APPRENTICESHIP CURRICULUM (OPTIONAL TRADE)

Rubber

Designer_Plastic Product

Course Code: CO102200003

☐NAPS ☐Non-NAPS

NSQF Level: 4

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Course Details

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<tr><td>2.</td><td>Course Code</td><td>CO102200003</td></tr>
<tr><td>3.</td><td>Apprenticeship Training Duration:
(2 to 4 weeks of BT is embedded in this duration as per the requirement of the establishment)</td><td>Months: 12 months</td></tr>
<tr><td></td><td>Remarks</td><td></td></tr>
<tr><td>4.</td><td>Credit</td><td>TBD</td></tr>
<tr><td>5.</td><td>NSQF Level (Mandatory for NAPS)</td><td>4 NSQC Approval Date: 30/12/2021</td></tr>
<tr><td>6.</td><td>Related NSQF aligned qualification details</td><td><table><tr><th>S. No.</th><th>QP/ Qualification/ NOS Name (As applicable)</th><th>QP/ NOS Code & Version</th><th>NQR Code</th></tr><tr><td>1.</td><td>Designer - Plastic Product</td><td>RSC/Q8004_V2</td><td>2021/RUB/RSDC/04889</td></tr></table></td></tr>
<tr><td>7.</td><td>Brief Job Role Description</td><td>The individual at work is responsible for preparing the drawing for various plastic products using applicablesoftware.</td></tr>
<tr><td>8.</td><td>NCO-2015 Code & Occupation (Access the NCO 2015 volumes from: https://labour.gov.in/organizationsofmole/directorate-general-employment-training-dget)</td><td>NCO-2015/NIL</td></tr>
<tr><td>9.</td><td>Minimum Eligibility Criteria
(Educational and/ or Technical Qualification)</td><td>12th Class (Science)
OR
I.T.I ((two years after Class 10th) in relevant trade)
OR
Certificate-NSQF (Level 3 - Jr. Designer- PlasticProduct) with 2 Years of experience relevant</td></tr>
</table>

10.	**Entry Age for Apprenticeship**	*18 years*
11.	**Any Licensing Requirements** (*wherever applicable*)	NA
12.	**Is the Job Role amenable to Persons with Disability**	☐ **Yes** ☒ **No** **If yes, check the applicable type of Disability** ☐ **Locomotor Disability** ☐ **Leprosy Cured Person** ☐ **Cerebral Palsy** ☐ **Dwarfism** ☐ **Muscular Dystrophy** ☐ **Acid Attack Victims** ☐ **Blindness** ☐ **Low Vision** ☐ **Deaf** ☐ **Hard of Hearing** ☐ **Speech and Language Disability** ☐ **Intellectual Disability** ☐ **Specific Learning Disabilities** ☐ **Autism Spectrum Disorder** ☐ **Mental Illness** ☐ **Multiple Sclerosis** ☐ **Parkinson's Disease** ☐ **Haemophilia** ☐ **Thalassemia** ☐ **Sickle Cell Disease** ☐ **Multiple Disabilities**
		Remarks:
13.	**Submitting Body Details**	**Name:** Rubber, Chemical & Petrochemical Skill Development Council **E-mail ID:** ceo@rcpsdc.in **Contact Number:** 011-41009347- 48
14.	**Certifying Body**	Rubber, Chemical & Petrochemical Skill development Council
15.	**Employment Avenues/Opportunities**	**Self-Employment**:

		Trainees can also start their own business and also provide jobs to other people. **Rubber Product Finishing** Jobs Opportunities in private companies: The trainees can get a job in a corporate as Designer - Plastic Product
16.	**Career Progression**	Designer - Plastic Product • CAD/ CAM Designer- Plastic Product • Assistant Manager- Plastic Product Design • Design Manager
17.	**Trainer's Qualification & Experience:**	Diploma - Any stream in Engineering Or 5 Years' experience in relevant diploma
18.	**Curriculum Creation Date**	28/09/2022
19.	**Curriculum Valid up to Date**	30/12/2024

Module Details

S. No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
1.	Introduction	• Discuss the objectives and benefits of the Skill India Mission • Describe the scope of the Plastic Industry and its sub-sectors • Discuss job role and opportunities for Designer - Plastic Product for Plastic in Plastic Manufacturing sector • List the basic terminology used in Plastic Manufacturing sector	00	00	00	00
2.	Prepare technical drawing for plastic product RSC/N8004, v 1.0	• List various types of thermoplastics, thermosets -and the additives to be used in designing of plastic product • Discuss the fundamentals of engineering drawing, design techniques, tools, and principles involved in preparing design of plastic product along with the techniques to analyze mould material specifications, sketches, engineering drawings, idea, etc. • Explain different stages involved in the product design process along with various manufacturing and processing methods such as Injection moulding, compression moulding, etc.-type of mould to be used, machining steps involved • Discuss the ways of obtaining and interpreting the work order to understand dimensions and properties of the required work output • Explain the methods of determining the manufacturing methods and enduse specifications and properties for the product to be designed like required strength, exposure to chemicals or harsh environments, appearance requirements, dimensional tolerances etc. • Elaborate the methods to draw rough sketch and perform mathematical computations to develop product design • Describe the methods of evaluating feasibility of design ideas, based on factors such as appearance, safety, function, serviceability, product life expectance' budget, production costs/methods, and market characteristics	40	60	70%	70%

S. No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
		• Explain the methods of using CAD and CAM software for preparing the plastic product and producing threedimensional models, using the software • Describe the procedure of verifying the design and functionality of the product through engineering and computer simulation and submit finalized plastic product tool mould drawing to supervisor for approval • Apply appropriate approaches to finalize the required dimensions with tolerance of shrinkage 'expansion' and other design requirements with the authorized person • Create a sample design brief considering design requirements • Employ proper process to test and seek feedback on design ideas from the authorized person • Prepare sample rough sketches, final product specifications, production plans and drawings for the required plastics product using drafting instruments or computer-aided engineering and prototype if required • Apply proper process to direct and coordinate the fabrication of models or samples and the drafting of working drawings and specification sheets from sketches • Employ appropriate techniques to lay out and draw schematic, orthographic, or angle views to depict functional relationships of components and assemblies • Apply proper methods to modify and refine designs, using working models, to conform with customer specifications, production limitations, or changes in design trends and preview the proposed product through CAD modeling and 3D printing • Role play on how to present designs and reports to customers or design committees for approval and discuss need for modification • Apply proper practices to make changes in the drawing as per the feedback received from supervisor and resubmit drawing again for final approval • Explain the standard procedure to coordinate with supervisor and team members				

S. No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
		• Explain standard escalation matrix • Discuss the dos and don'ts of the work area • Explain the methods of modifying and revising designs to correct operational deficiencies or to reduce production problems • Discuss various formats of documents to be maintained while designing a product • Apply proper process to release approved drawings of the plastic product to production department/user along with model of the core & cavity • Employ appropriate methods to monitor product development as per machining process for any revisions, clarity required, etc. • Apply appropriate process to modify the drawing as per supervisor's feedback and release new sub drawing after getting written confirmation from the customer as per standard procedure • Employ proper methods to maintain records of the plastic product drawing development and modification of the drawing • Role play on how to report problem/concerns regarding plastic product designing to the supervisor				
3.	Coordinate and communicate effectively atthe workplace RSC/N5610, v 1.0	• Explain the standard policies on behavioural etiquette, professionalism and gender sensitive service practices at workplace and standard hierarchy and reporting structure • Discuss effective ways of team coordination • List the key helpline numbers • State the significance of listening, responding, trusting, supporting and respecting all colleagues and seniors • Outline the importance of maintaining clarity, honesty and transparency while communicating with the seniors and colleagues as well as seeking clarification on the information provided by seniors • Discuss the importance of complying with standard policies and procedures for team work and respecting the personal and professional space of colleagues and superiors	40	60	70%	70%

S. No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
		• Role play on how interact with colleagues and seniors in a polite and professional manner, listen actively to the issues or requirements of colleagues and respond timely and appropriately • Dramatize how to pass on essential information to the colleagues timely and coordinate with seniors on workrelated and behavioural feedback • Role play on how to report the status of work in the desired format as per the schedule to seniors and inform about any deviations or anomalies • Dramatize on how to coordinate and support maintenance/engineering team and environmental health and safety (EHS) team and other department for smooth work process • Role play on how to provide inputs to the concerned stakeholders for reviewing and detect non-compliance				
4.	Carry out housekeeping RSC/N5001, v3.0	• Describe what is housekeeping. • Explain the importance of housekeeping in storage area. • List the cleaning equipment and chemicals used for cleaning process. • Identify various safety boards/ signs placed on the shop floor. • Discuss the importance of adequate ventilation during cleaning work. • Discuss the importance of monitoring and supervising the cleaning activities. • Describe what is '5S.' • Define each 'S' and its meaning. • Discuss the necessary precautions to avoid any hazard and accident during cleaning activities. • Discuss the documents and records needed to be maintained and updated related to cleaning activities done. • Demonstrate how to inspect the area for cleaning purpose. • Apply appropriate ways to check the working condition of cleaning equipment. • Demonstrate the cleaning process of creel room area and equipment with the specified cleaning aid and chemicals. • Prepare a sample report related to issues occur during cleaning activities and for requirement of any additional cleaning at workarea. • Apply appropriate ways to check that workarea is cleaned properly after completion of cleaning activities.	40	60	70%	70%

S. No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
		• Show how to return back the cleaning equipment and material to store after completion of work. • Show how to dispose the waste material properly as per the organisation's policies and environmental regulations.				
5.	Carry out healthand safety RSC/N5007, v3.0	• Explain the health and safety requirements in storage facility. • Discuss organisational procedures for health, safety and security and individual role and responsibilities related to the same. • Describe the ill-effects of improper storage conditions in storage area. • List the safety arrangement available in storage area. • Outline the requirements of Personal Protective Equipment (PPE) during storage operations. • State details of common injuries which can occur while working in a storage area. • Recall the constituents of a first aid box used in industry. • Demonstrate the use of the given Personal Protective Equipment (PPE). • Demonstrate how to handle fire emergencies through a role play. • Demonstrate how to use a multi-purpose fire extinguisher on simulated fire. • Select the fire extinguisher from the given fire extinguishers, for the specified fire type and class. • Demonstrate first aid procedure for a given injury.	30	70	70%	70%
6.	Follow ethical and sustainable practices atthe workplace RSC/N5603, v1.0	• Discuss organisational policies for usage of alternate energy source, such as solar energy, for the site. • Discuss the importance of efficient utilisation of fuels, material, water and energy/ electricity. • Explain the processes to optimize usage of fuels, material, water and energy/ electricity. • Enlist common practices for conserving electricity at workplace. • Discuss the significance of greening. • Classify different categories of waste for the purpose of segregation. • Differentiate between hazardous, recyclable and non-recyclable waste. • Discuss various methods of waste collection and disposal. • Discuss the importance of completing tasks on time. • Discuss the ways to adjust the communication styles to reflect sensitivity towards gender and persons with disability (PwD). • Discuss gender-based concepts, issues and legislation as well organization standards, guidelines,	40	60	70%	70%

S. No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
		rights and duties of PwD. • Discuss the importance of PwD and gender sensitization. • State the importance of following organizational standards and guidelines related to PwD. • Employ practices for efficient utilization of fuels, material, water and energy/ electricity. • Apply appropriate ways to prevent soil erosion during plantation and other related activities. • Demonstrate proper waste collection and disposal mechanism depending upon types of waste. • Apply appropriate ways to organise storage of recyclable and reusable material at identified location. • Employ different means and methods of communication depending upon the requirement to interact with the team members. • Demonstrate how to communicate with different genders and persons with disability (PwD) in a sensitive manner. • Role play a situation on how to offer help to people with disability (PwD) if required at work.				
	Total Marking		**190**	**310**		

Glossary

Term	Description
Sector	Sector is a conglomeration of different business operations
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 organization.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.

Acronyms

Acronym	Description
NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Annexure 1: Tools and Equipment

List of Tools and Equipment

The tools and equipment required are:

S. No.	Tool / Equipment Name	Specification (as per batch of 30 trainees)
1	Unfinished cured tyre/rubber products, Trimming and Buffing Machine	3
2	Safety Goggle, Safety Shoes, Safety Gloves, Safety Helmet , Mask, Earmuff, First Aid Box, Fire Extinguisher	10

Classroom Aids

The aids required to conduct sessions in the classroom are:

1 Projector
2 Computer/laptops
3 Internet connectivity
4 Whiteboard

Annexure 2: Assessment Strategy

This section includes the processes involved in identifying, gathering and interpreting information to evaluate the learner on the required competencies of the program.

Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SDSM/SIP or email
- Assessment agencies send the assessment confirmation to VTP/TC looping SSC
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- SSC monitors the assessment process & records
- If the batch size is more than 30, then there should be 2 Assessors.

Testing Environment: Assessor must:

- Confirm that the centre is available at the same address as mentioned on SDMS or SIP
- Check the duration of the training.
- Check the Assessment Start and End time to be as 10 a.m. and 5 p.m.
- Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
- Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
- Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
- Check the availability of the Lab Equipment for the particular Job Role.

Assessment Quality Assurance levels / Framework:

- Question papers created by the Subject Matter Experts (SME)
- Question papers created by the SME should be verified by the other subject Matter Experts along with the approval required from SSC
- Questions are mapped with NOS and PC
- Question papers are prepared considering that level 1 to 3 is for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management Apprenticeship Curriculum: NAPS Jr. Machine Operator – CNC Milling of Plastic Page 20 of 14
- Assessor must be ToA certified
- Assessment agency must follow the assessment guidelines to conduct the assessment

Types of evidence or evidence-gathering protocol:

- Time-stamped & geotagged reporting of the assessor from assessment location
- Centre photographs with signboards and scheme specific branding
- Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
- Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos.

Method of verification or validation:

- Surprise visit to the assessment location
- Random audit of the batch
- Random audit of any candidate

Method for assessment documentation, archiving, and access

- Hard copies of the documents are stored
- Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage and are stored in the Hard Drive

On the Job:

1. Assessment for on the job training to be conducted by the industry partner on the practical competency output defined in the NOS/QP and the assessment criteria.
2. The candidate must score 70% in each module to complete the OJT.
3. Tools of Assessment that can be used are:
   a. Videos of Trainees during OJT should be shared by employer to RCPSDC.
4. Assessment will ensure that the apprentice will be able to:
   a. Work effectively and efficiently as per schedules and timelines while complying with the health and hygiene norms.
   b. Implement safety practices.
   c. Optimize the use of resources to ensure less wastage and maximum conservation.
   d. Communicate effectively and develop interpersonal skills.