
- PC4.** ensure that team is using equipment and materials safely and correctly and returning the same to designated store when not in use
- PC5.** ensure that team is handling heavy and hazardous materials with care and by using appropriate tools and handling equipment such as trolleys, ladders
- PC6.** ensure that the team is following all safety guidelines while using the tools and equipment

Follow appropriate emergency procedures

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

- PC7.** report any accidents, incidents or problems and take immediate necessary action to reduce further danger
- PC8.** respond promptly and appropriately to an accident or medical emergency
- PC9.** use emergency equipment in accordance with manufacturers' specifications and workplace requirements
- PC10.** provide appropriate first aid procedure to victims wherever required eg.in case of bleeding, burns, choking, electric shock etc.
- PC11.** organise safety drills or training sessions to create awareness amongst others on the identified risks and safety practices
- PC12.** encourage team and ensure that the team attends the safety drills

Maintain health and hygiene

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

- PC13.** inspect workplace for any leakages, water logging, pests, fire, pollution, etc. and take preventive actions and other steps
- PC14.** ensure workplace, equipment, restrooms etc. are sanitized regularly
- PC15.** ensure team is following hygiene and sanitation regulations and following them on the shop floor
- PC16.** ensure team is following proper hygiene and sanitation practices while working

- PC17.** ensure that workplace is organized, clean and hazard free
- PC18.** report advanced hygiene and sanitation issues to appropriate authority
- PC19.** use and dispose of Personal Protective Equipment (PPE) as required during a pandemic

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organisation procedures for health, safety and security, individual role and responsibilities in this context
- KU2.** the organisation's emergency procedures for different emergency situations and the importance of following the same
- KU3.** workplace procedures and requirements for the handling of workplace injuries/illnesses.
- KU4.** evacuation procedures for workers and visitors
- KU5.** how and when to report hazards as well as the limits of responsibility for dealing with hazards
- KU6.** potential hazards, risks and threats based on the nature of work
- KU7.** various types of fire extinguisher
- KU8.** various types of safety signs and their meaning
- KU9.** appropriate first aid treatment relevant to different condition e.g. bleeding, minor burns, eye injuries etc.
- KU10.** how to maintain work area safe and secure
- KU11.** the various materials used and their storage norms
- KU12.** personal hygiene and fitness requirements
- KU13.** the correct and safe way to use materials and equipment required for work
- KU14.** the importance of good housekeeping in the workplace
- KU15.** importance of using protective clothing/ equipment while working
- KU16.** how to use machines and tools without causing any accident
- KU17.** how to record data on waste disposal at workplace
- KU18.** various statutory documents relevant to safety and hygiene

Generic Skills (GS)

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

- GS1.** read safety instructions/guidelines
- GS2.** modify work practices to improve them
- GS3.** work with seniors/team members to carry out work related tasks
- GS4.** complete tasks efficiently and accurately within stipulated time
- GS5.** inform/report to concerned person in case of any problem
- GS6.** make timely decisions for efficient utilization of resources
- GS7.** write reports such as accident report, in at least English/regional language
- GS8.** organize work schedule, work area, tools, equipment and material to minimize health and safety risk
- GS9.** analyze untoward incidents from the past and follow correct procedures in handling machines, tools or hazardous chemicals

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain safe and secure working environment</i>	11	21	-	-
PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace	2	5	-	-
PC2. implement safe working practices for dealing with hazards to ensure safety of self and others	2	5	-	-
PC3. ensure that regular checks of the machines are conducted to identify potential hazards	2	2	-	-
PC4. ensure that team is using equipment and materials safely and correctly and returning the same to designated store when not in use	2	4	-	-
PC5. ensure that team is handling heavy and hazardous materials with care and by using appropriate tools and handling equipment such as trolleys, ladders	2	3	-	-
PC6. ensure that the team is following all safety guidelines while using the tools and equipment	1	2	-	-
<i>Follow appropriate emergency procedures</i>	10	25	-	-
PC7. report any accidents, incidents or problems and take immediate necessary action to reduce further danger	2	6	-	-
PC8. respond promptly and appropriately to an accident or medical emergency	1	2	-	-
PC9. use emergency equipment in accordance with manufacturers' specifications and workplace requirements	1	5	-	-
PC10. provide appropriate first aid procedure to victims wherever required eg.in case of bleeding, burns, choking, electric shock etc.	2	6	-	-
PC11. organise safety drills or training sessions to create awareness amongst others on the identified risks and safety practices	2	3	-	-
PC12. encourage team and ensure that the team attends the safety drills	2	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain health and hygiene</i>	9	24	-	-
PC13. inspect workplace for any leakages, water logging, pests, fire, pollution, etc. and take preventive actions and other steps	2	5	-	-
PC14. ensure workplace, equipment, restrooms etc. are sanitized regularly	1	3	-	-
PC15. ensure team is following hygiene and sanitation regulations and following them on the shop floor	2	3	-	-
PC16. ensure team is following proper hygiene and sanitation practices while working	-	4	-	-
PC17. ensure that workplace is organized, clean and hazard free	1	4	-	-
PC18. report advanced hygiene and sanitation issues to appropriate authority	1	3	-	-
PC19. use and dispose of Personal Protective Equipment (PPE) as required during a pandemic	2	2	-	-
NOS Total	30	70	-	-

National Occupational Standards (NOS) Parameters

NOS Code	RSC/N5609
NOS Name	Manage health and safety practices
Sector	Rubber
Sub-Sector	Generic
Occupation	Generic
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	30/06/2025
NSQC Clearance Date	30/06/2022

RSC/N5604: Implement ethical and sustainable practices at workplace

Description

This unit is about implementing appropriate greening, PwD and behavioural practices at work

Scope

The scope covers the following:

- Implement resource conservation practices (Greening)
- Implement effective waste management practices
- Display behavioural skills
- Respect gender and ability differences

Elements and Performance Criteria

Implement resource conservation policies and practices (Greening)

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

- PC1.** ensure that team is following organizational policies for usage of alternate energy source, such as solar energy, for the site
- PC2.** identify possibilities of using renewable energy and environment friendly fuels
- PC3.** identify processes where material and energy/electricity utilization can be optimized
- PC4.** ensure water conservation practices are followed at work place
- PC5.** identify and implement processes to prevent soil erosion during plantation and other activities

Implement effective waste management practices

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

- PC6.** ensure that team identifies the different types of waste such as recyclable, non-recyclable, and hazardous waste generated
- PC7.** ensure recyclable, non-recyclable and hazardous wastes are segregated as per SOP
- PC8.** ensure proper mechanism is followed while collecting and disposing of non-recyclable, recyclable and reusable waste
- PC9.** organise and arrange proper storage facilities for recyclable and reusable material at identified location
- PC10.** ensure proper mechanism is followed while collecting and disposing of hazardous waste

Display behavioural Skills

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

- PC11.** determine the importance of accountability for timely completion of tasks
- PC12.** ensure that work requirements are clearly communicated to the team members through all means including face-to-face, telephonic and written

Respect gender and ability differences

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

- PC13.** ensure team shows sensitivity towards all genders and PwD
- PC14.** adjust communication styles to reflect gender sensitivity and sensitivity towards person with disability

PC15. help PwD team members to overcome the challenges, if asked

PC16. ensure that team is following the rules and guidelines in case of contagious disease outbreak

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** alternate energy sources (such as solar and wind energy) and their advantages
- KU2.** alternate fuels (such as bio-fuel), their production and consumption for cluster sites
- KU3.** harmful effect (such as pollution) of using fuel such as diesel on the environment and ways to prevent it
- KU4.** efficient utilisation of resources
- KU5.** water harvesting techniques and common practices of conserving water
- KU6.** different types of waste and the ways to identify the same
- KU7.** categorisation of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics
- KU8.** usage of different colours of dustbins
- KU9.** waste management and methods of waste disposal
- KU10.** accompanying states of emotions i.e. physical state, thoughts and feelings
- KU11.** gender based concepts, issues and legislation
- KU12.** statutory laws (Rights of Persons with disability Act, 2016), acts (National Trust for welfare of person with Autism, Cerebral Palsy, Mental Retardation and MultipalDisability Act, 1999, Rehabilitation Council of India Act, 1992, The person with disabilities (PWD), and provisions defined for PwD
- KU13.** rules and guidelines to be followed during outbreak/pandemic such as maintaining social distance etc.
- KU14.** the importance and mechanism of proper collection, transportation and safe disposal of waste
- KU15.** symptoms of disease outbreak/pandemic

Generic Skills (GS)

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

- GS1.** make timely decisions for efficient utilization of resources
- GS2.** write in English/regional language and complete written work with attention to detail
- GS3.** communicate with colleagues on the significance of greening of jobs
- GS4.** identify cause and effect of greening of jobs
- GS5.** record data on waste disposal at workplace
- GS6.** be punctual, utilize time and manage workload efficiently
- GS7.** evaluate strategies to maintain, enhance or reduce the intensity of heightened emotional response
- GS8.** interact with all stakeholders in a polite and courteous manner
- GS9.** provide support in dealing with stress and anxiety during pandemic
- GS10.** help colleagues to work efficiently
- GS11.** create awareness about maintaining hygiene at workplace

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Implement resource conservation policies and practices (Greening)</i>	11	23	-	-
PC1. ensure that team is following organizational policies for usage of alternate energy source, such as solar energy, for the site	3	-	-	-
PC2. identify possibilities of using renewable energy and environment friendly fuels	2	6	-	-
PC3. identify processes where material and energy/electricity utilization can be optimized	2	6	-	-
PC4. ensure water conservation practices are followed at work place	2	5	-	-
PC5. identify and implement processes to prevent soil erosion during plantation and other activities	2	6	-	-
<i>Implement effective waste management practices</i>	10	12	-	-
PC6. ensure that team identifies the different types of waste such as recyclable, non-recyclable, and hazardous waste generated	2	4	-	-
PC7. ensure recyclable, non-recyclable and hazardous wastes are segregated as per SOP	2	4	-	-
PC8. ensure proper mechanism is followed while collecting and disposing of non-recyclable, recyclable and reusable waste	2	4	-	-
PC9. organise and arrange proper storage facilities for recyclable and reusable material at identified location	2	-	-	-
PC10. ensure proper mechanism is followed while collecting and disposing of hazardous waste	2	-	-	-
<i>Display behavioural Skills</i>	3	3	-	-
PC11. determine the importance of accountability for timely completion of tasks	2	-	-	-
PC12. ensure that work requirements are clearly communicated to the team members through all means including face-to-face, telephonic and written	1	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Respect gender and ability differences</i>	9	10	-	-
PC13. ensure team shows sensitivity towards all genders and PwD	2	5	-	-
PC14. adjust communication styles to reflect gender sensitivity and sensitivity towards person with disability	2	5	-	-
PC15. help PwD team members to overcome the challenges, if asked	2	-	-	-
PC16. ensure that team is following the rules and guidelines in case of contagious disease outbreak	3	-	-	-
NOS Total	33	48	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	RSC/N5604
NOS Name	Implement ethical and sustainable practices at workplace
Sector	Rubber
Sub-Sector	Generic
Occupation	Generic
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	30/06/2025
NSQC Clearance Date	30/06/2022

Qualification Pack

RSC/N8008: Design plastic toy using CAD

Description

This OS unit is about preparing for toy designing the toy, preparing 3-D model of toy, completing CAD operations for toy designing as per specifications.

Scope

The unit/ task covers the following:

- Prepare for toy designing
- Prepare 3-D model of toy
- Complete CAD operations for toy designing

Elements and Performance Criteria

Prepare for toy designing

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

- PC1.** obtain and interpret job specification and blueprint
- PC2.** determine the required design, detailed drawings, modelling and layouts from job specifications
- PC3.** review toy design brief and parameters to determine drawing and documentation requirements
- PC4.** identify and prepare equipment and CAD software required to complete the work
- PC5.** apply workplace procedures to retrieve and manipulate required information and navigate CAD technology
- PC6.** examine sketches, drawings and other information and confirm calculations and measurements
- PC7.** select and prepare computing equipment and suitable software for plastic toy designs
- PC8.** prepare toy drawings as per requirement, including solid modelling
- PC9.** ensure the drawings comply with relevant tests and standards for toy products
- PC10.** review and validate CAD files generated out of reverse engineering
- PC11.** calculate and validate strength analysis of plastic product
- PC12.** record application and testing requirements of plastic product in consideration of end use application

Prepare 3-D model of toy

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

- PC13.** set up a 3-D environment on the screen to allow multiple viewing
- PC14.** manipulate drawing planes and insert 3-D geometric shapes to create 3-D view
- PC15.** draw on any plane of the 3-D view
- PC16.** use editing functions to modify 3-D geometric shapes in creating 3-D view
- PC17.** produce displays in isometric, perspective and orthographic projections
- PC18.** establish coordinate system and orientation according to job specifications
- PC19.** extract physical properties to job requirement, including volume, mass and center of gravity
- PC20.** edit solid models of toy components as per requirement
- PC21.** use principles of perspective to enhance the spatial illusion of toy in space
- PC22.** apply rendering techniques to render solid model to a specified set of criteria

Qualification Pack

- PC23.** produce 3-D drawings incorporating section views with all necessary annotation
- PC24.** simulate the toy design using CAD for appropriate requirements and smooth movements
- PC25.** perform stress analysis using CAD to determine the parts in the assembly that are subjected to most amount of stress
- PC26.** alter the design to reduce any breakages in the prototype

Complete CAD operations for toy designing

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

- PC27.** ensure the toy model accurately reflects specifications, contains all relevant information, and is presented according to work requirements
- PC28.** evaluate work and identify areas for improvement
- PC29.** save and file drawings to allow easy access according to organizational documentation system
- PC30.** submit the drawing for approval and modify, as required

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** fundamentals of CAD software
- KU2.** purpose for which the 3-D toy model is to be developed
- KU3.** toy modelling techniques
- KU4.** appropriate coordinate system for the job
- KU5.** orientation of the model with respect to the coordinate system
- KU6.** procedures for creating and manipulating entities in 3-D space
- KU7.** rendering types and preferences, render lighting techniques, views and scenes
- KU8.** procedures for saving drawing files
- KU9.** various formats in which drawing files can be saved
- KU10.** physical properties of shapes created in 3-D space that can be extracted from the drawing file
- KU11.** procedure to create simulations and perform stress analysis using CAD
- KU12.** hazard and control measures associated with using CAD system, including housekeeping
- KU13.** national and international standards for toy manufacturing
- KU14.** methods for design calculations to meet end use application (shrinkage calculation)
- KU15.** properties and application of various plastics materials and plastic processing
- KU16.** manufacturing and processing plastic products
- KU17.** process of reverse engineering and prototyping
- KU18.** feasibility of tool design from constraints view point and manufacturability of product

Generic Skills (GS)

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

- GS1.** read and interpret job related documents
- GS2.** note down the information communicated by the supervisor
- GS3.** communicate effectively with supervisor and team members

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for toy designing</i>	12	18	-	-
PC1. obtain and interpret job specification and blueprint	1	1	-	-
PC2. determine the required design, detailed drawings, modelling and layouts from job specifications	1	1	-	-
PC3. review toy design brief and parameters to determine drawing and documentation requirements	1	1	-	-
PC4. identify and prepare equipment and CAD software required to complete the work	1	1	-	-
PC5. apply workplace procedures to retrieve and manipulate required information and navigate CAD technology	1	1	-	-
PC6. examine sketches, drawings and other information and confirm calculations and measurements	1	1	-	-
PC7. select and prepare computing equipment and suitable software for plastic toy designs	1	2	-	-
PC8. prepare toy drawings as per requirement, including solid modelling	1	2	-	-
PC9. ensure the drawings comply with relevant tests and standards for toy products	1	2	-	-
PC10. review and validate CAD files generated out of reverse engineering	1	2	-	-
PC11. calculate and validate strength analysis of plastic product	1	2	-	-
PC12. record application and testing requirements of plastic product in consideration of end use application	1	2	-	-
<i>Prepare 3-D model of toy</i>	22	33	-	-
PC13. set up a 3-D environment on the screen to allow multiple viewing	1	2	-	-
PC14. manipulate drawing planes and insert 3-D geometric shapes to create 3-D view	1	2	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. draw on any plane of the 3-D view	1	3	-	-
PC16. use editing functions to modify 3-D geometric shapes in creating 3-D view	1	3	-	-
PC17. produce displays in isometric, perspective and orthographic projections	1	3	-	-
PC18. establish coordinate system and orientation according to job specifications	1	2	-	-
PC19. extract physical properties to job requirement, including volume, mass and center of gravity	2	2	-	-
PC20. edit solid models of toy components as per requirement	2	2	-	-
PC21. use principles of perspective to enhance the spatial illusion of toy in space	2	2	-	-
PC22. apply rendering techniques to render solid model to a specified set of criteria	2	2	-	-
PC23. produce 3-D drawings incorporating section views with all necessary annotation	2	2	-	-
PC24. simulate the toy design using CAD for appropriate requirements and smooth movements	2	2	-	-
PC25. perform stress analysis using CAD to determine the parts in the assembly that are subjected to most amount of stress	2	3	-	-
PC26. alter the design to reduce any breakages in the prototype	2	3	-	-
<i>Complete CAD operations for toy designing</i>	6	9	-	-
PC27. ensure the toy model accurately reflects specifications, contains all relevant information, and is presented according to work requirements	1	3	-	-
PC28. evaluate work and identify areas for improvement	2	3	-	-
PC29. save and file drawings to allow easy access according to organizational documentation system	1	2	-	-
PC30. submit the drawing for approval and modify, as required	2	1	-	-
NOS Total	40	60	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	RSC/N8008
NOS Name	Design plastic toys using CAD
Sector	Rubber, Chemical and Petrochemical
Sub-Sector	Plastic Manufacturing
Occupation	Production/Manufacturing Plastic Processing
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	30/06/2025
NSQC Clearance Date	30/06/2022

Qualification Pack

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each Element/ PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Recommended Pass % aggregate for QP: 70

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
RSC/N8007: Prepare drawing using CAD/CAM software	40	60	0	0	100	20
RSC/N5611: Maintain effectively communicate at the workplace	40	60	0	0	100	15

Qualification Pack

RSC/N5605: Manage housekeeping at workplace	40	60	0	0	100	15
RSC/N5609: Manage health and safety practices	30	70	0	0	100	15
RSC/N5604: Implement ethical and sustainable practices at workplace	40	60	0	0	100	15
Total	190	310	0	0	500	80

Elective NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
RSC/N8008: Design plastic toy using CAD	40	60	0	0	100	20
Total	40	60	0	0	100	20

Qualification Pack

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
SOP	Standard operating procedure

Qualification Pack

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.

Qualification Pack

Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements that together specify the technical, generic, professional and organisational specific knowledge that an individual need in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication-related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.